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## Transformation of the Development Processes of Transboundary Territories of the Far Eastern Arctic and Mechanisms of Their Regulation: The Role of Critical Infrastructure

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**Abstract.** In this article, on the basis of conceptual approaches derived from research in the field of theories of spatial economy and infrastructure, the problems of naturally occurring significant changes in the processes of development of natural-economic formations formed in the geostrategic territories of the North-Arctic part of the Far East, representing at the same time the eastern part of the Arctic zone of the Russian Federation (AZRF) are considered. Their transboundary role in the global Arctic basin, as well as at the junction of Russia with the state of Alaska, USA, in the Pacific Arctic, also requires intensification of research in this area, especially at the present stage of the well-known difficulties in international cooperation between our country and the United States. All this requires focusing the attention of specialists on the study of these processes, as well as on the closely related issues of the necessity to adjust the methods and mechanisms of state-regional regulation of the development of these economic entities. In the near future, the regulatory tools used should ensure the transition of these territories from the micro-level of primary, mainly raw material, spatial-economic formations to a new stage, to a higher meso-level of industrial development of economic complexes. As studies show, this transition will occur on the basis of advanced creation of a system-organized critical infrastructure, its main elements, which, due to their new spatial configuration, will provide the necessary conditions for this transition and give the opportunity to maximize the use of exogenous factors and emergent effects of the development of economic entities.

**Keywords:** *transboundary territory, the Far Eastern Arctic, the Arctic zone of the Russian Federation (AZRF), critical infrastructure, trunk infrastructure, state regulation, North-Eastern mesoregion*

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### *Introduction*

The development of geostrategic territories of the North Arctic part of the Far East is currently associated with serious transformations in the formation of their spatial and economic

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structures and infrastructures. In the infrastructure support for the formation of economic entities, first of all, the role of critical infrastructure elements, especially its main components, increases significantly. This is caused mainly by the processes of formation of a new economic structure and the transition of their economic systems from primary raw material industrial production specialization to the level of more industrially developed forms. Here, to assess the influence of infrastructure, in particular its external, exogenous, backbone elements, on the final efficiency of emerging economic entities, it is necessary to use non-traditional approaches established in the “mainstream” economy according to a certain “sectoral” principle of direct assessment of “costs — results”, and system-evolutionary approaches arising from the postulates of synergetics and their application in the newly developing direction of economic analysis — system economics.

In addition, the emerging transformations in the processes of development of economic entities in the North Arctic sector of the Far East are also associated with increased requirements for their socio-economic sustainability as the border territories of the country, representing its geostrategic “outpost” in the Pacific Arctic zone at the junction with such a country like the United States, which is currently pursuing an unfriendly policy towards Russia and is practically leading various anti-Russian actions and sanctions in the world.

Such transboundary spatial and economic formations at the junction of different states are basically homogeneous, naturally similar territories that do not have large internal differences. But significant differences can form between them in other main regional-forming characteristics: population density, socio-economic development, per capita income, etc., which depends on belonging to one or another country. If there are significant gaps in these indicators, serious problems may arise in organizing cross-border cooperation.

This entire complex of problems and issues is discussed in this article on the basis of the research conducted.

### ***Conceptual approaches to research***

The study uses conceptual approaches derived from theories of spatial economics and infrastructure. To date, there are no standard and clear definitions of not only the concept of spatial economics as a science, but also the term “infrastructure”, arising from some more or less complete theory and model of economic processes. However, the completeness of the model of these processes is still questionable.

As for research in the field of spatial economics, it is believed that this area of science is more integrated and better reflects the real processes of spatial development of the entire society in comparison with its competing traditional regional economy. The subject of spatial economics is those economic processes that occur not only in regions and their systems, but also in all spatial forms in the natural resource and environmental spheres and the closely related economic and social activities of individual and society as a whole.

In modern economic literature, which is replete with scientific works devoted to spatial economics as a science, the works of the major Russian scientist A.G. Granberg stand out for their fundamental nature <sup>1</sup> [1, pp. 18–24; 2, pp. 87–107].

The scientific works of P.A. Minakir, who for the first time analyzed and generalized the existing rather disparate concepts in this scientific direction and formulated his own idea of its subject, objects and tools [3; 4, pp. 8–20], are of high scientific significance. The works of other specialists in this field are also of great importance, dozens of publications of which are published, for example, in the fundamental monograph “Modern problems of spatial development” [5].

Based on prevailing opinions in the field of studying problems in spatial economics, the author believes that solutions to these problems should be sought at the intersections of three basic economic disciplines: economic geography, regional economics and household economics, exploring the elements of such important components as nature–man–society in a system of universal planetary co-evolutionary processes that create opportunities for the life of all humanity [6, Krasnopolskiy B.Kh., pp. 147–156]. In this approach, spatial economics also collaborates with research in the field of natural science, which includes the totality of natural sciences taken as a whole, especially astronomy, geography, geology, ecology, biology.

Theoretical approaches to the formation and functioning of such a category of economic systems as infrastructure have long been of interest to both foreign and domestic scientists [7, Jochimsen R.; 8, Buhr W; 9, Carlsson R., Otto A., Hall J.W., pp. 263–273; 10, Gramlich E., pp. 1176–1196; 11, Kuznetsova A.I.; 12, Lantsov A.E., pp. 47–52; 13, Mallaev Kh.N., Avramchikova N.T., pp. 39–46, etc.]. Most of the literature in this area shows that methodological approaches to the study of such a phenomenon as infrastructure are based mainly on the perception of it as a certain specific, but generally “industry” type of activity and on assessing its role in the growth of economic efficiency of a region according to the direct principle of assessing the “cost–results” of its constituent industries. Such assessments are, of course, applicable and play their role. But in our opinion, they are not sufficiently scientifically substantiated and promising.

As for the concept of infrastructural analysis of natural and economic formations, which the author of this article adheres to, it is based on his scientific views presented in various publications, for example [14, Krasnopolskiy B.Kh.]. Research on the phenomenon of infrastructure, according to the author, should be carried out on the methodological basis of such a relatively new direction of economic science as system-evolutionary economics, which arose on the basis of the postulates of modern natural science [15, Nelson R.R., Winter N.J.; 16, Kleiner G.B.; 17, Kleiner G.B., Rybachuk M.A. et al.]. We also believe that scientifically based methods of truly systemic regulation of various ranks of economic entities based on the creation and maintenance of the functioning of their infrastructure subsystems should be associated with such a scientific direction

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<sup>1</sup> Granberg A.G. Prostranstvennaya ekonomika v sisteme nauk: Doklad na Pervom rossiyskom ekonomicheskom kongresse (7-12 dekabrya 2009 g.) [Spatial economics in the system of sciences: Report at the First Russian Economic Congress (December 7-12, 2009)]. Moscow, 2009.

as synergetics [18, Haken G.; 19, Prigozhin I., Stengers I.; 20, Zang W.-B. et al.]. This scientific discipline studies the processes that are closely related to such concepts as chaos (disorder) and stability (order), as well as with two opposing but complementary models of systems organization: hierarchical and heterarchical. In this case, there is a certain pattern in the implementation of these processes, where internal (endogenous) and external (exogenous, backbone) elements of infrastructure realize states of order and chaos in the development of systems<sup>2</sup>.

Understanding the role of infrastructure with this conceptual approach is closely related to such an indicator of systems development as “self-organization”, which should be implemented practically throughout the entire life cycle of a dynamic system. The need for constant self-regulation of the processes of “survival” of the current system is expressed in the formation of its infrastructure, the external elements of which are constantly aimed at “probing” future options for its development, adapting the system and its main elements to new operating conditions and creating opportunities for future development. In critical cases, when approaching the bifurcation point, it is this element of the infrastructure that first of all signals the emergence of crisis situations that can lead it to stagnation [21, Krasnopolsky B.Kh., pp. 353–368].

The territories considered in this article with their aquatorial areas are the primary complex element of geosystems, their “original” spatial “cell”, closest to the “earth”, to the surrounding natural environment, and to the potential of natural resources. They include a number of interrelated components, the functioning of which depends on their location, on the ecological features of the area, on its established biogeocenoses and their natural and environmental sustainability, on the mentality of the indigenous population and their attachment to the given territory, as well as on the combination of historical experience and economic activity in the arrangement of their own habitat.

As for cross-border economic entities, the category of which also includes the regions under study, it is known from practice that sometimes uncontrollable processes of divergence take place, expressed in significant differences, primarily in the levels of socio-economic development of the regions. This leads to increasing differentiation of the economic space in the transborder zone, to the accumulation of interregional gaps in the general levels of economic activity, the quality of life in neighboring spatial formations and, ultimately, to various kinds of contradictions and conflicts.

Many studies are devoted to these problems [22, Kuznetsov A.V., Kuznetsov O.V., pp. 58–72; 23, Prokopyev E.A., Kurilo A.E., pp. 3–14; 24, Kolosov V.A., Zotova M.V., Sebentsov A.B., pp. 8–20; 25, Skufina T.P., Mitroshina M.N., pp. 87–112, etc.].

The main fundamental conclusion from these works is that in the spatial and economic areas of border countries, which are usually close in their natural geographic location, there may be

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<sup>2</sup> Internal elements of the infrastructure are responsible for creating and maintaining order in the system, external elements are responsible for its openness, which is associated with the introduction of a certain portion of chaos from the exogenous level. This forces the system under consideration to constantly improve the mechanisms of self-organization and adaptation to changing internal and external conditions.

significant gaps between their natural homogeneity and socio-economic heterogeneity, which depends on the characteristics and capabilities of their development in each of the cross-border countries. The various socio-economic disproportions that arise in the development of the border regions of each country and neighboring countries should be identified at an early stage and, if they lead to significant divergence and differentiation, then measures should be immediately taken to adjust the existing methods and mechanisms for regulating and overcoming these differences and reducing them to a minimum.

### Objects of research

The objects of study are the territories of the Arctic zone of the Russian Federation (AZRF), in particular its Far Eastern sector, which, according to the Russian classification of this zone, includes the administrative regions of the Chukotka Autonomous Okrug and the thirteen North Arctic uluses of the Republic of Sakha (Yakutia) and the waters of the exclusive economic zones surrounding these territories of the seas.

Besides, due to the discussion of issues of transboundary interaction of this region in the Pacific sector of the world Arctic, the object of study is the state of Alaska, USA, with its water zones. The Chukotka Autonomous Okrug, which is part of the Far Eastern Arctic sector, is also a region of Russia directly adjacent to this state in the Pacific Arctic sector across the Bering Strait (see Fig. 1).



Fig. 1. Map of the Pacific Arctic sector (the Bering Strait region is in the square)<sup>3</sup>.

The state of Alaska occupies a special place in US geostrategy in the Arctic. As it is known, US President Joe Biden on October 7, 2022 approved a new US strategy for the Arctic region, de-

<sup>3</sup> Source: [26].

signed for 2022–2032 — “National Strategy for the Arctic Region”<sup>4</sup>. One of the recently published foreign scientific works on this subject states the following: “Alaska occupies a central place in the Biden administration, which plans to increase its influence in the Arctic to ensure national security, coordinating common approaches with North Pole partners”<sup>5</sup>, and another: “The new Arctic strategy released on Friday by the White House recognizes big changes in the region over the past decade — the rise of military threats posed by Russia, the largest Arctic country”<sup>6</sup>. For us, this speaks volumes, in particular, about the growing role of the trans-border Far Eastern territories of the Russian Arctic in ensuring the geopolitical security of our country.

In general, the transboundary zone of the Far Eastern and Pacific Arctic in the entire global Arctic basin occupies approximately 1/6 of its part. This entire sector of the global Arctic with its Far Eastern and Pacific territories represents a contact zone between the Eurasian and North American continents at the junction of two oceans — the Arctic and the Pacific. In this sector, as in almost any trans-border zone, both centripetal forces, dictated by its closely interconnected geo-structural natural features, and centrifugal forces, dependent on state-administrative borders and the geopolitics of neighboring countries, are constantly and simultaneously operating.

As for our national Arctic zone, the development of more complete reproductive cycles and chains for deep processing of extracted natural resources at the level of higher technological stages and obtaining added value is extremely expensive and economically unprofitable. This applies to the greatest extent to the East Eurasian part of the Russian Arctic, since in the European part of the Arctic, transboundary territories are (due to a number of historical reasons) socio-economically more developed compared to its eastern part. Almost this entire zone, including areas of the Far Eastern Arctic, is a territory with weak infrastructural links connecting individual centers of industrial and production development around localized natural and economic centers. Here, in contrast to fairly developed territorial-production complexes that have ample opportunities for organizing reproductive processes, these centers are characterized mainly by a narrow specialization in the extraction of local natural resources concentrated in their depths and surrounding space, the development of which causes the formation of “truncated” in its structure natural-economic formations.

The first step in overcoming this situation should be a significant increase in the infrastructure provision of the regions, primarily with elements of critical infrastructure, which, by the most general definition, includes economic and defense facilities, networks, services and systems, the failure of which will affect security and life support and the well-being of the country’s citizens. In a more specific form, its composition is determined by the area that is being considered in this

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<sup>4</sup> Lukin Yu.F. Arkticheskie strategii SShA: i ne drug, i ne vrag, a tak... [US Arctic strategies: neither friend nor foe, just...]. URL: <http://www.arcticandnorth.ru/upload/medialibrary/293/> (accessed 11 February 2023).

<sup>5</sup> The Role of Alaska in U.S. Arctic Strategy (2022). URL: <https://warsawinstitute.org/role-alaska-u-s-arctic-strategy/> (accessed 11 February 2023).

<sup>6</sup> White House Arctic strategy puts new emphasis on national defense and threats posed by Russia (2022). URL: <https://alaskabeacon.com/briefs/white-house-arctic-strategy-puts-new-emphasis-on-national-defense-and-threats-posed-by-russia/> (accessed 11 February 2023).

case. Regarding the spatial development of our country, there is its own classification of critical infrastructure [27].

In our study of the North Arctic territories of the Far Eastern macroregion, leaving aside the types of critical infrastructure in the purely defense sector, which are not discussed in this article, we will consider such classical for the formation and development of spatial economic entities types of activities as transport and energy supply with their communication functions, as well as social infrastructure. The need to include these infrastructure components is related to the current and future situation in the development of both the entire Far East and its North Arctic territories and waters. Communication infrastructure will significantly increase the possibilities of access to local resources along reproduction chains from places of their extraction to places of sale, and developed social infrastructure will significantly increase the social and labor sustainability of territories.

### ***Discussion and results***

When talking about the Far Eastern Arctic sector, we focus on its transboundary location. These territories, according to the classification, are geostrategic; according to the relevant government decree, they include regions with an exclave position that are part of the Russian Arctic, as well as those located in the North Caucasus, the Far East and bordering countries that are part of the European and Eurasian economic unions.

It should be noted that the Arctic region of the Far East (Far Eastern Arctic), bordering the state of Alaska, USA, is simultaneously included in two state geostrategic zones of Russia: as part of the Far East and as an eastern “outpost” of the Russian Arctic. This region, the most remote border “corner” of our country both in its Arctic zone and on the Northern Sea Route (Northern Sea Route), is now in the most difficult situation in terms of its sustainable socio-economic development. In addition, in relation to this region, there are some risks in ensuring the geopolitical security of the country in the Beringian zone due to its close proximity to Alaska.

Let us emphasize once again that we are not talking about the military-political confrontation between Russia and the United States. In our case, we are talking about the sustainability of the socio-economic development of the region in the transboundary zone, which to a certain extent is connected, as world and domestic practice shows, with the creation of more or less comparable socio-economic conditions in comparison with the territories of neighboring countries. For example, one of the studies on this topic emphasizes: “An important feature of Russian federal policy towards border regions is the regulation of their socio-economic development based not so much on considerations of economic feasibility, but on ensuring territorial integrity and national security” [22, Kuznetsov A.V., Kuznetsova O.V., p. 65].

Infrastructural analysis of the development of the territories of the Far Eastern Arctic leads to the perception of this zone as a single, newly emerging spatial and economic entity. This conclusion is confirmed primarily by the systemic role of infrastructure, as well as the geographical

features of this zone and the entire history of its economic development, including the activities of indigenous peoples, the development of the mineral resource base and the processes of its development and settlement of newcomers, the influence of the Northern Sea Route and the action of other factors. The integration processes of the North Arctic territories of Yakutia and Chukotka demonstrate the growing mutual influence of external, main elements <sup>7</sup> of both the transport and energy infrastructure of both regional entities, which indicates the gradual formation under the influence of these processes of a closely interconnected high-latitude spatial-economic entity. The main purpose of these main elements is to prevent the possible “sliding” of economic entities towards processes of “stagnation”, to an increase in autarky in their development and “looping” at the stages of primary development of natural resources, which turns them into an eternal raw material appendage of the country’s national economy.

The government decisions create promising opportunities for their more comprehensive and sustainable development, but these changes are associated mainly with their sectors of industrial specialization and technical and technological infrastructure support, i.e., internal elements of infrastructure. In particular, these documents proposed the creation of several priority development territories (TAD) and eight supporting economic zones, which were scheduled for creation in one of the early editions of the Program for the socio-economic development of the Arctic zone <sup>8</sup>. The formation of mineral resource centers was planned as a priority project for most of these support zones as their industrial specialization. As for the Far Eastern Arctic, they include the seventh (North Yakutsk) and the eighth (Chukotka) support economic zones.

An important role at the present stage of development of these territories is played by the “Strategy for the development of the Arctic zone of the Russian Federation and ensuring national security for the period up to 2035” approved by the Decree of the President of the Russian Federation in 2020 with its adjustment based on the Decrees of 2021 and 2023 <sup>9</sup>. It presents a broad program of development directions for the Chukotka Autonomous Okrug and the Republic of Sakha (Yakutia).

As for Chukotka, these areas include:

- development of the seaport of Pevek and its terminals;
- creation of a transport and logistics hub in the deep-water, year-round seaport of Provideniya;

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<sup>7</sup> When we speak here in the language of spatial economics about the main elements of the infrastructure of any spatial economic entities, then in the language of administrative management of the entire hierarchical “pyramid” of these entities we need to understand that we are talking about sectors of the infrastructure of federal subordination.

<sup>8</sup> Opornye zony razvitiya sostavyat osnovu gosprogrammy po Arktike, 7 sentyabrya 2017 [Support zones for development will form the basis of the state program for the Arctic, September 7, 2017]. URL: <https://tass.ru/ekonomika/4543491> (accessed 12 April 2023).

<sup>9</sup> Strategiya razvitiya Arkticheskoy zony Rossiyskoy Federatsii i obespecheniya natsional'noy bezopasnosti na period do 2035 goda. Utverzhdena Ukazom Prezidenta RF ot 26.10.2020 g. № 645 v redaktsii ukazov Prezidenta ot 12.11.2021 № 651 i ot 27.02.2023 № 126 [Strategy for Developing the Russian Arctic Zone and Ensuring National Security until 2035. Approved by Decree of the President of the Russian Federation dated October 26, 2020, No. 645 as amended by Presidential Decrees dated November 12, 2021, No. 651 and dated February 27, 2023 No. 126]. URL: <http://pravo.gov.ru/proxy/ips/?docbody=&firstDoc=1&lastDoc=1&nd=102888023> (accessed 15 April 2023).

- modernization of the Chaun-Bilibino energy hub in the west of Chukotka, bordering Yakutia, on the basis of a floating nuclear power plant (FNPP) in the city of Pevek;
- joining the unified telecommunications network of the Russian Federation by creating an underwater fiber-optic communication line Petropavlovsk-Kamchatskiy – Anadyr;
- development of the Baim ore zone and the Pyrkakaysko-Mai mineral resource center in the Chaun-Bilibino industrial complex bordering Yakutia, including the gold-bearing porphyry copper deposit “Peschanka”, the largest world-class copper deposit in the north-east of Russia;
- formation of the Beringovskiy priority development territory — development of deposits in the Amaam and Verkhne-Alkatvaam areas of the Bering coal basin, focused on the export of high-quality coal to the countries of the Asia-Pacific region;
- construction of a year-round terminal in the deep-sea Arinay lagoon, etc.

It is worth noting that in terms of creating elements of the main critical transport infrastructure, the first step has been taken and the construction of the Kolyma–Omsukchan–Omolon–Anadyr interregional highway is planned, which will connect the Magadan region with Chukotka.

This project shows that the turn to the active creation of an infrastructure backbone “framework” not only in the Arctic territories, but also in the territories connecting them with the “sub-Arctic” regions of the Northeast has already begun, as will be discussed below.

The main directions of implementation of the Strategy in the North Arctic municipalities of the Republic of Sakha (Yakutia) are:

- dredging of the Anabar, Lena, Yana, Indigirka and Kolyma rivers;
- comprehensive development of the regions of the Anabar and Lena basins, including the world’s largest Tomtor deposit of rare earth metals, alluvial diamond deposits in the territories of the Anabar, Bulun, Olenek districts, the Verkhne-Munskoe diamond deposit, the Taymyl’skoe coal deposit, the West Anabarskoe oil mineral resource center;
- comprehensive development of the Tiksi village, including the development of dual-use infrastructure and the reconstruction of the Tiksi seaport and its terminals;
- comprehensive development of territories located in the Yana River basin, providing for the construction of energy and transport infrastructure facilities, development of the mineral resource base of solid minerals in the Yana basin, including the Kyuchus gold deposit<sup>10</sup>, the Prognos silver deposit, the Deputatskoe tin deposit and the Tirekhtyakh tin deposit; comprehensive development of territories located in the Indigirka River basin, ensuring their energy security and diversifying the economy through the develop-

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<sup>10</sup> Kyuchus cluster of solid mineral deposits using electricity from a low-power nuclear power plant based on two RITM-200N reactor units. The project is closely related to the development of the Northern Sea Route. The volume of transportation along the NSR should exceed 100 million tons in 3 years, and by 2030 - 200 million tons. See: The Kyuchus industrial cluster project may receive TAD status. URL: <https://www.sakha.gov.ru/news/front/view/id/3336211> (accessed 11 March 2023).

ment of the Krasnorechenskoe coal deposit and organizing the production of building materials; comprehensive development of territories located in the Kolyma River basin, providing for the modernization of the river port of Cape Verde and the development of the Zyryanskiy coal mineral and raw materials center<sup>11</sup> at the junction with the territory of Chukotka;

- construction of the Zhatai shipyard, construction of river vessels of various types and purposes, including the “river-sea” class to provide coastal transportation throughout the Arctic zone between Yakutia and Chukotka, etc.

As for the transboundary Pacific sector of the global Arctic, we justified and proposed in 2019 at the official level the creation of a joint interstate/interregional organization between the Far Eastern North Arctic territories and the state of Alaska, USA, namely the Bering/Pacific Arctic Council Region (BPAC), which was to operate under the auspices of the Arctic Council and in close cooperation with the Barents/Euro-Arctic Council (BEAC). This proposal was supported by the International Council on US-Russia Relations, and a Working Group was established to implement it, consisting of a representative of Alaska, Mr. Paul Foose, Honorary Chairman of the State Marine Exchange, and the author of this article, a representative of Russia (see Fig. 2).

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<sup>11</sup> Strategiya razvitiya Arkticheskoy zony Rossiyskoy Federatsii i obespecheniya natsional'noy bezopasnosti na period do 2035 goda. Utverzhdena Ukazom Prezidenta RF ot 26.10.2020 g. № 645 v redaktsii ukazov Prezidenta ot 12.11.2021 № 651 i ot 27.02.2023 № 126 [Strategy for Developing the Russian Arctic Zone and Ensuring National Security until 2035. Approved by Decree of the President of the Russian Federation dated October 26, 2020, No. 645 as amended by Presidential Decrees dated November 12, 2021 No. 651 and dated February 27, 2023 No. 126]. URL: <http://pravo.gov.ru/proxy/ips/?docbody=&firstDoc=1&lastDoc=1&nd=102888023> (accessed 15 April 2023).

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## Council for U.S.-Russia Relations Совет по отношениям «США-Россия»

August 9, 2019

*On the initiative establishing a "Bering Pacific Arctic Council" Working Group:*

At the 24<sup>th</sup> annual meeting of the Russian American Pacific Partnership (RAPP) in Khabarovsk, Russia June 26-27, 2019, a proposal was made at the "North Pacific and Arctic Cooperation" panel for the creation of a bi-national Russia and United States Bering Pacific Arctic Council (BPAC), modeled on the precedent of the Barents Euro-Arctic Council (BEAC) and Barents Regional Council (BRC), each established in 1993.

RAPP supported this proposal proposing that a volunteer Working Group be established outside of RAPP to advance the BPAC initiative, but reporting periodically to the RAPP forum. RAPP agreed to provide the Working Group reasonable assistance within its capacities to the Working Group. Two volunteer co-chairs were identified to lead the initiative Working Group: Paul Fuhs, President Emeritus of the Marine Exchange of Alaska and Professor Boris Krasnopolski, Senior Economist of the Far Eastern Branch of the Economic Research Institute, Russian Academy of Sciences. Numerous RAPP meeting attendees agreed to participate in the Working Group, however the Working Group seeks to be inclusive of additional members beyond meeting attendees wanting to participate in the Working Group and contribute in the BPAC initiative.

The purpose of the Working Group is to formulate the structure of the Council, to draft a Declaration defining the purpose and purview of the Council factoring the range of interests of parties in the national, regional and local governments, organizations and businesses in the defined geography of the BPAC in the Russian Far East and Alaska. Once these draft documents are finalized, a Council founding meeting date and place is to be determined.

The national governments hold important legal and regulatory powers over the lands and oceans of the Council's geographical focus, however, like the BEAC and the BRC, the BPAC also seeks the active participation of regional and local community and business entities in the Working Group, in defining the Council structure and purpose, and later in determining the agenda and implementation strategies of the Council. Such a collective and broadly inclusive approach is supported by RAPP and the Working Group co-chairs.

I ask for your cooperation and assistance to this important Working Group initiative. If you would like to participate in the Bering Pacific Arctic Council (BPAC) Working Group, please contact Paul Fuhs: [Paulfuhs@earthlink.net](mailto:Paulfuhs@earthlink.net) and/or Boris Krasnopolski: [boriskrasno@gmail.com](mailto:boriskrasno@gmail.com)

Sincerely,

Derek Norberg  
Executive Director RAPP  
President Council for US-Russia Relations

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Fig. 2. Order of the Executive Director of the Russian-American Pacific Partnership (RAPP), President of the Council on US-Russia Relations Derek Norberg on the organization of a Working Group to study the issue of creating the Bering Pacific Arctic Council (BPAC).

The working group prepared the necessary materials on this issue during the year, which were developed in close accordance with the issued decree of the Russian government on the Concept of Cross-Border Cooperation<sup>12</sup> and discussed in various expert communities in both

<sup>12</sup> Rasporyazhenie Pravitel'stva RF ot 7 oktyabrya 2020 g. № 2577-r «O Kontseptsii prigranichnogo sotrudnichestva v RF» [Order of the Government of the Russian Federation of October 7, 2020 No. 2577-r "On the Concept of cross-

countries. This made it possible to bring these proposals to the government level during the Russian Chairmanship of the Arctic Council. In particular, the Minister of Foreign Affairs of the Russian Federation S. Lavrov, speaking at a meeting of the Council of Heads of Subjects of the Russian Federation on June 15, 2021, stated that Moscow is open to the development of interregional cooperation with the United States, and is also interested in creating new regional structures to work on the Pacific dialogue with Washington. The conversation was specifically about the Bering/Pacific-Arctic Council and strengthening our relations within the framework of the Russian-American Pacific Partnership (RAPP). S. Lavrov emphasized: “We are interested in creating new regional structures, including the Bering/Pacific-Arctic Council, which involves the participation of a number of Russian Arctic entities and Alaska. So far, our American partners are thinking about this proposal”<sup>13</sup>.

On the American side, these proposals had their supporters — groups of scientists and specialists from the state of Alaska, as well as US representatives in the Council on US-Russia Relations. One can give an example of a relatively recent publication in the American scientific press by such a well-known scientist in the field of Arctic issues as Betsy Baker, a specialist in the field of international diplomacy with 25 years of experience, living in Alaska, an employee of the Wilson Center of the Polar Institute, director of the Research Department North Pacific Research Board, Alaska Marine Science Center. In her article, she refers to proposals prepared by the Working Group of the Russian-American Pacific Partnership (RAPP) for the creation of the Bering/Pacific-Arctic Council (BPAC), and characterizes this initiative very positively [28, Baker B., p. 1–27].

But at present, as noted above, these positive developments in relations between these countries are practically reduced to zero precisely on the part of the United States [29, Lukin Yu.F., pp. 249–271; 30, Zhuravel V.P., pp. 105–124]. This causes serious damage, first of all, to the solution of natural and environmental problems in such a “corner of the world” as the Pacific sector of the world Arctic, and also sharply reduces its role as the future largest transport and logistics natural channel on the Arctic sea communications of the Russian Northern Sea Route and the Northwest Passage (NWP) along the coast of Canada, which would allow it to become a serious competitor, for example, to the Suez Canal for connections between Asian countries and Europe.

The state of Alaska, USA, despite its more mature and large-scale forms of spatial and economic development, compared to the regions of the Far Eastern Arctic, can also be classified as primary raw material natural and economic formations, since the basis of its economy is also predominantly initial forms production specialization, such as hydrocarbon production in the Arctic zone, development of solid mineral deposits and fishing. That is, in the transboundary Bering zone under consideration, all its areas belong to the category of raw materials natural and economic complexes. In these transboundary territories, over the course of many years, significant differ-

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border cooperation in the Russian Federation”]. URL: <https://www.garant.ru/products/ipo/prime/doc/74639793/> (accessed 20 February 2023).

<sup>13</sup> Lavrov: Rossiya gotova razrabatyvat' novye formaty dialoga s SShA [Lavrov: Russia is ready to develop new formats of dialogue with the United States]. URL: <https://tass.ru/politika/11650987> (accessed 20 February 2023).

ences have accumulated between their natural homogeneity, which has its origins in the early forms of existence of the so-called “Beringia”<sup>14</sup>, and socio-economic heterogeneity, which is associated with the possibilities of their development in each of the transboundary countries. Unfortunately, in terms of socio-economic development, the state of Alaska is significantly superior to the regions of the Far Eastern Arctic (see Table 2 below). Such a “distortion” due to various reasons, of course, is created in many countries, but in border areas, in our opinion, it should be kept to a minimum.

In these processes, public administration and the entire system of interconnected government documents on strategic planning play a significant role. This system is based on the federal law “On strategic planning in the Russian Federation”<sup>15</sup>. Significant additions to the strategic planning system were made in June 2022 by a special Order of the Government of the Russian Federation<sup>16</sup>. It particularly notes the importance and necessity of developing and approving development strategies for macroregions and their constituent regions located in priority geostrategic territories. In this case, it is particularly emphasized that in order to solve this problem, the implementation of the national development program for the Far East for the period until 2025 and for the future until 2035 is of great importance, since the vast majority of its regions are border ones<sup>17</sup>.

The need to develop and approve a set of measures for the socio-economic development of support settlements (SS) and their social infrastructure in the geostrategic regions of the Russian Arctic and the development and approval of criteria for classifying settlements as SS was also emphasized. A scientific and applied work has recently been prepared on these issues, which makes a significant contribution to solving the problems of forming SS in the Russian Arctic<sup>18</sup>.

In this work, the main criteria and functions of the emerging SSs were ensuring external and internal security and increasing the level of development of social infrastructure facilities, corresponding not only to standard norms, but also reflecting the specific characteristics of each settlement. In general, in the territories of the Republic of Sakha (Yakutia) and the Chukotka Auton-

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<sup>14</sup> Beringia is a paleo-bio-geographical province that connected northeast Asia and northwestern North America (the Beringian sector of the Holarctic) in the Quaternary period, during global glaciations. Currently spreading to the areas surrounding the Bering Strait, Chukchi and Bering Seas. Includes part of Yakutia, Chukotka and Kamchatka in Russia, as well as Alaska in the USA. In a historical context, it also included the Bering land or Beringian Isthmus, which repeatedly connected Eurasia and North America into a single supercontinent. URL: <https://ru.wikipedia.org/wiki/Берингия> (accessed 17 March 2023).

<sup>15</sup> Federal'nyy zakon ot 28.06.2014 N 172-FZ (red. ot 31.07.2020) "O strategicheskom planirovanii v Rossiyskoy Federatsii" [Federal Law of June 28, 2014 N 172-FZ (as amended on July 31, 2020) “On Strategic Planning in the Russian Federation”]. URL: [https://www.consultant.ru/document/cons\\_doc\\_LAW\\_164841/](https://www.consultant.ru/document/cons_doc_LAW_164841/) (accessed 17 February 2023).

<sup>16</sup> Rasporyazhenie Pravitel'stva RF ot 25.06.2022 N 1704-r «O vnesenii izmeneniy v rasporyazhenie Pravitel'stva RF ot 13.02.2019 N 207-r» [Order of the Government of the Russian Federation dated June 25, 2022 N 1704-r “On introducing amendments to the order of the Government of the Russian Federation dated February 13, 2019 N 207-r”]. URL: [http://www.consultant.ru/document/cons\\_doc\\_LAW\\_420383/25ab2a7d8fd7d8dcde11c233997f6517915bfbaf/](http://www.consultant.ru/document/cons_doc_LAW_420383/25ab2a7d8fd7d8dcde11c233997f6517915bfbaf/) (accessed 18 February 2023).

<sup>17</sup> Ibid.

<sup>18</sup> Opornye naselennye punkty Rossiyskoy Arktiki: materialy predvaritel'nogo issledovaniya [Supporting settlements of the Russian Arctic: materials of preliminary research]. URL: <https://arctic-russia.ru/article/opornye-naselennye-punkty-novyy-subekt-prostranstvennogo-razvitiya-arktiki/> (accessed 11 February 2023).

omous Okrug, about two dozen SSs were identified according to these criteria; it quite objectively reflects the tasks set in the above-mentioned government documents.

But here the question arises: are these assessments at the municipal level sufficient to solve problems at higher hierarchical levels of the development of spatial and economic entities in the Russian Arctic, and in particular in the Far Eastern Arctic? The answer to this question: they may be one of the factors of this development, but this is not enough to assess the whole picture of the intensification of economic activity in this zone, which should be supplemented by the study of its related areas at higher levels of management.

In general, such a summary assessment can be presented in the following form: the first stage is an assessment of the development of the SS and the level of development of social infrastructure within the boundaries of the support settlements; the second stage is an assessment of possible economic zones for industrial and raw materials development, taking into account supporting settlements; the third stage — assessment of the core network and spatial configuration of the critical backbone infrastructure (federal subordination); and the fourth stage — the final scheme for the formation of spatial and economic entities of the region, taking into account all previous stages of the assessment. The first two steps have already been completed in the above documents. The main emphasis of the proposed work on the summary assessment should be placed on its third and fourth stages. The resulting final assessment of the scheme of the emerging spatial and economic formations of the Far Eastern Arctic, covering the entire region under study, will continue to be the main object of strategic state-regional regulation and public-private partnership for many years to come.

With regard to the latter two components of the assessment, some considerations arise, also partly derived from the above-mentioned work on the SS of the Russian Arctic<sup>19</sup>. This work draws attention to the fact that when identifying SS in the Arctic zone, it is necessary to take into account the role of base settlements in the “sub-Arctic” territories that are not directly part of the Russian Arctic. In the Far Eastern sector of the Russian Arctic, this applies to both Chukotka and the North Arctic uluses of Yakutia, where the settlements of the Arctic territories of the Magadan Oblast and the central regions of the Republic of Sakha (Yakutia) act as such supporting settlements.

Such close interaction between the regions of the high-latitude Far North and the Near North has developed historically<sup>20</sup>, and it is practically inextricable. In relation to the North Arctic territories of the Far East, a very extraordinary idea arises about the natural existence of a certain Northeastern mesoregion as part of the Far Eastern macroregion (Fig. 3). The zone of this mesore-

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<sup>19</sup> *Ibid*, pp. 113–115.

<sup>20</sup> Here we can recall the “North-Eastern Economic Council” that existed during the USSR, which made a significant contribution to strengthening the territorial management and spatial integration of the Republic of Sakha (Yakutia) and the Magadan region, which then included Chukotka, by creating infrastructure transport (in particular, the highway “Kolyma” between Magadan and Yakutsk) and energy connections between these territories, as well as a unified base for the development of mineral resources and an extensive system of permanent residence centers for labor resources and the population.

gion also includes the Kamchatka Krai, since its role here is significantly increasing. It is of great importance in the development of the transport infrastructure backbone for the Arctic territories — the Northern Sea Route with its base port-hub in Petropavlovsk-Kamchatskiy [31, Krasnopolskiy B.Kh., pp. 233–242].



Fig. 3. North-Eastern mesoregion as part of the Far Eastern macro-region, highlighting its Arctic territories (in purple)<sup>21</sup>

The North-Eastern mesoregion is important in this part of the country for its global economic and organizing role in providing elements of critical infrastructure (transport, energy, basic social facilities) to both the geostrategic territories of Chukotka and Kamchatka in the Pacific Arctic zone (neighborhood with the state of Alaska), and the geostrategic North-Arctic uluses of the Republic of Sakha (Yakutia) (contact zone with the world Arctic basin). The rapid formation of main (federal significance) elements of critical infrastructure here should significantly strengthen the “supporting” socio-economic potential of these immediate border territories of Chukotka, Kamchatka and Yakutia.

Looking at the existing dynamics of growth of the length of the main elements of critical infrastructure, for example, highways in the territories of the North-Eastern mesoregion in 2015–2021, one can see that the above conclusion about the intensification of its creation here is absolutely correct (Table 1).

Table 1  
Change in the length of highways in the Far Eastern macroregion and North-Eastern mesoregion (2015–2021)<sup>22</sup>

Regions of the Far East	Growth of total length		Growth (decrease) in the length of roads according to purpose (km)		
	(km)	(%)	Federal	Regional (inter-settlement)	Settlement
Far Eastern macroregion	5109.4	104.2	1524.6	–322.0	3906.8

<sup>21</sup> Source: Copied from a map in the research work “Modeling the consequences of decisions in the field of public policy for the development of the Far East and the Arctic zone of the Russian Federation”. URL: [https://vostokgosplan.ru/research/?\\_sft\\_research\\_cat=nir](https://vostokgosplan.ru/research/?_sft_research_cat=nir) (accessed 15 March 2023).

<sup>22</sup> Source: Transport. URL: <https://rosstat.gov.ru/statistics/transport> (accessed 11 March 2023).

North-Eastern mesoregion, incl.	2605.0	104.9	7.6	1223.2	1374.1
The Republic of Sakha (Yakutia)	2321.9	108.1	7.6	988.0	1326.2
Kamchatka Krai	164.8	107.8	0.0	-8.0	172.8
Magadan Oblast	17.6	100.7	0.0	138.0	-120.4
Chukotka Autonomous Okrug	100.7	104.7	0.0	105.2	-4.5

The table shows that main (federal) elements of transport infrastructure were not created at all for almost seven years in Kamchatka, Chukotka and the Magadan region, and to a minimal extent — in Yakutia (7.6 km), and even then, mainly in its southern part, without affecting the North-Eastern mesoregion as a whole. The emphasis in road construction was on regional and settlement roads that naturally corresponded to the economic development policy, which was based on the development of local deposits of natural resources in these territories. The Kamchatka Krai was generally deprived of even inter-settlement roads, and the Magadan Oblast was deprived of settlement roads. In the entire Far East, only 1.5 thousand km of main roads were built, no regional roads were built at all, only about 4.0 thousand km of settlement roads. In general, it is clear that during this period, in the entire North-Eastern mesoregion, practically no roads of the main (federal) level were built, the movement of goods through the territory of which in this regard was carried out along temporarily created winter roads, mainly at the expense of regional and business structures.

This situation at the new stage of exploration and development of these territories and the increase in their geostrategic importance cannot be considered normal. Here the role of each of the territories in solving all the problems that arise before them should be significantly strengthened.

The Magadan Oblast will act as a kind of “second echelon”, “supporting” the immediate cross-border territories of Chukotka and Kamchatka with Alaska. By the way, as for the energy supply infrastructure of this territory, the issue of completing the Ust-Srednekanskaya HPP, the full capacity of which is designed to provide electricity for the development of the Baimskaya ore zone in Chukotka, is still acute. The construction of a power line at the Baimskiy MPP would be the beginning of work to eliminate the isolation of the Chukotka energy system from the Central Energy System of Russia and, in addition, could solve the issues of creating an energy reserve. However, the currently implemented supply scheme for the Baimskiy MPP ignores the existing development base in the Magadan Oblast and follows the path of forming a new, rather expensive power supply scheme based on the Northern Sea Route <sup>23</sup>.

<sup>23</sup> Opornye naselennye punkty Rossiyskoy Arktiki: materialy predvaritel'nogo issledovaniya [Supporting settlements of the Russian Arctic: materials of preliminary research]. URL: <https://arctic-russia.ru/article/opornye-naselennye-punkty-novyy-subekt-prostranstvennogo-razvitiya-arktiki/> (accessed 11 February 2023).

The central regions of the Republic of Sakha (Yakutia) in this mesoregion will also serve as the “second echelon” for the North Arctic uluses of Yakutia in the contact zone with the global Arctic. The North-Eastern mesoregion itself will rely on a fairly developed transport and energy supply infrastructure “grid” of communications: in the latitudinal plan — in the southern part on the Kolyma highway from Magadan to Yakutsk and in the Arctic part — on the high-latitude highway planned for construction on the route of the current winter roads along the Arctic coast from Tiksi (Yakutia) to Anadyr (Chukotka), and in the meridional plan — to the network of river communications along the rivers of the region (Anabar, Lena, Yana, Indigirka and Kolyma), which took and should take an even greater part in the development of the North Arctic territories. It is necessary to take a more practical approach to the possibility of building a meridional year-round highway along the route of the current winter road “Arctic” with a length of 1600 km, connecting the central part of the Kolyma highway between Yakutsk and Magadan with remote and inaccessible areas of the north-east of Yakutia and Chukotka up to the Cherskiy settlement<sup>24</sup>. The Arctic route practically crosses the entire central part of the North-Eastern mesoregion from south to north and is a “core” mainline infrastructure element in latitudinal terms. It was said above that in the Development Strategy of the Russian Arctic up to 2035, the construction of the interregional highway Kolyma — Omsukchan — Omolon — Anadyr was determined, which, connecting the Magadan Oblast with Chukotka, will also be a meridional element of the infrastructure trunk “framework” connecting Arctic territories of the Far East with “sub-Arctic” northeastern regions.

Table 2 shows comparative indicators of the main basic parameters of the state of Alaska and regions of our country located in the adjacent zone and representing the North-Eastern mesoregion, which show a significant advantage in the economic development of Alaska compared not only with transboundary regions, but also with the entire North-Eastern zone of our country.

*Table 2*

*Main indicators of the districts of the North-Eastern mesoregion compared to the state of Alaska, USA*<sup>25</sup>

Area	Area of territories with islands (without water areas)	Gross Regional Product (GDP)	Population	Share of indigenous peoples of the North	Per Capita Personal Income
<i>State of Alaska, USA</i>	1481.3 thousand km <sup>2</sup>	\$50.3 billion (2022); 50.3 X 80.2 rub. = 4034.0 billion rubles (\$1 = 80.2 rubles as of	733.6 thousand people (2022)	16% (2022)	69.0 thousand dollars per year (2022): 12 = 5.8 thousand dollars per month X 80.2 rubles = 465.2 thousand

<sup>24</sup> Arkticheskaya doroga zhizni [Arctic road of life]. URL: <https://arctic-russia.ru/article/arkticheskaya-doroga-zhizni/> (accessed 11 March 2023).

<sup>25</sup> Source: compiled by the author based on information from the websites of the administrations of all territories and from statistical sources: Alaska. URL: <https://en.wikipedia.org/wiki/Alaska>; <https://fred.stlouisfed.org/series/AKPCPI>. Regional statistics. URL: [https://rosstat.gov.ru/regional\\_statistics](https://rosstat.gov.ru/regional_statistics); Arctic zone of the Russian Federation. URL: [https://rosstat.gov.ru/storage/mediabank/arc\\_zona.html](https://rosstat.gov.ru/storage/mediabank/arc_zona.html); Economic and social indicators of the regions of the Far North and equivalent areas. URL: <https://rosstat.gov.ru/compendium/document/13279> (accessed 11 April 2023).

		04/05/2023)			rub. per month (\$1 = 80.2 ru- bles)
North-Eastern mesoregion (NEMR)					
<i>Chukotka Autonomous Okrug</i>	737.7 thousand km <sup>2</sup> (2.0 times less)	94.9 billion rubles (2022) (42.5 times less)	47.5 thousand people (2023). (15.4 times less)	33.7% (2022)	89.4 thousand rubles (2022) (5.2 times less)
<i>Magadan Oblast</i>	461.4 thousand km <sup>2</sup> (3.2 times less)	337.7 billion rubles (2022) (11.9 times less)	137.5 thousand people (2023) (5.3 times less)	3.2% (2022)	85.4 thousand rubles (2022) (5.4 times less)
<i>Kamchatka Krai</i>	472.3 thousand km <sup>2</sup> (3.1 times less)	319.0 billion rubles (2022) (12.6 times less)	289.0 thousand people (2023) (2.5 times less)	2.7% (2022)	55.0 thousand rubles (2022) (8.5 times less)
<i>Republic of Sakha (Yakutia) as a whole, incl. 13 North Arctic uluses (NAU)</i>	Total: 3103.2 thousand km <sup>2</sup> Of these, NAU = 1608.8 thousand km <sup>2</sup> = 52% of the territory of Yakutia (Yakutia: 2 times more)	Total: 1936.0 billion rubles (2022) Of these: NAU = about 7% = 135.8 billion rubles (Yakutia: 2.9 times less)	Total: 996.2 thousand people (2023) Of these, NAU = 69.7 thousand people = 7% of the entire territory (Yakutia: 1.4 times more)	4.2% (2022) (average for Yakutia, including NAU)	82.8 thousand rubles (2022) (average for Yakutia, including NAU) (5.6 times less)
Total: NEMR (Chukotka, Magadan Oblast, Kamchatka, Yakutia)	4774.6 thousand km <sup>2</sup> (3.2 times more)	2687.6 billion rubles (1.5 times less)	1470.2 thousand people (2.0 times more)	===	78.5 thousand rubles (regional average) (5.9 times less)

Of course, the reasons for these disproportions are explained by the entire history and specifics of the political and socio-economic development of our country, its enormous geographical scale and other problems that limit capital expenditures for the development of the north-eastern territories. But when such differences reach significant gaps, and the main indicators of the regions begin to lag several times behind the indicators of the territories of border states, such a situation should cause serious concern to the country's leadership. As for the eastern sector of the Russian Arctic (territories of the Far Eastern Arctic) with its indicators given in table 2, it can be argued that nowhere along the entire border of Russia and its border territories there is such a lag and gap in their socio-economic sphere as in this North Arctic sector, in comparison with the neighboring territory of the state of Alaska.

The above data on the development of the north-eastern and closely connected in natural and socio-economic terms arctic territories of the Far East of Russia give reason to draw the following conclusion: at the current stage, it is necessary to develop a federal target program for the creation of a support network of backbone elements of critical infrastructure in the North-Eastern

mesoregion. This program should have a sufficient long-term time lag and be of strategic importance in this region, not only for the implementation of projects for the commissioning of the natural resource potential in this area and the transition to a new industrial way of economic management, but also for the sustainable development of the spatial and economic entities emerging here taking into account their geostrategic importance in the North Pacific sector of the global Arctic [31, Krasnopol'skiy B.Kh., pp. 233–242].

The implementation of this program will be the “driver”, a key element in the transformation of methods and mechanisms of state-regional regulation and closely related private-entrepreneurial partnerships, which will quite clearly determine the processes of future development of the spatial and economic entities under study.

### ***Conclusion***

The discussion of the natural resource features of the territories and water areas of the Far Eastern and Pacific sectors of the world Arctic, as well as the problems of the formation of various kinds of spatial and economic entities here and the assessment of the systemic influence of their critical infrastructure, especially its external, main elements on the effectiveness of the socio-economic development of these territories, shows that there is an urgent need for their further scientific study. Regarding these territories, which are the most remote from the central regions of the country and are in the initial stages of developing their resource potential, we can conclude that for them, accelerating trends towards a transition from the raw material direction of development, which is pressing in the country's economy, to an industrial type of formation, are already beginning to take effect. This will require serious and very significant transformations both in the entire production apparatus [32] and in the areas of infrastructure that serve it. A deeper understanding of the processes of increasing regional efficiency and methodological techniques for assessing the impact of infrastructure on these processes is becoming extremely important. It is the systemic, understood in the framework of the postulates of synergetics, rather than purely economic, “sectoral” assessment of its role in the growth of efficiency according to the traditional in the economic mainstream principle of “costs — results” that comes to the fore.

In this case, the emphasis in the research should be placed on the problems of creating a spatial network of backbone elements of the main critical infrastructure at an accelerated pace, which to the maximum extent realize the principle of systemic, multiplicative, emergent formation of economic entities in the North-Arctic zone under consideration. With their strictly systemically organized “grid”, both latitudinally and meridionally, they create new opportunities for the integrated development of not only individual regional economic conglomerates, but also branched reproduction cycles and chains between the basic elements of their industries of specialization with external economic structures. It also seems quite logical to consider the problems of economic development of the studied North Arctic regions together with the “sub-Arctic” territories of the Far

East, which have close communicative economic ties with these regions, which together constitute a certain North-Eastern mesoregion.

There is a fairly clear pattern in the current stage of development of the Eastern Arctic territories of the Russian Arctic, when this development naturally moves in spatial terms from the lower “point” regional micro-level to the next stage — the meso-level of interregional spatial systems. It can be suggested that this process has already taken place in the European part of the country’s Arctic zone, more “full-blooded” spatial and economic complexes have already formed there, and now it is spreading to its eastern province. This process occurs for the reason that at the grassroots level it becomes impossible to form the required groundwork in the rapid spatial development of critical infrastructure, the underdeveloped configuration of which in the external environment of primary economic entities begins to hinder their transition from the natural resource level to a higher level of industrial development.

This is the transformation of the forms of development of the North Arctic territories of the Far East at its new stage, which requires significant adjustments to the methods and mechanisms for regulating the development of transboundary spatial and economic entities in this sector of the Russian Arctic. These processes, as discussed above, are also associated with their border position in the Pacific Arctic zone, their proximity to a state that is currently unfriendly to our country — the United States. The implementation of this task will most likely take place in the form of state-regional targeted programs to develop optimal algorithms for interaction between participants in their implementation at the federal (hierarchical) and regional (heterarchical) levels, including the development of the necessary regulatory framework to achieve this goal. Considering the accumulated problems in the eastern territories of the Arctic and in the North-East of the country as a whole, as well as the practical absence of a working methodology for assessing the systemic, multiplicative, emergent effects of infrastructure in relation to various levels of spatial and economic entities, solving the problems identified seems quite difficult [32].

## References

1. Granberg A.G. Stanovlenie v Rossii nauchnogo napravleniya «prostranstvennaya ekonomika» [Formation of the Scientific Direction "Spatial Economy" In Russia]. *Vestnik Universiteta (Gosudarstvennyy universitet upravleniya)*, 2009, vol. 2, no. 26, pp. 18–24.
2. Granberg A.G. Modelirovanie prostranstvennogo razvitiya natsional'noy i mirovoy ekonomiki: evolyutsiya podkhodov [Modelling Spatial Development of National and World Economies: Evolution in Approaches]. *Region: ekonomika i sotsiologiya* [Region: Economics and Sociology], 2007, no. 1, pp. 87–107.
3. Minakir P.A., Demyanenko A.N. *Ocherki po prostranstvennoy ekonomike: monografiya* [Essays on Spatial Economics]. Khabarovsk, ERI FEB RAS Publ., 2014, 272 p. (In Russ.)
4. Minakir P.A. «Strategiya prostranstvennogo razvitiya» v interyere kontseptsii prostranstvennoy organizatsii ekonomiki [Spatial Development Strategy: A View from the Concepts of Spatial Organization in the Economy]. *Prostranstvennaya ekonomika* [Spatial Economics], 2018, no. 4, pp. 8–20. DOI: 10.14530/se.2018.4.008-020
5. Sovremennye problemy prostranstvennogo razvitiya [Modern Problems of Spatial Development]. In: *Materialy Mezhdunarodnoy nauchnoy konferentsii, posvyashchennoy pamyati i 75-letiyu so dnya*

- rozhdeniya akademika A.G. Granberga* [Proc. Intern. Sci. Conf. dedicated to the Memory and 75th Anniversary of Academician A.G. Granberg.]. Moscow, Poligraf-Plus Publ., 623 p. (In Russ.)
6. Krasnopol'skiy B.H. Prostranstvennyye nauki i ikh rol' v izuchenii ekonomiki prostranstvennykh obrazovaniy [Spatial Sciences and Their Role in Studying Spatial Formations Economics]. *Prostranstvennaya ekonomika* [Spatial Economics], 2010, no. 1, pp. 147–156.
  7. Jochimsen R. *Theorie der Infrastruktur: Grundlagen der marktwirtschaftlichen Entwicklung*. Tübingen, J.C.B. Mohr, 1966. 253 p.
  8. Buhr W. What is Infrastructure? *Siegen Discussion Paper*, 2003, no. 107–03, 32 p.
  9. Carlsson R., Otto A., Hall J.W. The Role of Infrastructure in Macroeconomic Growth Theories. *Civil Engineering and Environmental Systems*, 2013. vol. 30 (3–4), pp. 263–273. DOI: 10.1080/10286608.2013.866107
  10. Gramlich E. Infrastructure Investment: A Review Essay. *Journal of Economic Literature*, 1994, vol. 32 (3), pp. 1176–1196.
  11. Kuznetsova A.I. *Infrastruktura: Voprosy teorii, metodologii, prikladnye aspekty sovremennogo infrastrukturnogo obustroystva. Geoekonomicheskii podkhod: monografiya* [Infrastructure: Issues of Theory, Methodology, Applied Aspects of Modern Infrastructural Development. Geo-Economic Approach]. Moscow, KomKniga Publ., 2013, 456 p. (In Russ.)
  12. Lantsov A.E. *Infrastruktura: ponyatie, vidy i znachenie* [Infrastructure: Concept, Types and Value]. *Ekonomika, statistika, informatika* [Scientific-Practical Journal of Economics, Statistics and Computer Science. Journal of UMO], 2013, no. 3, pp. 47–52. DOI: 10.21686/2500-3925-2013-3-47-52
  13. Mallaev Kh.N., Avramchikova N.T. *Teoreticheskie osnovy formirovaniya institutsional'noy infrastruktury regiona* [Theoretical Bases of Formation of the Institutional Infrastructure of the Region]. *Menedzhment sotsial'nykh i ekonomicheskikh system* [Social and Economic Systems Management], 2017, no. 1, pp. 39–46.
  14. Krasnopol'skiy B.H. *Infrastruktura v sisteme regional'nogo khozyaystvennogo kompleksa Severa (metodicheskie osobennosti issledovaniya)* [Infrastructure in the System of Regional Economic Complex of the North (Methodological Features of the Research)]. Moscow, Nauka Publ., 1980, 145 p. (In Russ.)
  15. Nelson R.R., Winter S.G. *Evolutsionnaya teoriya ekonomicheskikh izmeneniy* [The Evolutionary Theory of Economic Change]. Moscow, Delo Publ., 2002, 535 p. (In Russ.)
  16. Kleyner G.B. *Sistemnaya ekonomika: shagi razvitiya: monografiya* [Systemic Economics: Steps of Development]. Moscow, Nauchnaya biblioteka Publ., 2021, 746 p. (In Russ.)
  17. Kleyner G.B., Rybachuk M.A. *Sistemnaya sbalansirovannost' ekonomiki: monografiya* [Systemic Balance of the Economy]. Moscow, Nauchnaya biblioteka Publ., 2017, 320 p. (In Russ.)
  18. Haken G. *Sinergetika. Ierarkhiya neustoychivostey v samoorganizuyushchikhsya sistemakh i ustroystvakh* [Advanced Synergetics. Instability Hierarchies of Self-Organizing Systems and Devices]. Moscow, Mir Publ., 1985, 424 p. (In Russ.)
  19. Prigogine I., Stengers I. *Poryadok iz khaosa. Novyy dialog cheloveka s prirodoy* [Order out of Chaos: Man's New Dialogue with Nature]. Moscow, Progress Publ., 1986, 432 p. (In Russ.)
  20. Zang V.-B. *Sinergeticheskaya ekonomika. Vremya i peremeny v nelineynoy ekonomicheskoy teorii* [Synergetic Economics: Time and Change in Nonlinear Economics]. Moscow, Mir Publ., 1999, 335 p. (In Russ.)
  21. Krasnopol'skiy B.H. *Institutsional'naya infrastruktura prostranstvenno-khozyaystvennykh obrazovaniy Arktiki* [Institutional Infrastructure of Arctic Spatial-Economic Units]. *Ekonomika regiona* [Economy of Regions], 2022, vol. 18, iss. 2, pp. 353–368. DOI: 10.17059/ekon.reg.2022-2-4
  22. Kuznetsov A.V., Kuznetsova O.V. *Izmenenie roli prigranichnykh regionov v regional'noy politike stran ES i Rossii* [The Changing Role of Border Regions in the Regional Policies of the EU and Russia]. *Baltiyskiy region* [Baltic Region], 2019, vol. 11, no. 4, pp. 58–75. DOI: 10.5922/2079-8555-2019-4-4
  23. Prokopyev E.A., Kurilo A.E. *Otsenka vliyaniya prigranichnogo polozheniya na sotsial'no-ekonomicheskoe razvitie regiona (obzor otechestvennoy literatury)* [Assessment of Border Location Impact on Socio-Economic Development of the Region (Russian Literature Review)]. *Pskovskiy regionologicheskii zhurnal* [Pskov Journal of Regional Studies], 2016, no. 4 (28), pp. 3–14.

24. Kolosov V.A., Zotova M.V., Sebentsov A.B. Bar'ernaya funktsiya rossiyskikh granits [Barrier Function of Russian Borders]. *Izvestiya RAN. Ser.: Geograficheskaya* [Proceedings of the Russian Academy of Sciences, Geographic Series], 2016, no. 5, pp. 8–20. DOI: 10.15356/0373-2444-2016-5-8-20
25. Skufina T.P., Mitroshina M.N. Transformation of the Socio-Economic Space of the Russian Arctic in the Context of Geopolitics, Macroeconomics, and Internal Factors of Development. *Arktika i Sever* [Arctic and North], 2020, no. 41, pp. 87–112. DOI: 10.37482/issn2221-2698.2020.41.87
26. *Dal'nevostochnaya i Tikhookeanskaya Arktika: na perekrestke dvukh okeanov i kontinentov: monografiya* [Far Eastern and Pacific Arctic: At the Crossroads of Two Oceans and Continents]. Khabarovsk, IEI DVO RAN Publ., 2021, 248 p. (In Russ.)
27. *Infrastruktura prostranstvennogo razvitiya RF: transport, energetika, innovatsionnaya sistema, zhizneobespechenie: monografiya* [Infrastructure of Spatial Development of the Russian Federation: Transport, Energy, Innovative System, Life Support]. Novosibirsk, IEIE SB RAS Publ., 2020, 456 p. (In Russ.)
28. Baker B. Beyond the Northern Sea Route: Enhancing Russian-United States Cooperation in the Bering Strait Region. *Polar Perspectives*, 2021, no. 8, pp. 1–27.
29. Lukin Yu.F. 2022: The Russian Arctic in Times of Change. *Arktika i Sever* [Arctic and North], 2023, no. 50, pp. 249–271. DOI: 10.37482/issn2221-2698.2023.50.249
30. Zhuravel V.P., Timoshenko D.S. The Russian Arctic, Sanctions Pressure and Geopolitical Instability. *Arktika i Sever* [Arctic and North], 2022, no. 49, pp. 105–124. DOI: 10.37482/issn2221-2698.2022.49.105
31. Krasnopol'skiy B.Kh. Severo-Vostok Rossii: rol' magistral'noy infrastruktury v formirovaniy mezoregiona arkticheskikh i «podarkticheskikh» territoriy Dal'nego Vostoka [North-East of Russia: The Role of Trunk Infrastructure in the Formation of the Mesoregion of Arctic and "Subarctic" Territories of the Far East]. In: *Ustoychivyy Sever: obshchestvo, ekonomika, ekologiya, politika* [Sustainable North: Society, Economy, Ecology, Politics]. Yakutsk, 2022, pp. 233–242. (In Russ.)
32. Krasnopol'skiy B.Kh. Vliyanie magistral'noy infrastruktury na effektivnost' prostranstvenno-khozyaystvennykh obrazovaniy: podkhody k otsenke [The Impact of the Main Infrastructure on the Effectiveness of Spatial and Economic Formations: Approaches to the Assessment]. *Regionalistika* [Regionalistics], 2021, no. 3, pp. 56–71. DOI: 10.14530/reg.2021.3.56

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