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Innovative development vector of the coastal areas of the Russian Arctic



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Abstract. The article examines the opportunities for further development of the Arctic zone of the Russian Federation on the basis of innovative standards and technology, as the whole system of state management of innovation processes should be based on innovative strategy of the state in general and the region in particular, without which it is impossible to imagine a real, deep and lasting renewal of the economy and entire society.

Keywords: *Russia, Arctic, innovation, strategic management, spatial development*

Innovation policy is crucial in the strategic planning system in economically developed countries, which confirms the effectiveness of the transition to an innovative model of economic growth [1]. Developed countries transfer from traditional science and technology policy to the innovation that is stimulated not only the process of creating new knowledge and its use in order to obtain the greatest economic benefits. More and more Russian scientists are trying to find modern priorities for Russia or to justify the new ways to overcome the lag from developed countries but also from developing countries in the economy, the level of technological development, the effectiveness of public research and innovation policies, not only.

Innovation policy of the majority of regions of Russia, including the Russian Arctic is complicated to be assessed as positive because the poor innovative infrastructure development of the region. For example, a regional strategy and innovation development program, as well as the profile section designed to support innovation in the development strategy of region do not exist for 40 subjects of the Russian Federation. Priority development areas of innovation are not allocated in the scheme of territorial planning in 63 subjects. Special legislation acts defining the basic principles of innovative activity in the region are absent in 18 subjects of Russia; 27 areas do not have specialized programs of development and innovations, 36 have no functioning advisory bodies on innovational policy, 29 — have no development institutions with functionality to support the subjects of innovation activity. 64 areas do not get subsidy from the federal budget for the develop-

ment of innovation infrastructure for small and medium-sized business. However, some elements of the innovation infrastructure appeared: industrial parks, innovation and technology centers (ITC), innovative-industrial-complexes (IEC), some old-established science cities are kept and new ones have been created.

Many specialists see the salvation of Russia in the sustainable development of the northern territories of the Arctic macro-region, in the high latitudes or in the Far North. Therefore, logical question arises: what component of the northern resources will become another dominant and what principles of sustainable development of coastal zones can alter the structure and dynamics of the northern potential?

Coastal areas of the Arctic and the Far North of Russia

Arctic coastal areas are not only the concentration of all branches of marine economic activities, which are considered for the entire coastal zone of the Arctic and the Far North of Russia, including the Far East. This is the territory of the complex structural organization with a combination of territorial disparities in industry and production and resource potential [2]. Each subject of the Russian Federation here has its own internal, inter-regional, and global economic factors of development. That's natural resources and the territory of the Arctic and the Far North, which have always been the subject of economic and geopolitical interests of the polar states, as well as a subject of the world economic and geo-strategic interest of the world community. In the Arctic inter-regional destination includes: 1) *part of the land* — the Murmansk region, the three municipalities the Republic of Karelia on coast of the White Sea, the Arctic Islands, 7 municipalities of the Arkhangelsk region, Nenets Autonomous District, Yamalo-Nenets Autonomous District, part of the Siberian Federal District (Taimyr Dolgan-Nenets municipal district, the Krasnoyarsk Krai), the northern regions of the Far Eastern Federal District (Republic of Sakha — Yakutia, Chukotka Autonomous district); 2) *a large part* of the Barents, White, Kara, Laptev, East Siberian, Chukchi, Bering and Okhotsk seas on the basis of wasps international maritime law (UNCLOS 1982 and etc.). Based on the concept of geostrategic development it must be recognized that for the sustainable socio-economic development and utilization of resources of coastal areas, it is necessary to find solutions and implement two main tasks. *Firstly*, it is redefining the innovative vector of Russian policy in these areas of a strong and direct economic cooperation. *Secondly*, it is fixed population due to the formation of a developed economy and a comfortable environment. That is necessary to find a balance between development and conservation of resources in the Arctic due to its unique ecosystem and to do it in the interest of people living there.

Today resource stocks of the Far North, which includes the subjects of the Russian Arctic and, give about 11% of national income of Russia and almost a quarter of the volume of Russian exports. Coastal areas are the place where, on the one hand, a clearly manifested territorial geopolitical and economic strategic knowledge exists, as well as the relevance and potential of Russia, and on the other hand, this is the area where the strongest contradictions of socio-economic development are found, environmental issues are important and quality of life of the population is a problem.

Improvement of the territorial structure of the economy of the northern coastal areas and strengthening their competitive position are strongly correlated with the innovative scenario of development. But innovations require the fullest utilization of the competitive advantages of the region, its natural resources and transit potential, as well as the modernization of transport and energy infrastructure. Strategic priorities of development of the Russian Arctic up to 2020, as we know, are the complex socio-economic development program of the Russian Arctic; the development of science and technology; rebuilding of modern information and telecommunication infrastructure; ecological safety; and international cooperation in the Arctic. I would also like to emphasize that the achievement of sustainable and balanced development depends on the formation of the so-called “right” of the economy, where comprehensive regional economic system presupposes the existence of such sectors and activities that do not only service and meet the needs of basic industries and population, but also fit the level of innovation through the support systems, and the operation of facilities, market and social infrastructure. In this context, due to the old northern infrastructure, modernization of the transport system, communications and defense infrastructure of a dual use are urgent.

Modernization becomes an innovative way to overcome the heterogeneity of economic space through the sustainability of the northern coastal areas. At the heart of the main strategic directions are concepts of “green” innovation economy, energy efficiency and sustainable development. This will allow the implementation of planned measures aimed at leveling the socio-economic differences in the subjects of the Arctic and the Far North of Russia and concentrating the federal aid for regional development, which should become a “locomotive of growth”¹. Such regions have all the prospects to start the process of innovative development, which requires the creation of the entire production complex for *processing of natural and marine resources*, the introduction of a number of innovative technologies throughout the supply chain of added value. Under natural resources we mean not only hydrocarbons of the Arctic shelf and the adjacent land,

¹ In order to do so, there is a series of governmental documents: Basics of the state policy in the Arctic, Strategy for development of maritime activities, Concept for development of fisheries, Energy strategy, and etc. In addition, each subject of the Federation has a long-term Strategy of socio-economic development.

but also other minerals, biological resources of the Arctic and the Far North of Russia and they are one of the fundamental conditions for sustainable development of the area.

However, at widening the extraction of resources and, above all, mineral and energy ones, the old economic and social methods are no longer suitable. More acceptable is a compromise, which, along with the main objectives of economic development of the Far North (meeting the country's needs and export the resource), some other projects should become important priorities of innovation. It is to ensure environmental safety in practice and not just in words; conservation of Arctic ecosystems and protected areas (PAs); use of tourism potential and attractions of tourists from abroad and from Russia. Although domestic experience of economic development of the northern coastal areas can not be considered as rich in terms of economic efficiency, it is a long one and it is rather traditional. Existing production, transport and infrastructure requires reconstruction and further development based on new technology, which has the possibility of implementing an alternative light industry, agriculture, food industry, including coastal fish processing. Development of fishery will help to ensure access for indigenous peoples to marine bioresources and the realization of their legitimate rights to preserve their lifestyle.

At the same time, "northern" development opens opportunities to join purposes of realizing the potential of the mineral complex with the rate of modernization and "green" economy, the development of information technology, building lines and satellites to provide telecommunications in the Russian Arctic and their integration to the networks of the Russian Federation. It is important to ensure the provision of state standards of general education, telemedicine, state and municipal on-line services. It is important to note that, along with the modernization of traditional crafts and agriculture, it is urgent to create new industries: the medical and bio industry, fur and leather industries. Solving these problems requires a deep economic transformation of the socio-economic environment in order to overcome the crisis, to ensure stability in conditions of innovative development of the advanced sectors of the economy and, ultimately, to ensure the transition from the industrial development of the North to the sustainable development model. The principal basis for reforms should be a number of megaprojects, which accelerate the solution of the whole complex of problems of coastal territories along with mobilization of the Russian scientific and technical potential.

Natural and production potential of the *European North of Russia* can attributed it to the industrialized regions of the country, and it is defined by the rich and in some cases unique reserves of mineral and energy resources (Barents and Kara Seas, New Land), advanced land and maritime transport networks with a large ice-free seaport of Murmansk and Arkhangelsk sea port,

beneficial in terms of development of economic relations and complement to each other. Prospective development of carbohydrate offshore fields, introducing elements of diversification will contribute to the future development of economic activity in the regions. Economic processes and strategic priorities for the development of the Russian Arctic are associated with innovation and technological developments in the energy sector, including renewable energy sources (Mezenskaya hydroelectric plant and other projects). However, without state and active support the introduction of innovative technologies in the development of the northern areas and the Arctic waters will be very difficult. After all, their “pain” points are the higher risks and costs, including those due to the objective conditions of production and transportation of raw materials. Therefore, the state should become the general coordinator of the development of the mineral resource, energy security and the regulation of the coastal natural resource use.

The development of resources in the Arctic and the North of Russia started a complex development of hydrocarbon deposits on the continental shelf of the Kara Sea and the Sea of Okhotsk, on the Yamal Peninsula, Eastern Siberia. In this regard, it should be borne in mind that in future the world energy is accompanied by the restructuring of the energy balance, the change in the role and importance of individual energy. Decline in oil prices in 2015 had shown the global overproduction of oil and reduced demand on it. Obviously, it is needed to make corrections to previously-stated plans and Russian hydrocarbon production program. Plans and projects of modernization of energy infrastructure should provide a balanced development. This task updates the analysis of the various segments of the national energy sector, in order to efficiently focus the efforts and resources on the “weak” objects and relationships. For example, the possibility of creating energy corridors between neighboring energy surplus and energy deficit regions.

Along with this, the development of the resource potential of the coastal areas will be a base for their integrated development, where provided transport is the only economically realistic way to natural pantries of North East Siberia and the Far East. Considering *the Northern Sea Route* as a set of shipping routes and all elements of the marine Arctic transport system, including the coastal infrastructure, combining all the major river arteries of Siberia in a single transport network, we emphasize that the Northern Sea Route plays more geopolitical role than economic. No wonder the Northern Sea Route is sometimes called “BAM on the water”. This transport and industrial backbone is of industrial and social importance, and a defense infrastructure across the coastal areas of the Russian Arctic. It is the protection of the Russian fleet, and strengthening the security of Russia in the Arctic and military-political and financial-economic position of the country. World events suggest that a key challenge of innovative development of the Northern Sea

Route is an integrated geographic information system of the Arctic, where the main component will be modernization of navigation, including the military and border infrastructure of dual use.

The Northern Sea Route is a link between the Russian Far East and the western parts of the country, at the same time is the only thing to revive the economy of the Russian Arctic and to increase volumes of domestic and regional traffic during the northern importation of goods for livelihood. For this reason, the implementation of large-scale marine cargo operations in inland waters is aimed the “north” vector of governmental policy of innovative development, where production potential in the most promising centers creates pockets of economic and social efficiency. Stressing that the sea transport in the northern latitudes and sub-Arctic areas has practically no alternatives and it is the most effective way of delivery of machinery and technological equipment, energy and industrial goods necessary for the functioning of clusters located in the coastal zone of the Arctic seas and livelihoods of people living in the area, and we should not forget about the effective use of NSR as the international transport corridor. Modernization and reconstruction of the NSR as the main latitudinal transport route linking northern Russian areas, able to implement effective intercontinental transport links between Europe, Asia and America becomes a priority object of the sovereign transport policy in Northern Russia.

The strategic direction of environmental policy in the Arctic and the North is the formation of the legal and economic relationships that promote the search and implementation of environmentally friendly **“green” technologies**. In this situation, it is needed to develop and implement the laws and regulations for protection of environmental and economic interests of the indigenous peoples from the negative actions of the extraction industry; high-performance of environmental measures, guides for the development of clean technologies and the use of high technological ways of organization and conducting the proceedings, where the information banks of environmentally friendly “green” technologies would constitute the basis for the use of ecologically safe systems in the production, protection of water resources, the elimination of environmental damage.

The balance between restructuring the economy with huge infrastructure costs of users to preserve the natural environment of coastal areas and the use of renewable natural resources will ensure the complementarity of economic activity, where the recreational resources (including balneological) ensure the development of tourism in the Arctic and have the potential to become an export oriented and leading in some regions of the Arctic and the North of Russia.

To ensure *the sustainable development* of coastal regions of the Arctic in the long-term and the medium term perspective, it is advisable to solve the following problems: restructuring the regional economy, increasing the use of renewable natural resources through the creation of an

expanded system of protected areas, creation of favorable conditions of life and work of the indigenous population meeting the specific human living conditions in the extreme climate of the North at the expense of creation and improvement of traditional forms of economic activity on the basis of effective use of available natural resources of tundra and forest tundra (medical plants, berries, furs and etc.).

Conclusion

Thus, accounting the complexity of the processes in the Arctic and in the Far North of Russia, where economic complexes were formed on the basis of nature use industries, sustainable economic development involves improving the spatial structure of the economy with the development of regional industrial and economic clusters and complex modernization throughout the transport infrastructure, which will provide, in particular, and the export of strategic goods [3]. Innovative vector of development of coastal territories of the Russian Arctic will be: integrated development of mineral resource base along the formation of a large-scale infrastructure project - the international Euro-Asian transport corridor - the Northern Sea Route. Only joined efforts, resources of federal and regional executive authorities and economic entities in the Arctic region will solve the problem of infrastructure of the coastal areas and improve the efficiency of economic activity that will recover all the Arctic region.

Strategic competitiveness of Russia in general, and the Arctic zone of the Russian Federation, in particular, depends on innovation activity and ability of regional economies and industries. After all, both external and internal development needs of the country are determined by the importance of innovative development. Differentiation of regions of Russia in terms of socio-economic development dictates the need for taking into account the characteristics and capabilities of the regions to the innovation, which is a determining factor in the allocation of budget funds intended for the development of innovation.

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