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Natural Resource Economy and Territorial Organization of the Economy of the Arctic and the North of Russia

Vitalij N. LAZHENTSEV
Corresponding Member RAS, Chief Researcher
Institute of Socio-Economic and Energy Problems of the North Komi Scientific Center, Ural Branch, RAS, 167982, Kommunisticheskaya, 26, Syktyvkar, Russian Federation
E-mail: vnlazhentsev@iespn.komisc.ru
ORCID: 0000-0003-2222-5107

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ABSTRACT. *The article shows that the modernization of existing and the creation of new industries in the developed territories, and their infrastructure development are a priority in the development of the productive forces of the North, including the Arctic. The optimism about the Arctic vector of development, according to the author, should be moderate. The main directions of modernization of the existing economic systems are considered. These areas are associated with the forms of placement of production and settlement of the population in the form of territorial and economic complexes, geographically and economically remote industrial centers, and the periphery of the predominantly rural type. Attention is focused on the rise of the role of the natural factor in the socio-economic development of the Arctic and Northern territories and the need for interregional integration in solving the problems of environmental protection. The solution to the problems of the Arctic and the North is connected with the improvement of relations in the system of economic federalism. The main point here is the need for coordination of public, state, and corporate interests for the sake of improving the standard of living of the settled population, providing the national and world markets with raw materials.*

KEYWORDS: *North, Arctic, natural resources and revenues, territorial and sectoral problems, integrated territorial and economic systems, interregional (neighbor) integration*

Introduction

The current Russian regional policy concerning the Arctic and the North underestimates the importance of the existing there territorial and economic systems (TES). Strategic federal documents primarily focus on the development of hydrocarbon deposits, the paramount im-

portance of the Northern Sea Route, and the creation of defense bases. Moreover, on the contrary, internal development strategies of all Arctic and northern regions focus more on refining the already existing extractive industries, raw material processing, optimizing the housing and public utility sector, road maintenance, power networks, and, to a lesser extent, the development of new territories and resources. Regional and municipal authorities' are primarily concerned with the improvement of the quality of life and the modernization of the existing material and technical basis of production. It is in the same vein that each region participates in the scientific and technical preparation for the development of Arctic resources [Selin, Bashmakov 2013; Lavrikov 2017]. This also requires the establishment of a legal and institutional foundation for the sustainable development of the Arctic Zone of the Russian Federation (AZRF) [*Leksin, Porfiryev* 2017].

A legally defined *cooperation among the federal, regional, and municipal authorities* could have a positive impact on the development of Arctic and northern regions, primarily in the area of a resource-based economy. This will, to some extent, help bridge the excessive spatial gap between the sites of production and revenue realization from natural resources. The second condition for the socio-economic development of the Arctic and the Russian North is *the streamlining of the economic management and the distribution of productive forces, which would account for the extreme climate and the use of appropriate new production technologies*. Here it is essential to identify the logic behind the fading mineral mining, the maximum possible preservation of the existing fuel-energy industries and natural-resources sectors, the regeneration of biological resources in the tundra and taiga. The third condition is *economic integration*. These three conditions should correspond to the Arctic and northern territories' management framework (including the legal framework, economic relations, technical rules and standards, various income regulating factors, etc.).

Resource-based regions in the system of economic federalism

Economic geography and regional economics pay special attention to resource-type regions. The idea to highlight them belongs to M.K. Bandman, who, in the 1990s, organized research on this topic, involving employees of many academic institutes. This scientific movement is still on the rise [*Kuleshov*, 2017]. It must be emphasized, against the context of this Article, that the problems of such regions persist due to the significance of natural resources, especially when it comes to transforming the natural and resource capital into financial and, later, social capital.

The share of natural and resource industries in the GRP of the northern regions varies from 25% in the Kamchatka Territory to 70% in the Nenets Autonomous District (2016). All over the North, the nature and dynamics of almost all types of employment are determined mainly by the organization of the extractive industry, its institutions, and the role played by the natural factor in the scientific and technological development of the country.

If one were to arrange natural objects and resources of the Russian North, including the Arctic, in the order of their relative importance for the population and national and regional economy, then the sequence would be as follows: land resources, boreal forests, tundra vegetation (mosses and lichens), rivers and lakes, oil and gas, ore minerals (diamonds, gold, tin, nepheline-apatite ores, bauxites, titanium, iron, manganese, nickel and cobalt, rare and rare earth metals, etc.), coal, non-metallic raw materials. This ranking re-

flects the hierarchy among separate natural resources in the life of the Northerners, which often fails to correspond with the interests of large capital holders, resulting in a severe contradiction.

At the same time, to correctly define the strategy for the development of natural resource regions, the above ranking cannot serve as a supporting argument against the allegedly toxic dependence of the Russian economy on oil and gas. The development and exploitation of natural resources is a principal element of the socio-economic development of Russia and its northern regions.

It is in this aspect that many authors prove the need to form a new system of capitalization of labor and natural resources. Its national significance is reflected in the works of D.S. L'vov [*L'vov* 1998; *L'vov* 1999]. The regional view on rent taxation, accounting for geographical, mining, geological, and social conditions, was thoroughly analyzed by V.A. Kryukova, V.V. Shmata, I.E. Dmitrieva and other authors [*Kryukov* 2016; *Kryukov*, *Tokarev* 2005; *Kryukov*, *Tokarev*, *Shmat* 2007; *Lazhentsev* 2002]. It was shown that the "ideal" calculation, removal and distribution of resource rents could significantly change not the volume and structure of GRP, but increase the incomes of the population and territorial budgets. However, methodological difficulties in identifying a practically-acceptable decision on the definition, calculation, and removal of rent income have also been identified.

Let us address the following fact at the outset: the share of taxes contributing to the federal budget and the consolidated budgets of the northern regions of

Table 1. Mineral extraction tax (MET) as a part of the GRP and tax revenues of the northern regions of Russia, 2016*

Russia and the Northern Regions	GRP, billion rubles**	Tax Revenue, Billion rubles	MET, Billion rubles	MET	
				As a share of the GRP, %	As a share of tax revenue, %
Russian Federation	69254	14386	2929	4.2	20.4
Nenetsky Autonomous Okrug	256	62	52	20.3	84.0
Khanty-Mansi Autonomous Okrug	3031	1701	1234	40.7	72.5
Yamalo-Nenets Autonomous Okrug	1964	811	537	27.3	66.3
Republic of Komi	547	148	68	12.4	46.0
Sakha Republic (Yakutia)	869	160	64	7.4	40.1
Krasnoyarsk Krai	1765	371	121	6.9	32.7
Chukotsky Autonomous Okrug	66	16	5	7.6	31.9
Magadan Oblast	147	19	5	3.4	26.8
Sakhalin Oblast.* **	768	178	9	1.2	5.1
Arkhangelsk Oblast	428	53	2	0.5	4.0
Republic of Karelia	233	26	0.8	0.34	3.0
Kamchatka Krai	198	31	0.6	0.3	2.0

* Calculated according to the Federal Tax Service of Russia // http://www.nalog.ru, last visited 12.12.2019.
** Total of the regions of the Russian Federation.
*** Excluding payments under product sharing agreements

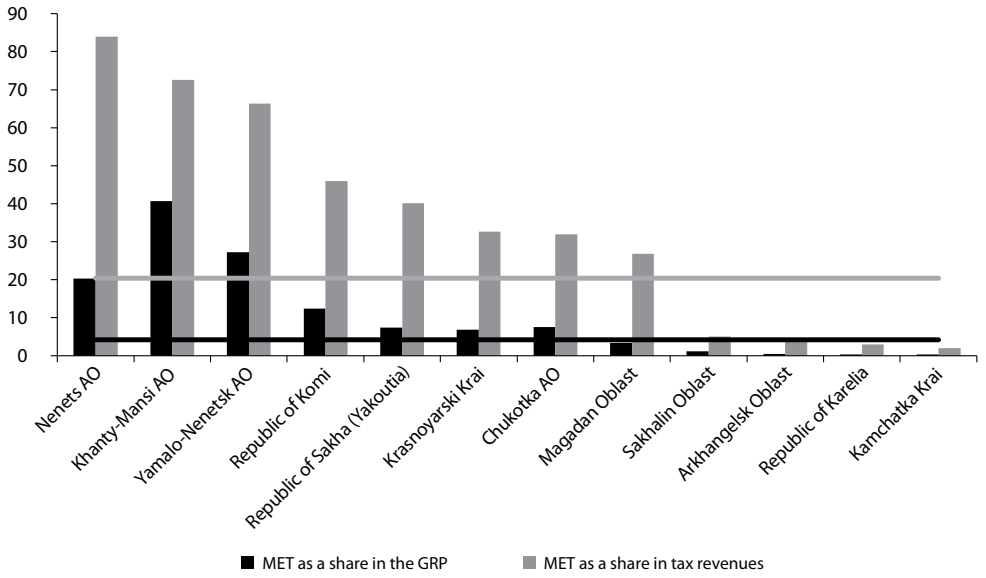
the Russian Federation (in aggregate), respectively, amounted to 48 and 52%, that is, quite an acceptable figure. But this ratio varies significantly across specific regions. Thus, in 2016 the ratio of tax revenues of federal and territorial budgets was (in percentage): In the Khanty-Mansi Autonomous Okrug - 85:15; in the Yamal-Nenets Autonomous Okrug - 81:20; in the Nenets Autonomous Okrug - 77:23; and in the Komi Republic – 56:44.

It should further be noted that these proportions are influenced mainly by the distribution of taxes in the environmental management system. Redistribution of natural-resource taxes and payments in favor of federal or territorial budgets depends on the type of resources (taxes on oil, gas, coal, land, forests, water are distributed in different ways). Therefore, the very problem of the unsatisfactory state of territorial budgets should also be considered in a differentiated manner. It is particularly acute in the regions specializing in oil and gas, but hardly noticeable in places dominated by fishing, agriculture, and forestry [*Chuzhmarova* 2009]. The Mineral Extraction Tax takes the leading role (see Table 1, fig. 1).

The dual importance of MET for the socio-economic development of the Arctic and other northern regions is that, on the one hand, the Federal budget enjoys a legal priority when it comes to natural resources of statewide significance. On the other hand, the close ties of the territorial budgets to low-income types of resources and economic activities prompt a constant deficit, which leads to a sense of injustice and a desire to replenish the resources of territorial development through high-income oil and gas production.

Deviations from the principle of social justice in relation to the Arctic and the

Fig. 1. Mineral Extraction Tax (MET) as a share in the GRP (black) and tax revenues (grey) of the northern regions of Russia, 2016 (the lines show the average share in the Russian Federation).



Source: Statistical Tax Reporting of the Federal Tax Service of Russia // http://www.nalog.ru, last accessed 12.12.2019.

North are not so much due to the shortcomings in the implementation of regulations on guarantees and compensation for additional production costs and life support in a challenging and extreme climate, as it is due to a violation of the foundations of economic federalism (including the level of municipalities), the unstable business interactions, regional governments, and local self-government bodies [*Loginov* 2007]. This led the northerners to demand the creation of so-called "funds for future generations." The experience of foreign countries and regions demonstrates the overall effectiveness of such funds [*Lazhentsev, Dmitriev* 1993; *Hikl* 2004], but one should account for specific Russian circumstances. Regional funds for future generations should not be created, absent the removal of the existing obstacles, and present a well-developed method to harmonize interests between the population and the various levels of government. Besides, in Russia, the role of such a fund is, to some extent, played by the National Welfare Fund. However, at present, it does not stand true to its name.

Even less acceptable is the proposal to equally distribute taxes and fees between federal and territorial budgets. For some resource-type regions, this would lead to the surplus of funds and their inability to spend them, while depriving others of interbudgetary maneuvering and even reducing the volume of budgetary funds.

The correct way is to reform the entire fiscal system of the country, based on the following foundations: a clear systematization of taxable activities, prioritizing direct taxes over the hidden ones, and correctly assigning sources of taxation to the appropriate budgetary levels, and finally, fixing development expenditures, etc.

While a detailed analysis of the above would be outside the scope of the present article, the difficulties of the fiscal reform encourage to look for development resources for the Arctic and North regions in other spheres of economy and finance.

An example of this is depreciation, which is of critical importance for the capital-intensive production of the North. During economic crises, the depreciation decreases to 10–12% of its original value. However, the accrued depreciation is mostly "ground off." Thus, the share of depreciation in capital investments in the fixed assets of the Komi Republic in 2012 was 14.8% (32.8 out of 221.1 billion rubles); the total amount of depreciation was about 50 billion rubles; as a source of investment, therefore, 65% of depreciation was used, the other part (35%) was used for purposes other than intended.[1] In 2016, the total depreciation amounted to just over 2 percent of the book value of fixed assets at a six-percent renewal rate. This means that 64% of capital investments in fixed assets were made on profit, bank loans, and public finances.[2] We propose to implement a strict depreciation policy when depreciation charges can be used only for capital construction, modernization, and the introduction of new equipment.

Rationalization of economy and forms of distribution of productive forces

Mining. The main problem here is the difficulties of overcoming the geographical and economic gap of new deposits and the lack of logistical and financial resources for their development. This problem is further compounded by a low level of geo-

1 Since 2012, investment statistics have not separately specified depreciation.

2 Note that in developed countries, even with their vast financial-credit system, the share of depreciation in fixed investment is 55–60%.

logical exploration work, weak knowledge of the properties and qualities of natural materials, non-integrated use of resources, absence of the standard order of formation of investment funds. New methods of resource and mineral resource assessment are slowly being developed, especially in the already developed geological provinces.

The challenges of the *coal industry* stem from the difficulties of its diversification through the integrated use of coals, the production of liquid fuels, adsorbents, carbon-graphite materials, and thermographites. In *oil and gas*, the production efficiency increased due to the combination of vertical and horizontal drilling, the creation of underground gas storage facilities, overcoming the risk of ultra-high terrastatic pressure, the transition to new oil processing technologies. In recent years, improvements in the Arctic and North mining operations have been linked to the implementation of basic innovations such as power-loaders, remote and self-guided equipment, wireless communication systems, mining pressure management, etc. [*Lazhentsev* 2006]

In our opinion, the prospects of development of mineral-raw materials in the already developed territories of the Arctic and the North should be linked with the assessment of the expediency of *organizing production and territorial holdings*. This corresponds to A.A. Mints's long-standing idea of territorial combinations of natural resources as a natural basis of complex territorial organization of production [Mints 1972].

Bio-resource economy. Numerous works on *agriculture and food security in the Arctic and the North* show the paramount importance of the allocation of land according to the type of ownership.

The northern regions' problems arise out of the fact that the federal policy cost them a significant part of the lands, which had previously been set aside for agriculture. The remaining lands are misused, only nominally listed in the books of agricultural organizations, saddling their work. The current food security problems pertain not to the fact that Russia imports much food, but rather that the imported and domestically produced goods do not meet the safety and health standards. The northern territories (unlike many others) are most suitable for organic agriculture; they are less saturated with chemicals and can be relatively easily incorporated in adaptive-landscape farming [*Lazhentsev* 2018].

The recovery of *tundra geosystems* has changed for the worse. The result is a crisis condition of the food supply for reindeer herding. The number of domestic deer and the natural resource potential of the tundra must be urgently balanced [*Elsakov* 2014]. Little attention is paid to the sustainable use of biological resources of northern seas [*Vasiliev, Zabolotskiy* 2010].

The challenges of modernizing *forestry and sustainable forest management are closely related to the proper account, evaluation, and capitalization of forest resources*. The integration of logging and woodworking persists as a general development direction. What makes it more pertinent is the current fragmentation of the logging industry into hundreds of temporarily created brigades. These allegedly small enterprises cut about 10-15 thousand m^3 of forest per year, without hiring the locals or building infrastructure. Small enterprises of the forest sector should be included in the general technological forest complex, have high and sustainable production, technological and socio-economic sub-contracts with medium and large enterprises (firms). Permanent forest management on a reproductive basis can only be achieved through relatively large-scale farming, encompassing (8-10 thousand square kilometers).

First of all, the forestry sector should be put in order. The satellite imaging of taiga territories in the European North of Rus-

sia reveals empty spaces, on which the forest has not been restored. These vast, visible gaps occupy no less than a third of the area officially listed as "covered forested." For example, pine woods located within 50-60 km around Syktyvkar, are subject to mass deforestation. Such barbarism is almost impressive. In the meantime, forest inventory data have not been updated for decades.

Biologists and economists are primarily concerned with the dynamics of forest-forming species. The bio-resource economy plays second-role to fuel and energy and mineral resources. However, to organize life in the Arctic and Northern Regions, it should soon become a priority. Therefore, capital flows from the mineral industries into agriculture, forestry, and water sector require more precise regulation. As of now, this has to be conducted through the state budget system.

The development of these industries requires more funds, taking into account their importance for the ecology. The adverse effects of industrial development of the Arctic and northern territories are well-known: intensive disruption of the structure of a biological community, air pollution, chemical contamination of soils, depletion of surface freshwater and fish stocks in reservoirs, intensification of negative permafrost-hydrological processes, increase in the incidence of population morbidity.

Ecologists and biologists alike advocate for a positive approach to environmental protection. This includes, for example: using new technologies to remedy the damage done by mining, or creating artificial meadows in the tundra to provide a reliable food supply for livestock, establishing regimes for grazing reindeer and preserving mosses and lichens; developing construction standards for permafrost conditions and much more. Specialists in geoinformatics have also advocated for nature monitoring, which would systematically cover all points of contact of fauna and flora. Special attention is drawn to the development of a national network of interregional reserves and parks with limited permitted technogenic activities, and the delimitation of territories of traditional uses by indigenous peoples.

The integrated use of biological resources is directly related to medicine, in particular, to human adaptation to severe climate and health protection of various groups of people: temporarily and permanently residing in the area, indigenous and "alien" peoples, those of various age groups. Physicians have obtained scientific results for rationing not only medicinal treatment but also for the use of bioactive substances obtained from local raw materials, as well as nutrition, which takes into account the intensity of physical activity.

From the standpoint of developing the Arctic Sector, the development and creation of large scientific-technological and production programs and projects "specifically for the Arctic" requires such substantial intellectual and financial resources, that the science itself becomes its material and technical base. [*Lazhentsev* 2016].

The solution to the mentioned national economic problems is closely connected ***with the forms of territorial organization of production and economic*** *systems* as a whole. The Author identified three types of territorial-economic systems in the North [*Lazhentsev* 2015]. Table 2 indicates them in connection with the AZRF.

Territorial economic complexes[3] are based on non-expendable resources, and everything connected and forming a part of such complexes requires modernization. Their organization is justified from the stand-point of creating territorial production complexes in the context of goal-oriented planning [*Zhukov* 2017].

3 Murmansk, Apatito-Monchegorsk, Arkhangelsk, Vorkuta, Salekhards (Including Labytnangi), Novo-Urengoy, Norilsk.

Industrial periphery[4] is mainly engaged in the development of minerals and servicing the infrastructure. These settlements usually develop in a boom-bust fashion, and they eventually and inevitably die out, failing to find a new economic foundation to hold on to. Some peripheral centers could serve as necessary facilities for the organization of watch, district, and expedition methods for the development and processing of minerals.

Rural periphery[5] (not only of agricultural but also all of those settlements which adhere to a rural way of life[6]) could be a part of "center-periphery" if equipped with a specific infrastructure, namely: stable year-round transport with use of river navigation where necessary, floating pontoon bridges, winter roads, small aviation; telephone, postal, telegraph, cellular networks, television, and Internet, using high-speed fiber and space communications.

This system adequately reflects, to a large extent, the differentiation of the Arctic space in terms of the forms of the organization not only of production but also of the population [*Fauzer, Lytkina, Smirnov* 2017]. This system is entirely consistent with the idea of a "return" trajectory of the development of resource-based regions – that is, the development and use of the previously "missed" mineral-raw resources and "unnoticed" sources of "unconventional" fuels. At the same time, among the drivers of the transition to a "return" trajectory are not only (and not so much) technologies, but "new quality of the institutional environment" [*Kuleshov* 2017, p. 12].

Interregional integration as a factor in the development of the Arctic and northern regions

Interregional integration also touches upon all the classic forms of the organization of production and the social sphere. Integration is viewed as a managed cooperation [*Minakir, Demyanenko* 2014].

The inclusion of the North and the Arctic in the spatial integration of Russia is primarily due to the formation of transport infrastructure in a grid-like pattern: that is, the intersection of latitudinal roads with large rivers running from the south

Table 2. The population of AZRF in 1990 and 2017, according to the types of economy, in thousands of people.*

Types of economy	The number of TES	1990	2017	Dynamics, 2017 to 1990 , %	Structure in 1990 , %	Structure in 2017, %
Territorial economic complexes	7	2194	1667	76.0	67.9	69.3
Industrial periphery	18	425	339	93.8	13.2	14.1
Mostly Rural periphery	35	612	400	65.4	18.9	16.6
Total for the AZRF	60	3231	2406	74.5	100.0	100.0

* The results for 1990 were determined by the Author based on district and municipal data available online. The calculations for 2017 are based on the "Population Estimate in the territories of the Arctic zone of the Russian Federation."

4 Cities: Zapolyarny, Nickel, Pechenga, Kovdor, Belomorsk, Kem, Onega, Naryan-Mar, Nadym, Gubkinsky, Muravlenko, Tarko-Sala, Dudinka, Tiksi, Bilibino, Pevek, Anadyr (including urban settlement Coal mines), as well as the shift settlement of Sabetta.

5 Settlements not included in the first two types of TES

6 For example, in AZRF, 253 thousand people were registered as of 2017; according to our estimates, 400 thousand people lived in rural settlements of the zone at that time

to the north. Meridional integration concerns not only the leading mining and processing industries but also science, construction methods on frozen soils, the conduct of northern commercial, agricultural and greenhouse farming, the development of samples of winter clothes and shoes, etc. What is studied and created specifically for the North, can then be used elsewhere just as effectively.

The relationship among the regions is of particular importance when it comes to resettlement. The Middle North and the pre-northern regions are more well-suited than the southern regions for the resettlement and residence of migrants From The Far North. At the same time, the same regions should become centers for the training of qualified personnel throughout the North.

The mismatch of federal districts with the economic zoning and the lack of integrated territorial administration still preclude binding the socio-economic space. According to the Author, this all the more speaks to the crucial role of neighbourly relations.

Development programs of vast territories likewise have not yielded a positive result, for example, as is the case with the Far East. The accession of the Republic of Buryatia and Zabaykalsky Krai to the far Eastern District may create additional difficulties for a truly prom-based control. Therefore, the desire of leaders of some constituencies (2-3 neighboring entities) to unite their efforts in tackling their tasks is not incidental.

The common grounds for neighboring integration for the Arctic territories can be determined as follows: preservation of natural landscapes, improvement of hydrological regime of rivers and lakes taking into account the high environmental importance of global watersheds, aligning the economic functions of tundra and taiga with their natural-resource capacity, restoration of river navigation, road construction, creation of thermal and electric power systems, processing of solid and gaseous wastes, cooperation in front-end loading and design. Integration should also be considered in terms of pooling of regional resources and efforts to develop their peripheral "corners." Neighboring municipalities of neighboring regions could have a single program of active development, taking into account the environmental advantages of the peripheral.

Conclusion

The Author recommends the following:

- strategic planning of socio-economic development of the Arctic and northern regions has to pay more attention to the modernization of existing production facilities, the infrastructure development of the developed territories, improvement of the quality of life of the local population, taking into account the characteristics of traditional economy of small peoples;
- to develop and implement such technologies, which allow working effectively and for a long time in already developed fields and areas;
- to take into account the increasing role of biological resources as the basis of life-sustenance. This can be done through by transferring financial capital received in the field of mineral resource management into a bio-resource economy;
- to improve the licensing of mineral resource management with mandatory participation of regional governments and to provide for additional conditions necessary for the systematic development of the mineral deposits and social development of the territories;
- to distribute the entire agricultural land fund according to ownership

and use; to strengthen the role of municipalities in land management;
– to organize forestry under international rules of sustainable forest management; to restore forestry agencies as supervisors of forest reproduction and to strengthen federal control functions;
– to strengthen economic ties among the regions (primarily, neighboring) with the formation and implementation of joint programs in the field of infrastructure development, natural resources management, and environmental protection

References

Elsakov V.V. (2014) A Technology of On-line Resource Estimation of Reindeer Pastures from Optical Remote Sensing Data. *Sovremennye problemy distantsionnogo zondirovaniya Zemli iz kosmosa,* no 1, pp. 245–255. Available at: http://jr.rse.cosmos.ru/article.aspx?id=1271, accessed 12.12.2019 (in Russian).

Fauzer V.V., Lytkina T.S., Smirnov A.V. (2017) Arctic Territories Differentiation by Density of Population and Economic Development. *The Arctic:Ecology and Economy*, no 4, pp. 18–31 (in Russian). DOI: 10.25283/2223-4594-2017-4-18-31

Hickel W.J. (2004) *Crisis in the Commons: The Alaska Solutions,* Moscow: Progress (in Russian).

Krukov V.A. (2016) Evolution of Rules and Procedures that Define Approaches to the Development of Mineral Resources. *Zhurnal ekonomicheskoj teorii,* no 3, pp. 106–117. Available at: http://www.uiec.ru/content/zhurnal-2017/JET/10iKrukovi3i16.pdf, accessed 12.12.2019 (in Russian).

Krukov V.A., Tokarev A.N. (2005) *Consideration of the Interests of Small Indigenous Peoples in Decision-Making in the Field of Subsoil Use.* Series: Library of Indigenous Peoples of the North. Issue 10, Novosibirsk, Moscow (in Russian).

Krukov V., Tokarev A., Shmat V. (2007) Differentiation of Taxation in the Gas Industry: a Step-by-Step Approach to Implementation is Needed. *Gazovyj biznes*, September-October, pp. 18–22 (in Russian).

Kuleshov V.V. (ed.) (2017) *Resource Regions of Russia in the "New Reality",* Novosibirsk (in Russian).

Lavrikova Yu.G. (ed.) (2017) *Scenario Approaches to the Implementation of the Ural Vector of Development of the Russian Arctic*, Ekaterinburg (in Russian).

Lazhentsev V.N. (ed.) (2002) *Fuel Sector of the Komi Republic: Directions and Methods of Development Regulation*, Syktyvkar (in Russian).

Lazhentsev V.N. (ed.) (2006) *North: Science and Prospects of Innovative Development,* Syktyvkar (in Russian).

Lazhentsev V.N. (2015) *North of Russia: Issues of Spatial and Territorial Development,* Syktyvkar (in Russian).

Lazhentsev V.N. (2016) Academic Science and New Industrialization (on the Republic of Komi Example). *Economy of Region*, vol. 12, no 4, pp. 989–1000 (in Russian). DOI: 10.17059/2016-4-2

Lazhentsev V.N. (ed.) (2018) *Modernization of the Bioresource Economy of the Northern Region,* Syktyvkar (in Russian).

Lazhentsev V.N., Dmitriev T.E. (1993) *Geography and Practice of Territorial Management,* Ekaterinburg: Nauka (in Russian).

Leksin V.N., Porfiryev B.N. (2017) Socio-Economic Priorities for the Sustainable Development of Russian Arctic Macro-Region. *Economy of Region*, vol. 13, no 4, pp. 985–1004 (in Russian). DOI: 10.17059/2017-4-2

Loginov V.G. (2007) *Socio-Economic Assessment of the Development of Natural Resource Areas of the North,* Ekaterinburg (in Russian).

L'vov D.S. (1998) Economic Manifesto. *Svobodnaya mysl'*, no 6, pp. 5–22 (in Russian).

L'vov D.S. (1999) *Development of Russian Economy and Tasks of Economic Science,* Moscow: Ekonomika (in Russian).

Minakir P.A., Dem'yanenko A.N. (2014) *Essays on Spatial Economics,* Khabarovsk (in Russian).

Mints A.A. (1972) *Economic Assessment of Natural Resources: Scientific and Methodological Problems of Accounting for Geographical Differences and Efficiency of Use,* Moscow: Mysl' (in Russian).

Selin V.S., Bashmakova E.P. (2013) Priorities of Modern State Strategies for the Development of the Arctic Regions. Region: Economics and Sociology, no 1, pp. 3–22. Available at: http://recis.ru/index.php/region/index/2013, accessed 12.12.2019 (in Russian).

Vasilyev A.M., Zabolotsky O.N. (2010) Economic Aspects of Development of Fish Economy in the Zone of Arctic Regions. *Proceedings of the Komi Science Centre of the Ural Division, RAS,* no 3, pp. 88–94. Available at: https://cyberleninka.ru/article/n/ekonomicheskie-aspekty-razvitiya-rybnogo-hozyaystva-v-zone-arktiki/viewer, accessed 12.12.2019 (in Russian).

Zhukov M.A. (2017) The Russian Arctic in 2016. Change of Vector of Management of the Arctic Zone of the Russian Federation. *Rare Earth,* February 1, 2017. Available at: http://rareearth.ru/ru/pub/20170201/02912.html, accessed 12.12.2019 (in Russian).