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RAIPON IS AN ASSOCIATION OF INDIGENOUS PEOPLES OF THE NORTH, SIBERIA AND THE FAR EAST, PROVIDING THEM WITH LEGAL PROTECTION

Abstract: *In the article, the authors performed relevant research related to what is happening in the Arctic region to protect the rights of indigenous peoples. This is primarily due to rapid climate change, melting ice and potential greater opportunities for economic activity in the Arctic, primarily related to resource extraction. However, the living of an increasing number of people in extreme geophysical conditions will require paying more attention not only to the health of people as individuals, which is what medicine has traditionally focused on, but also to the social health of the population of the Arctic region, which will require joint efforts of specialists from different industries, as well as creating a coherent long-term mechanism for interaction between the state, local authorities, business and the population. In this regard, this article is aimed at identifying the characteristics of the social health of the population of the Arctic region, focusing on the most pressing social problems of the population living in the Arctic region, the adaptation of migrants to the conditions of the Arctic, as well as on positive examples of their solution. The leading approach to the study of this problem is a generalization of the primary analysis of research in various fields of science, which made it possible to comprehensively consider the features and identify problematic areas of the social status of indigenous peoples of the North, Siberia and the Far East. The research materials are of practical value for government bodies and local self-government when making management decisions, for educational institutions not only in terms of reflecting this topic in the educational process, but also in borrowing new educational practices to increase the level of education of the population of the Arctic region, for business in order to understand the peculiarities of doing business in the Arctic region, taking into account the influence of extreme geophysical factors on the status of indigenous peoples and their psycho-emotional state.*

Key words: *social health, Arctic region, healthcare, ecology, housing conditions and sanitation, drinking water supply, climate change.*

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Introduction

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The preservation of cultural traditions and their transmission through rituals, rites and customs, traditional economic activities and language form and support the sense of belonging to one's people. In the modern world, in the context of globalization, it is especially valuable and at the same time difficult to preserve this for small indigenous peoples who are experiencing strong pressure from civilization. The younger generation cannot resist the temptation to abandon the traditional way of life and move to large populated areas. They stop participating in traditional rituals, wearing national costumes, and speaking their native language. The awareness of one's national identity is under threat, understanding the importance of preserving not only biodiversity, but also the diversity of national cultures and ethnic groups, the United Nations enshrined in its Declaration on the Rights of Indigenous Peoples (adopted [resolution 61/295](#) General Assembly of 13 September 2007) that "indigenous peoples have the right to respect and revitalize their cultural traditions and customs. This includes the right to preserve, protect and develop the past, present and future expressions of their culture, such as archaeological and historical sites, monuments of material culture, designs, rituals, technologies, visual and performing arts and literature" (Article 11). However, the experience of recent decades has shown that government intervention in the system of managing traditional forms of economic management has become a "double-edged sword" for the northern small peoples. On the one hand, the Arctic territories received a powerful incentive for development. In the post-war period, new resources were required to restore the destroyed economy of the USSR. The primary task of the country's leadership was the development of unexplored northern territories to use mineral resources for the needs of the country. The industrial development of the Russian Arctic has become not only a threat to the environment, but also to small nationalities leading a nomadic lifestyle. Moreover, the All-Union literacy programs extended to the Far North. "In order to improve the study of the Russian language in Nenets schools, the executive committee of the district Council of Workers' Deputies decided to organize preparatory courses in Nenets and Komi schools in the district in the 1946–1947 academic year." In 1946, a boarding school was organized. On September 18, 1947, the Nenets executive committee

decided to reorganize the basic elementary school into the Naryan-Mar seven-year school. On September 18, 1957, after the closure of the seven-year school, the Nenets boarding school was opened on its basis. Living in a boarding school contributed to the loss of connections between the children of reindeer herders and the traditional way of life. School graduates who had lost the skills of tundra dwellers did not return to the habitat familiar to their ancestors. The introduction of a state program for shifting reindeer grazing in the early 60s further widened the gap with the usual environment. The institution of the nomadic family was practically destroyed. Shepherds grazed herds of deer in the tundra, while women and children remained in the villages. The separation from his family greatly complicated the life of the reindeer herder. In addition to herding reindeer, everyday issues were also added: cooking, drying and repairing clothes - the traditional occupation of women in the tundra - became completely the responsibility of men. The transition to a sedentary lifestyle and changes in the traditional economic way of life served as the impetus for the loss of the native language in the families of reindeer herders. And, as a consequence, the disappearance of ethnographic and folklore diversity. Increasingly, the older generation, native speakers of the Nenets language, communicate in Russian with their children and grandchildren, because the native language is no longer relevant. Moreover, the intensive development of the northern territories contributed to the influx of highly educated specialists of other nationalities, bearers of other cultural values. Communication and friendship among young people of indigenous nationality and other ethnic groups created conditions for the formation of new families. In such families, Russian became the main language. In the early 2000s, as a result of prevailing circumstances, the number of native language speakers sharply decreased. In this connection, at the Pedagogical College named after A.P. Pyrers in Naryan-Mar were unable to recruit applicants for the training of Nenets language teachers in national schools in the district. As a result, the department for training teachers of the Nenets language for national schools was closed. The last hope for the natural spread and preservation of the Nenets language on the territory of the Nenets Autonomous Okrug was irretrievably lost. Since 2012, educational activities in the pedagogical college have been carried out only in Russian (according to Article 14 of the Federal Law No. 273 "On Education in the Russian Federation" dated December 29, 2012).

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Currently, in the Nenets Autonomous Okrug, attempts are being made to artificially revive traditions and rituals on the basis of an ethnocultural center throughout the district. The local press, namely the newspaper “Naryana Vender” (“Red Tundra Man”), maintains a page where material is published in the Nenets language. However, these attempts are not enough to preserve culture. We believe that government support measures, which will not only be formalized in program documents, but can become an effective tool for supporting and preserving the ethnocultural diversity of indigenous peoples of the North, Siberia and the Far East. It is necessary to support the entrepreneurial activities of indigenous peoples, who not only engage in traditional activities, but also develop Arctic tourism; introduction of electives for the study of the Nenets language and culture in educational institutions of the district; revival of national holidays, including in close collaboration with other territories of ancestral residence of the indigenous population.

Main part

From 2009 to 2017, the project of complex expeditions “Heritage of Russian America” was carried out in Alaska under the leadership of the hero of Russia, honorary polar explorer M.G. Malakhova. The geography of expeditionary research included both the interior regions of the state of Alaska - the basins of the Yukon, Kuskokwim, Nushagak rivers, the Nushagak lakes system, as well as the Aleutian ridge and Kodiak Island. The first hikes repeated part of the historical route along the river. Yukon Alaska explorer Lavrentiy Alekseevich Zagoskin, a Russian officer who, for two years in the forties of the 19th century, walked more than 5,000 miles on foot, by boat and on dog sleds, explored and mapped the middle and lower reaches of the largest rivers Yukon and Kuskokwim. Subsequently, the expedition members repeated the route not only of L.A. Zagoskin, but also another explorer of the interior of Alaska - naval navigators Ensign Ivan Yakovlevich Vasiliev, who in 1829–30. kayaked up the Nushagak, crossed the Nushagak ridge and crossed into the Kuskokwim basin, and in another period reached the Kuskokwim River basin through the Nushagak lakes system. Expeditions on the islands repeated the routes of Russian navigators who discovered these lands in the middle - second half of the 18th century. The expedition members conducted ethnographic research in the villages of the Athabaskans, Aleuts and Yupik Eskimos, made presentations for local residents about Russian researchers, and studied the implementation of the rights of indigenous peoples. During the expedition, Russian traditions were recorded that have been preserved in the life of Indians to this day since the times of Russian America. The results of the study showed that, despite the fact that the Russian stage on Nushagak and Kuskokwim was very short in duration

(20–60s of the 19th century), many influences of Russian culture have survived to this day, and play an active role in the life of the indigenous people. peoples In turn, the Aleutian Islands experienced the longest influence from the Russian people - more than a century and a half, with a level of borrowing comparable to the interior of Alaska. As part of the expedition, the areas of borrowing were only identified and require additional close attention, and may well become topics for independent research. Empirical data show that among modern representatives of the indigenous population, only middle-aged and older people are native speakers of the Indian and Eskimo languages. The younger generation (under 30 years of age) speaks only the official language of the United States, and there is no desire to speak and learn their native language, primarily because it is unnecessary. At the same time, the languages of the Eskimo group showed a greater degree of resistance to the expansion of the English language in comparison with the Indian languages. As the American researcher M. Krauss noted: “Russian influence on the languages of the indigenous population can be accurately measured by the number of borrowed Russian words that are still used today; most of them are nouns, defining new objects of material culture.” According to him, the Aleuts currently use about 400 Russian words, the Pacific Eskimos - more than 300, the Eskimos of Bristol Bay - about 190, the Tanaina Indians - more than 300, and, finally, the Tlingit only nine words. During the expedition, a small dictionary of Russian words found in folk culture was collected. These words became part of the languages of the Alaska Natives. Such a dictionary has not yet been created. There is reason to talk about the existence of a special Alaskan dialect of the Russian language. Wide distribution of Russian surnames and names. Currently, most of the indigenous population of Alaska have only Russian and American names and surnames, and they consider the former as part of their traditional culture (Kozhevnikov, Ivanov, Vaska, Pitka, Ismalka, Nikolai, Isakov, Petrushka, Kuzma, Agripina, Andreyanov and etc.). Borrowings in spiritual culture. The widespread spread of Orthodoxy, which began to actively spread after the sale of Alaska as a way of resisting segregation and forced Americanization (knowledge of Church Slavonic texts of prayers, icons, red corner, holidays, Orthodox chants in Russian, Christmas carols, etc.). Borrowing in housing and commercial buildings - log buildings, huts, storage sheds. At the end of the last century, Russian influence could easily be seen in the shape of the dwellings of the indigenous population of Alaska. On Kodiak and the Aleutian Islands, the form of housing was completely borrowed from the Russians. Here houses were built made of small logs, with windows and doorways, and a gable roof. Before entering the house, a canopy was always built, which

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is still called “collidor” among the Aleuts. A porch appeared in front of the entrance to the house, and instead of the animal skin that had previously been used to cover the entrance, they began to use a wooden door on hinges. The form of furniture borrowed from the Russians was widely used: bunks, benches, chests, tables. Some types of clothing also appeared under Russian influence. Villages and their layout are another subject of borrowing (initially, indigenous peoples were nomadic and the idea of permanent settlement was first introduced by Russian colonists, who, in fact, shaped the appearance of modern indigenous settlements). Borrowings in everyday culture (in particular, baths). Physical monuments of the Russian period have not been used in everyday life for a long time, and if they are preserved, they are preserved as family heirlooms and souvenirs. Many have icons, in most cases these are modern paper images of saints, but there are also ancient ones, preserved from the century before and last. These are, perhaps, the only monuments of material culture preserved from the Russian period in the history of Alaska. In the vast majority of houses, as in Russian villages, photographs of the owners and their relatives take pride of place. Orthodox icons are placed either opposite the entrance or next to a window (location in the corner is not typical). S. Fedorova, assessing the contribution of the Russians to the development and exploration of Alaska, she wrote: “The Russian period, although it ended abruptly and suddenly in 1867, was of great importance for the subsequent development of Alaska and its indigenous population. The Russians laid the foundation for the diversified development of Alaska’s economy. The Russians introduced the indigenous population to their culture, created a written language for non-literate peoples, and published books in their native languages.” Thus, some elements of Russian culture, having undergone certain changes, became an integral part of the traditional culture of the indigenous population of Alaska and are preserved to this day and were explored by participants in the Heritage of Russian America expeditions. The Constitution of the Russian Federation guarantees the rights of indigenous peoples in accordance with generally accepted principles and norms of international law and international treaties. At the same time, land and other natural resources are used and protected as the basis for the life and activities of the peoples living in the relevant territory, and in Art. 72 issues of joint jurisdiction of the Russian Federation and its constituent entities include the protection of the original habitat and traditional way of life of small ethnic communities. These constitutional norms are disclosed in more detail and concretization in federal laws (for example, the Federal Law “On guarantees of the rights of indigenous peoples of the Russian Federation” dated April 30, 1999 No. 82-FZ (hereinafter referred to as Law No. 82-FZ) and the laws of the constituent

entities. At the same time, the procedure for the implementation by indigenous peoples of the north of their rights in the field of protecting their ancestral habitat at the regional level is not sufficiently regulated: not all subjects have the appropriate regional laws. The list of places of traditional residence and economic activity of indigenous peoples of the Russian Federation is approved by the Government of the Russian Federation on the proposal of state authorities of the subjects, in whose territories these peoples live. In Law No. 82-FZ, the concept of ancestral habitat is revealed as a historically established area within which small peoples carry out cultural and everyday life activities and which influences their self-identification and way of life. According to A.I. Kazannik, this definition does not fully reveal the essence of this concept and draws attention to the definition given by ethnographers: “the natural and historical-cultural environment that has developed in the territories of historical settlement of indigenous small ethnic communities and is the basis of their traditional way of life.” The objects that make up the concept of “original habitat” include: lands of settlements of indigenous peoples of the north, lands on which burials are located, natural objects that are part of the cult of indigenous peoples, as well as hunting and fishing grounds, reindeer pastures, gathering areas. At the same time, there are no specific rules aimed at realizing the rights of indigenous peoples to their original habitat in the law. In particular, the procedure for assessing the impact on the natural environment in places where indigenous peoples live and mechanisms for compensation for damage caused are not prescribed. Law No. 82-FZ contains the concept of ethnological expertise - “a scientific study of the impact of changes in the ancestral habitat of small peoples and the socio-cultural situation on the development of an ethnic group.” However, there is no federal regulation on the issue of ethnological examination and the use of its results without legislative regulation is difficult. It should also be noted that there is also no mechanism for the participation of indigenous peoples in conducting environmental assessments. The Law of November 23, 1995 No. 174-FZ “On Environmental Expertise” does not provide for the obligation to conduct an expert assessment when developing territories where indigenous peoples live. Accordingly, the creation of an appropriate regulatory framework can become a real guarantee of respect for the rights and interests of indigenous peoples. In the Russian Federation, the protection of the rights of indigenous peoples is ensured, in particular, through judicial protection. Law No. 82-FZ contains a provision on the right of indigenous peoples to judicial protection of their original habitat, which can be exercised, including through an authorized representative, in order to more effectively protect their rights. Judicial protection is provided in the

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process of considering civil, criminal, and administrative cases related to violations of norms on the protection of natural objects located within the ancestral habitat of indigenous peoples. Similar norms are established, in particular, in the Town Planning Code of the Russian Federation. As an example of the successful implementation of the right to judicial protection, A.A. Tranin points to the decision of the Arbitration Court of the Komi Republic dated May 5, 2010 on compensation for material damage caused to reindeer pastures. Based on the case materials, it was established that the soil cover with moss growing on it (the main food source for reindeer) was destroyed by tracked vehicles. The court, taking into account the expert's opinion, satisfied the claim in full. One of the important forms of protecting the habitat of small peoples is also the formation of territories of traditional environmental management. They are specially protected areas necessary for the traditional way of life, conservation and development of indigenous peoples. The procedure for the formation of such territories is defined in Law No. 49-FZ of 05/07/2021 "On the territories of traditional environmental management of indigenous peoples of the North, Siberia and the Far East of the Russian Federation." Currently, there are more than 400 such territories, but the number of refusals has reached a huge number, which, according to A.A. Tranina, is an absolute violation of the constitutional right of indigenous peoples to their original habitat. Thus, the ancestral habitat for the indigenous peoples of the north is the basis for their normal development, including the development of traditional farming. Currently, the Russian Federation has enshrined the right of indigenous peoples to their original habitat, but the implementation of this right requires additional legislative elaboration. In accordance with the fundamentals of the state policy of the Russian Federation in the Arctic for the period until 2035, approved by the President of the Russian Federation on September 18, 2020, the Arctic zone of the Russian Federation should become the leading strategic resource base, solving the problems of the country's socio-economic development, as well as maintaining the role of a leading Arctic power. However, achieving the potential development opportunities of the Russian Arctic zone is hampered by a whole range of problems. An important problem is the lack of complete official information on the Arctic zone of the Russian Federation as a whole and on territories partially classified as part of the Russian Arctic zone. Using this information, it would be possible to make a multifactor analysis on the feasibility of developing, preserving and studying these territories, but the authors of works on Arctic issues may overestimate or underestimate statistical indicators characterizing the level of socio-economic development of the Arctic zone of the Russian Federation. In addition, at present, no special federal law "On the Arctic Zone of the

Russian Federation" has been introduced, which would regulate fundamental issues related to the functioning of the Arctic zone of the Russian Federation as a special region of the Russian Federation. It cannot be said that the Arctic territories are outside of legal regulation: this function is performed by many different legal acts. However, for the development of the territory, a unified law is needed that can ensure the multi-purpose development of this territory and the preservation of the geopolitical interests of the country. An analysis of the development of the Arctic zone of the Russian Federation and an assessment of the experience of developing the Arctic territories of the member countries of the Arctic Council identified negative demographic processes in most subjects of the Arctic zone of the Russian Federation and the outflow of highly qualified labor resources to the southern regions of Russia and abroad. Thus, in recent years, the population of the Arctic zone of the Russian Federation has decreased by 2.4%. The main reasons for the outflow of population from the Arctic regions are not problems with fertility and mortality, but the problem of migration outflow associated with an insufficiently high level and quality of life in these territories, including the closure of production enterprises and the lack of places of work, low work motivation, which determined by the size of individual income (the amount of wages and compensation payments). According to the authors, it is the growing economic activity of states that causes the problem of environmental pollution. Environmental problems are especially acute in the territories of the Arctic zone of the Russian Federation, in the Arkhangelsk and Murmansk regions, territories adjacent to Norilsk, and oil and gas production areas in Western Siberia. These areas are distinguished by a profound transformation of the natural environment. The Arctic nature is especially vulnerable in comparison with other regions; currently there is an acute shortage and even the absence of new environmentally friendly and competitive industrial technologies that can ensure the preservation of the environment of the Arctic zone of the Russian Federation. Along with other problems, the regions of the Arctic zone of the Russian Federation are characterized by "high energy intensity and low efficiency of natural resource extraction." The lack of accurate data on hydrocarbon reserves and other resources increases risks when developing policies for modernizing the infrastructure of the Russian Arctic zone.

Competition for Arctic resources is impossible without maintaining the population of Arctic territories and maintaining human potential. To stimulate the demographic development of the Arctic zone, it is now necessary to develop and adopt a set of measures, which should include both social and economic, cultural and other measures. Thus, in order

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to attract the population to the Arctic zone, it is necessary to create, among other things, a material interest in working in the Arctic. In modern realities, the primary goal of state policy in the Arctic zone of the Russian Federation is the transfer of Arctic territories to innovative development. The main indicator characterizing the level of innovative development is the volume of innovative goods, works and services. Due to the current structure of the economy, maintaining the innovative development of all industries is impossible, and the creation of new industries at the initial stage will not be as effective as the introduction of innovations into existing traditional industries. The mining and manufacturing industries, which predominate in the regions of the Arctic zone of the Russian Federation, are one of the drivers of innovative development. This is due to the concentration in these industries of more technologically complex and knowledge-intensive products with high added value. These industries are both sources of innovative products, works and services, and the main consumers of innovative developments. All this necessitates the formation of a system aimed at creating conditions for increasing and developing financial and human resources potential, taking into account the level of involvement of enterprises in the mining and manufacturing industries in the process of creating and implementing innovations. Thus, the main objectives of supporting the innovative development of the Arctic zone of the Russian Federation should be, namely:

- creating conditions to ensure financing of innovation activities;
- provision of qualified personnel.

To provide financial support for innovative activities in the Arctic zone of the Russian Federation, the following are needed: tax incentives, stimulation of private businesses to invest in innovative projects, as well as the use of targeted programs. In addition, stability of legislation is extremely important for business. One of the main tools that contribute to financial support for the development of Arctic territories in foreign countries are regional programs. Private capital is not able to provide long-term investments in the economy of the Arctic zone of the Russian Federation, therefore the state must take the initiative into its own hands and create conditions for the participation of private capital in the socio-economic development programs of the Russian Arctic. These programs should be aimed at:

- updating infrastructure, communication systems and communications (primarily transport);
- attracting labor reserves;
- solving the problems of the small indigenous population of the Arctic;
- targeted subsidies.

When developing and implementing measures to increase the efficiency of Arctic development, it is necessary, among other things, to use foreign

experience. The main goal of the socio-economic development of the Arctic zone should be the comprehensive development of the territory, and only the extraction and transportation of energy resources to other countries. At the present stage, increased competitiveness, sustainable economic growth and the well-being of the population are determined mainly by the innovative type of reproduction. The importance of innovative development is especially great for the recovery of the agricultural sector of the Arctic zone of the Russian Federation (AZRF) from the crisis, sustainable development of agricultural production, and provision of the population with biologically complete local food products. Our own agricultural production is aimed at providing the population of the Arctic zone with meat, milk, sea, river and lake fish, eggs, greenhouse vegetables, and wild plants. Local food products directly provide livelihoods and determine the level of food security for more than 2.5 million people living in the Russian Arctic. The formation of an innovative agricultural economy in Russia is currently being built on the basis of the Federal Law “On the Development of Agriculture”, the State Program for the Development of Agriculture and Regulation of Markets for Agricultural Products, Raw Materials and Food for 2018–2035, the Strategy for the Sustainable Development of Rural Territories of the Russian Federation on the period until 2035, Strategies for innovative development of the Russian Federation for the period until 2035, Strategies for innovative development of the agro-industrial complex of the Russian Federation for the period until 2035. These documents are aimed at creating conditions for increasing employment, ensuring a stable increase in the level and quality of life of the rural population based on the modernization of agricultural production. Innovation activity is carried out on the continuous interaction of the creation and dissemination of innovations into production within the framework of the state policy in the field of development of the innovation system. Currently, not all subjects of innovation activity, both in the country as a whole and at the regional level, have been created and united into an integral innovative agricultural system. The formation of an innovation infrastructure, in which the agricultural consulting system plays a key role, is of particular relevance. The activities of specialist consultants at the Institute of Agricultural Consulting are aimed not only at providing a variety of services needed by agricultural producers and the rural population, but also at the development and transfer of innovations into agricultural production. With the help of the information and consulting service, the innovation process is managed at the stage of innovation development. In the Concept for the development of agricultural science and scientific support of the agro-industrial complex of the Russian Federation for the period until 2035. Among the priority areas for the development of agricultural

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science and scientific support for the agro-industrial complex of Russia, the development of innovation and consulting activities in the agro-industrial complex has been identified. Currently, agricultural consulting centers at the regional and district levels have been established in most constituent entities of the Russian Federation. Currently, agricultural producers and the population can receive consulting services in 60 constituent entities of the Federation, where 73 regional and more than 0.5 thousand district agricultural consulting organizations operate. Consulting services are least developed in the northern and Arctic territories with extreme conditions for agricultural production and agrarian characteristics. In the European North, out of six regions, agricultural consulting centers have been created only in Karelia and the Komi Republic. Existing consulting does not always take into account the specific features of the agricultural sector of various regions of the country associated with natural, economic-geographical, socio-economic conditions and factors. The system of agricultural consulting cannot be the same for all subjects of the Federation. A mechanical transfer of the practice of organizing agricultural advisory services from regions with developed agriculture to the regions of the North and the Arctic will not yield positive results. Here, due to the peculiarities of the functioning of agriculture, the formation and development of an agricultural consulting system will differ significantly. In this regard, developing ways to form and develop an agricultural consulting system for the northern and Arctic territories with difficult conditions for agricultural production is an urgent task. Agricultural consulting is a type of activity of consultants to provide services necessary for agricultural producers and the rural population to master new knowledge, new technologies, selection and genetic, marketing, organizational and managerial, economic and socio-ecological innovations in order to obtain economic, social and environmental benefits. Consulting, unlike information, is aimed at a specific object of agricultural activity. The counseling process represents the interaction between the consultant and

the client to solve problems. Users of consulting services are agricultural and agri-food organizations, peasant (farm) farms, rural population (owners of personal plots, gardeners), government bodies of the agro-industrial complex and local government. Each subject is interested in obtaining economic, social and environmental benefits through the services provided to him. The consulting process represents the interaction between the consultant and the client to solve problems and implement changes that bring benefits to agricultural producers. In modern conditions, the agricultural consulting system is the main tool for the transfer of innovations from producers of innovations to agricultural consumers. With the help of the consulting service, information about innovations is disseminated through the publication of specialized literature, information via the Internet, radio and television, and training events. Specialist consultants demonstrate new knowledge, new technologies on experimental fields and farms, and implement innovative projects in agricultural production. The need to create an agricultural consulting system at the federal, regional and district (interdistrict) levels is due to: the shortage and outflow of qualified specialists from the agricultural sector; degradation of resource potential and the need for innovative modernization of agriculture; uncertainty and constantly changing external and internal environment; the weakening of the management bodies of the agro-industrial complex in the dissemination of scientific knowledge and the development of innovations; difficulties experienced by rural producers in obtaining information about innovations, as well as about best production practices; underdevelopment of agricultural innovation infrastructure. Agricultural consulting is an essential element of the agroinnovation system (Figure 1). The consulting service closely interacts with other subjects of the innovation process and serves as an effective tool for transferring innovations to the agricultural sector. Foreign experience shows that about 60-80% of agricultural producers are able to master innovations with the help of an agricultural consulting service.

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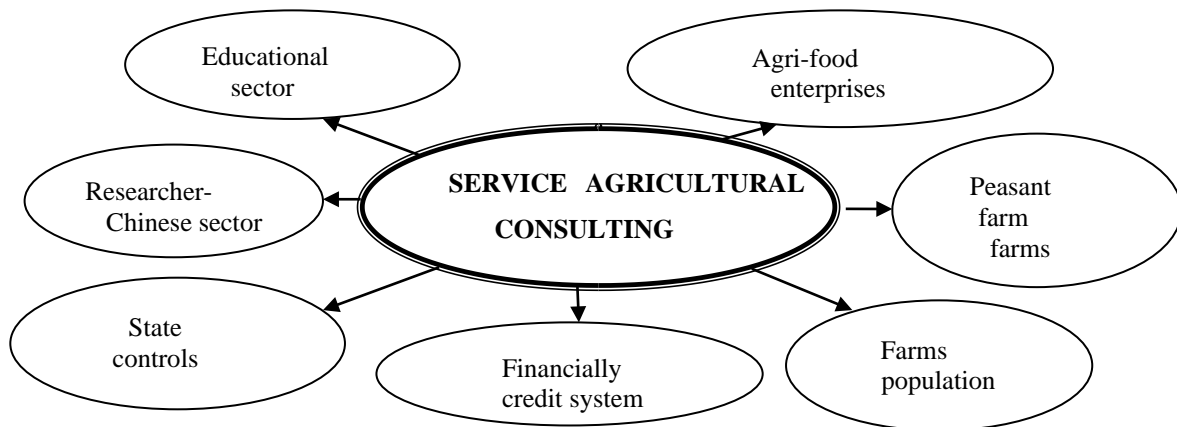


Figure 1. The place of agricultural consulting in the innovation system of the agricultural sector

A key role in the innovation infrastructure belongs to the agricultural consulting system. The agricultural consulting system, which closely interacts with scientific and educational institutions, implementation organizations, and agricultural

producers, is an effective tool for mastering innovations in production. The consulting service is designed to perform the following main functions (Figure 2).

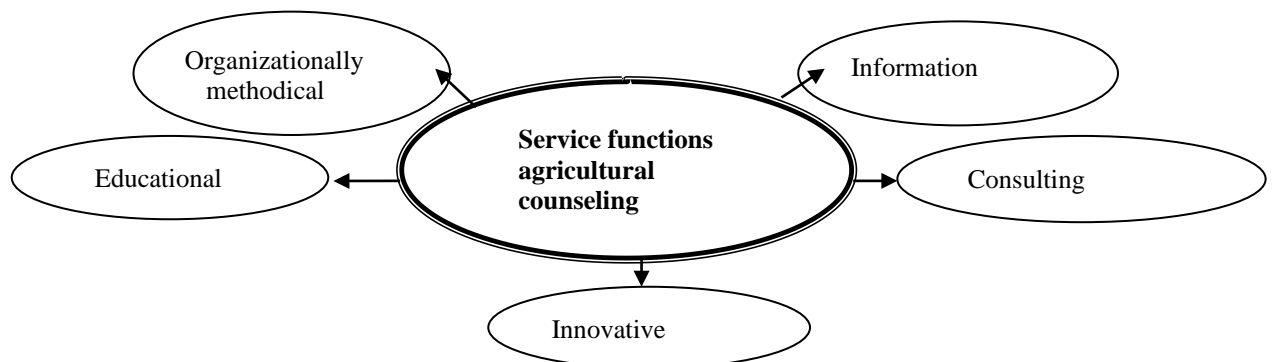


Figure 2. Functions of the regional agricultural advisory service

1. The organizational and methodological function is designed to organize the coordination of interaction between the subjects of the consulting service, organizational and methodological support for the work of consultants, holding seminars and conferences, and create conditions for expanding access for agri-food subjects and the rural population to consulting services.

2. The information function solves the problems of generating information resources, providing subjects of innovation with scientific and technical achievements and advanced production experience in the agricultural sector, and disseminating information.

3. The consulting function is aimed at providing advice to agricultural producers and the rural population.

4. Innovation function is the main function of the agricultural advisory system. It is aimed at

disseminating and introducing innovations in agricultural production. With the help of the innovation function, the organization and implementation of events for the dissemination and implementation of innovations in production is carried out.

5. The educational function is aimed at holding seminars, round tables, conferences in close cooperation with regional educational and scientific institutions.

The most important function of consulting services is to provide innovative support to agricultural producers. Using the innovative function, the following tasks are solved, namely:

- improving mechanisms for mastering innovations in agricultural production;
- development of recommendations for the introduction of innovations for specific consumers, preparation of innovative projects;

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- organization of demonstration facilities on an industry basis, including alternative employment for the rural population;
- organizing and conducting mass and collective events to disseminate information about innovations, training seminars, schools, presentations, demonstrations, field days and information days;
- dissemination of best practices;
- participation in the formation of plans and programs for scientific research and production testing;
- collecting and summarizing information about completed scientific developments in research and

educational organizations, forming a regional information bank on its basis.

The agricultural consulting system is a link between producers of innovations and their users. To develop innovative activities, the advisory service will have to strengthen ties with the scientific and educational sector, management and service bodies in the agricultural sector, and information institutions. A diagram of possible interaction between the agricultural consulting service at the level of the Komi Republic and subjects of innovation activity is shown in Figure 3.

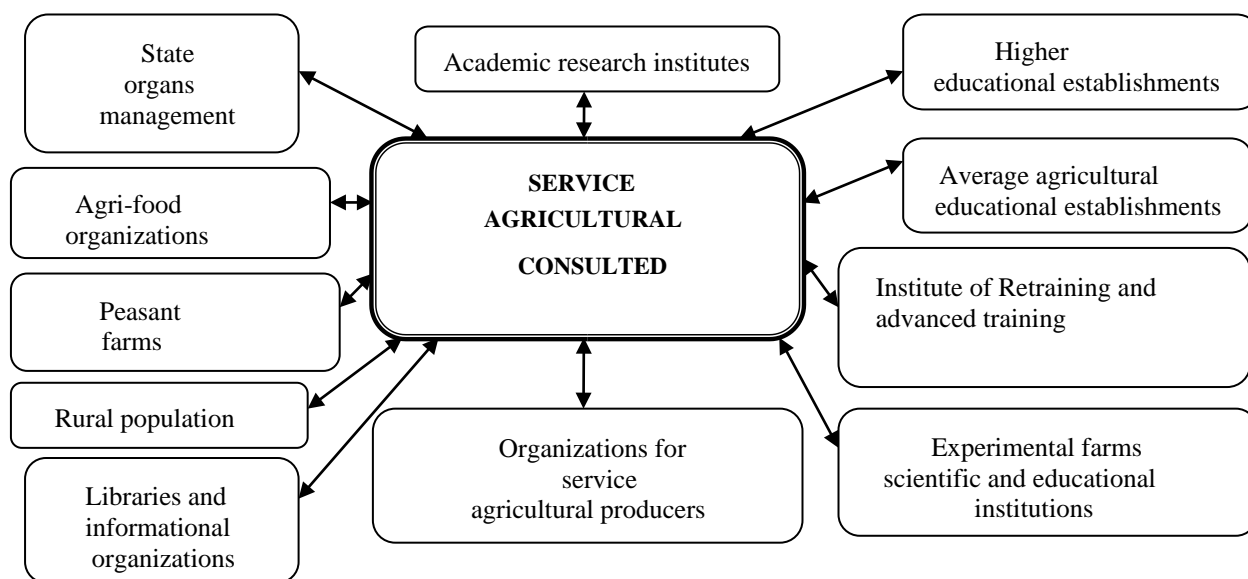


Figure 3. Interaction of the regional agricultural consulting service with subjects of innovation activity

The service can prepare proposals for applied scientific research in demand by agricultural producers for scientific organizations, create a data bank on innovative projects, inform potential consumers about them - agri-food enterprises and peasant farms, help resolve issues of forming innovative projects, and recommend investors for their implementation. Employees of the consulting service, together with scientists and university workers, can conduct applied research on current problems of the agro-industrial complex, and engage

in publishing and advertising activities. Interaction of the information and consulting service with institutions of secondary vocational agricultural education is possible by using their educational and production base to organize experimental and demonstration activities of the regional consulting service. The priority areas for the participation of the agricultural consulting service in the development and transfer of innovations into agricultural production are shown in Figure 4.

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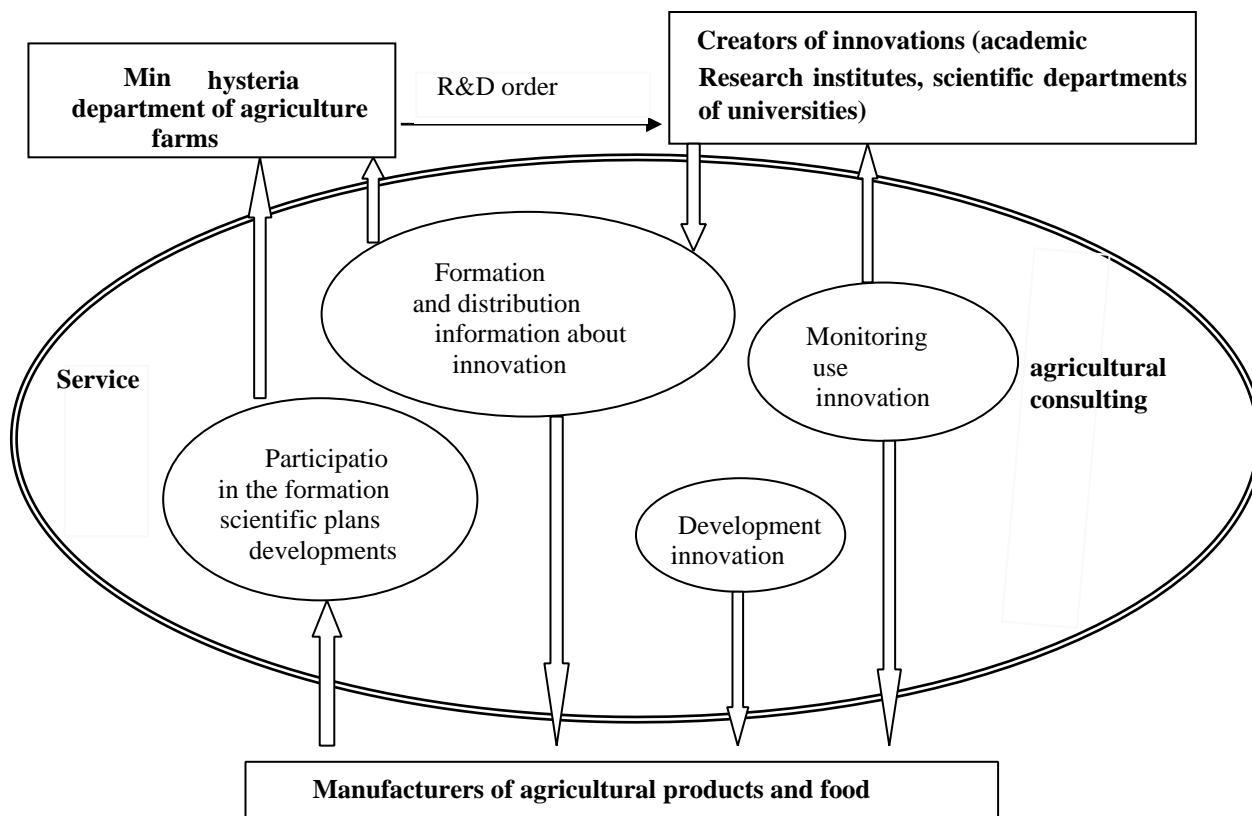


Figure 4. Scheme of participation of the regional agricultural consulting service in the development of innovations

Scientific organizations can disseminate information about innovations through the agricultural consulting system using printed and video products, demonstration events, consult service specialists in the development of innovations, develop, examine and evaluate the effectiveness of innovative projects, and, together with consulting organizations, introduce innovative developments into production. Universities must provide training for modern specialist consultants who will be able to solve practical problems of innovative development of the agricultural sector. Close interaction between the republic’s advisory service and scientific and university institutions is possible by involving employees of research institutes and university teaching staff in training employees of advisory services. In turn, highly qualified service consultants should be recruited to train specialists for the agricultural sector and the regional agricultural consulting service. Not only agricultural producers, but also the management bodies of the regional agro-industrial complex are interested in the effective functioning of the integrated information and consulting service. This interest is related to the implementation of an agricultural consulting system for agri-food policy, a strategy for sustainable agricultural and rural development through the dissemination and implementation of innovations, best practices and management methods, and market

information. Regional authorities and governing bodies, together with the participation of the federal budget, provide financial support for the information and consulting service.

To expand access to information and advisory services to agricultural producers and the rural population, the involvement of rural administrations will be required. Heads of rural administrations can help organize information corners in libraries, premises of rural administrations, provide premises for meeting rural residents with visiting consultants from agricultural consulting centers, ensure connections between owners of personal subsidiary plots and family farms with consulting centers, identify and equip basic farms in which best practices can be demonstrated. The heads of basic farms will provide consultations to agricultural producers and personal subsidiary plots of the population. A study of organizational forms of agricultural consulting abroad and in our country shows that different service models are used. For the subjects of the Arctic zone, during the period of establishment of the agricultural consulting service, it should be retained in the agro-industrial complex management system. This organizational form of agricultural consulting, as already noted, is used in the Republic of Belarus. Its main advantages are as follows:

- an effective federal link in the system, which ensures the development of the legislative, scientific

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and methodological base, training and advanced training of personnel;

- close interaction with regional and local administrations, good production contacts with agricultural producers;

- great opportunities for the service to influence the formation of state agricultural policy;

- the use of existing qualified and experienced personnel of government agencies, which allows the formation and development of the service at minimal cost.

At the same time, this model is not without its drawbacks: the service can be used as a tool for implementing public service policy; the client does not have much confidence in government officials and does not want to move into open trusting relationships. In Komi, the agricultural consulting service is represented by the information and consulting department of the Ministry of Agriculture of the republic. There is no agricultural advisory service at the municipal level, which hinders the access of rural residents, especially remote areas, to information and advisory services. Agricultural consulting in the region is at an early stage of development. The main activities of the service are related to consulting, conducting training events and publishing information materials. The consulting service is not involved in the promotion and implementation of innovative technologies, and does not participate in the formation of plans for applied scientific development. Close ties between the advisory service and the management and service bodies of the regional agro-industrial complex, scientific and educational sectors have not been established. As the agricultural consulting system develops, it is advisable to create an autonomous institution. The status of an autonomous institution will ensure the efficiency of the service, improve the quality of services provided, and minimize taxation. The autonomous institution will receive guaranteed budget funding in accordance with the developed state task and will increase the flow of funds from the provision of commercial services. The formation and functioning of agricultural consulting in the subjects of the Arctic zone has its own specifics, determined by natural, socio-economic factors, established types of agricultural structures, scientific, educational, personnel, production and financial potential, innovative activity of agricultural organizations and peasant farms. We have developed a scheme for organizing agricultural consulting for the Pechora-Ural Arctic, represented by the urban district of Vorkuta (located in the Arctic zone), as well as the urban districts of Inta and Usinsk and the municipal districts of Ust-Tsilemsky, Izhemsky, Pechora (located in the Arctic and subarctic zones). For the urban districts of Vorkuta, Inta and Usinsk and the municipal district of Pechora, it is proposed to create an intermunicipal consultation center in the city of Pechora. For the Arctic rural areas of Izhemsky and

Ust-Tsilemsky, a similar center should be located in the village of Izhma. There is a need to speed up counseling centers with highly qualified specialist consultants. Each intermunicipal consultation center will include a livestock specialist, an accountant-economist and a lawyer on a temporary basis. The formation of appropriate agricultural consulting centers will increase the coverage of agricultural producers and the rural population with information and consulting services, dissemination of innovations for medium and small forms of agricultural structures, increase the level of coordination and integration of services with agricultural science and education. Taking into account the specific features of the functioning of agricultural production, it is inappropriate to create municipal (district) consultation centers in each subject of the Arctic zone. For example, in the Nenets Autonomous Okrug, a regional agricultural consulting center should be organized in the city of Naryan-Mar in the district's agro-industrial complex management system. The formation and development of agricultural consulting related to strengthening the staff of consultants, providing consulting and innovative assistance to agricultural producers and the population, conducting training and practical activities, developing the infrastructure and material and technical base of consulting services will require significant financial resources. In the current difficult socio-economic conditions that have developed in the agricultural sector of the Arctic zone, increasing financial support for advisory services is associated with budget formation. As the system of agricultural consulting strengthens and develops, and the sustainability of agriculture, there will be a gradual transition from fully budgetary financing of consulting services to their partial reimbursement through payments from agricultural producers and borrowed funds. A questionnaire survey conducted by the authors (2020–2022) of managers and specialists of agricultural organizations and farms showed that agricultural producers in the Komi Republic agree to pay for the development of business plans, farm development strategies, assessment of investment projects, introduction of modern technologies, and search for channels for selling products. Activating paid consulting will require subsidizing part of the costs of agricultural producers using consulting services. With the completion of the formation and strengthening of the personnel and technical potential of the agricultural consulting service in the Arctic zone, it will in the future become the main instrument for the transfer of innovations from the subjects of the agroinnovation system that produce innovations to agricultural consumers. In accordance with the Charter of the Murmansk Region and Decree of the Government of the Russian Federation dated April 17, 2006 No. 536-r "On the Unified List of Indigenous Minorities of the Russian Federation," the indigenous

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people of the Murmansk Region are the Sami. According to the 2010 All-Russian Population Census, 1,599 Sami people live in the Murmansk region (about 0.2% of the total population of the region), 226 people belong to other small peoples of the North (Nenets, Evenki, Mansi, etc.). The majority of representatives of the indigenous people of the North (hereinafter referred to as IMN) live in rural areas (66.3%). Places of traditional residence and traditional economic activity of indigenous peoples of the Russian Federation in the Murmansk region in accordance with the order of the Government of the Russian Federation dated 05.08. 2009 No. 631-r "On approval of the list of places of traditional residence and traditional economic activities of indigenous peoples of the Russian Federation and the list of types of traditional economic activities of indigenous peoples of the Russian Federation" are the municipalities of Kovdorsky district, Kola district, Lovozersky district, Tersky district. In the Murmansk region, active government measures are being taken to support traditional economic sectors and way of life, as well as communities of indigenous peoples of the North.

In the agricultural production cooperatives of the Lovozero region: Agricultural production cooperative "Tundra" and Agricultural production cooperative Olenevod MNS, the main activity of which is reindeer husbandry, the share of indigenous peoples of the North is 27.6% of the total number of employees. Every year, the Ministry of Fisheries and Agriculture of the Murmansk Region and the Barents-White Sea Territorial Administration of the Federal Agency for Fisheries distribute quotas for the extraction (catch) of aquatic biological resources for representatives of indigenous peoples and their communities in order to ensure the traditional way of life and carry out traditional economic activities based on submitted applications. One of the common forms of self-organization of people from among indigenous peoples, the main goal of the creation and activities of which is to protect the ancestral habitat, traditional way of life, rights and legitimate interests of representatives of indigenous peoples, is a community. In the Murmansk region, 37 communities of indigenous peoples of the North are currently registered. Detailed information can be found on the official website of the Government of the Murmansk Region at the link: http://gov-murman.ru/region/saami/short_info/. The main activities of the tribal and territorially neighboring communities of the Sami people are: fishing and extraction of aquatic biological resources in the Barents Sea and in inland waters of the region; reindeer husbandry; fishing of marine animals; hunting; collection of wild plants; processing of products of these types of management; production of household and cultural items of the Sami people; provision of tourist and excursion services. 9

communities have leased forest areas for reindeer grazing. All sites contain water bodies where communities carry out traditional fishing. 2 communities have fishing grounds on the White Sea. On the lands of the forest fund, communities of indigenous peoples of the North were provided with 9 forest plots for use, 2 plots were provided to an individual from among the indigenous peoples of the North (Sami) for reindeer herding. 2 Sami communities received fishing grounds on the White Sea for use. In order to support and develop community forms of economic management and self-employment of the indigenous people of the Murmansk region, preserve their cultural heritage, traditions and customs, within the framework of one of the tasks of the state program "Public Administration and Civil Society", the subprogram "Strengthening ethnocultural diversity, civic consciousness and patriotism" in the Murmansk region" the following government support measures are being implemented in the Murmansk region. Every year, funds are allocated from the regional and federal budgets to improve the material and technical base of communities. From 2019 to 2022, 31 communities received support in the form of subsidies for a total amount of about 35 million rubles. Using allocated funds, communities purchased wooden houses, snowmobiles, ATVs, cars, motor boats, electric generators and other equipment necessary for traditional economic activities. Every year, representatives of the indigenous people working in reindeer herding farms and communities are provided with vouchers to sanatorium and resort institutions. During the period from 2019 to 2022, 43 people underwent health improvement in sanatoriums. In order to preserve the Sami language in the Murmansk region, fiction, educational and methodological materials on Sami topics are published, cycles of television and radio programs are produced in the Sami and Russian languages, and CDs are produced. Activities are being implemented aimed at preserving the traditions and customs of the indigenous peoples of the North and popularizing the original national culture. National holidays, festivals, exhibitions, round tables, seminars, and conferences are held annually. The main cultural events are the celebration of the National Sami Day - annually on February 6 in the territories of traditional residence of indigenous peoples and the annual festival of Sami music and the festival of children's and youth theatrical performances in the Sami language "Moainas Lanni - Fairytale City", which take place in the city of Olenegorsk. Also, representatives of the indigenous people, according to established tradition, take an active part in organizing the regional holiday of national cultures "Festival of Friendship", the Day of the Sami Word, the Day of the World's Indigenous Peoples - August 9, the Murmansk city local history festival of children's creativity "Chakhkli", the

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regional Holiday of the North and the Day of the Reindeer Herder, traditional summer and autumn Sami games. Every year, as part of the Program, a delegation of the indigenous Sami people takes part in the International Exhibition Fair “Treasures of the North”, which takes place in Moscow. Activities in the field of improving the quality of life and preserving the original culture of the indigenous peoples of the North are also being implemented within the framework of comprehensive regional plans. According to the Law of the Murmansk Region dated June 28, 2018 No. 1649ZMO “On Education in the Murmansk Region,” the creation of conditions to meet the needs of indigenous peoples of the North in studying their native language and literature falls within the powers of the Ministry of Education and Science of the Murmansk Region, which manages the field of education within the limits of possibilities provided by the education system of the Murmansk region. The learning of the Sami language is carried out in accordance with the needs of students and their families. Currently, the study of the Sami language in general education organizations in the Lovozero region is organized in accordance with the wishes of parents in the form of club classes. Groups of the first year of study are formed at the beginning of the school year on the basis of applications from parents (legal representatives) of students, mainly representatives of the Sami population, as well as non-Sami nationalities (Komi-Izhemtsy, Russians). All statements from parents (legal representatives) of students, those expressing a desire to learn the Sami language are satisfied. The Ministry of Health of the Murmansk Region is implementing measures aimed at improving the quality and standard of living of indigenous peoples of the North in the field of healthcare. In order to increase the accessibility of medical care to residents of remote settlements of the Murmansk region, medical organizations use on-site and remote forms of providing consultative and diagnostic assistance. In accordance with the order of the Ministry of Health of the Murmansk Region, the work of the “Health Train” was organized using vehicles and mobile medical equipment. Within the structure of the Government of the Murmansk Region, the coordination of the activities of the executive bodies of state power of the Murmansk Region on issues of the original historical, cultural, socio-economic, linguistic development of indigenous peoples of the North, the protection of their ancestral habitat, traditional way of life and economic management is carried out by the Ministry of Internal Policy and Mass Communications Murmansk region. Subordinate to the Ministry, the state regional budgetary institution "Murmansk Regional Center of Indigenous Peoples of the North" develops and implements programs, projects and activities aimed at improving the living standards of indigenous peoples of the North of the Murmansk region, protecting their rights to unique

historical, cultural, socio-economic development , protection of their original habitat, traditional way of life and traditional economic activities. The activities of the Government of the Murmansk Region are aimed at implementing the Concept of sustainable development of indigenous peoples of the North, Siberia and the Far East of the Russian Federation, the Strategy of the state national policy of the Russian Federation and the Development Strategy of the Arctic zone of the Russian Federation in order to improve the quality of life, create conditions for employment and improve demographic indicators indigenous peoples of the Russian Federation, preservation of their cultural development. In November 2022, with the support of the Government of the Murmansk Region, the III Congress of the indigenous people of the Kola North - the Sami - was held. The congress was attended by 65 delegates from all districts and settlements of the Murmansk region, representatives of Sami organizations, associations, enterprises, Sami public leaders, and leaders of communities of indigenous peoples of the North. Following the results of the III Congress of the Indigenous People of the Kola North, a representative collegial body, the Sami Assembly Sam Sobbar, was created. Also, in order to implement a set of organizational, economic and legal measures aimed at protecting the original habitat, traditional way of life, economics and crafts of the indigenous small people of the Murmansk region - the Sami, on the basis of the resolution of the Government of the Murmansk region dated 11.02. 2019 No. 57-PP there is a Council of Representatives of Indigenous Peoples of the North under the Government of the Murmansk Region, which includes nine representatives of the Sami communities, a representative of the Government of the Murmansk Region and a representative of the Public Chamber of the Murmansk Region from among the indigenous peoples of the North. Five of the nine members of the Council are members of the Sami Sobbar Sámi Assembly. The Council is a collegial advisory body. At Council meetings, issues on the most important areas for the Sami people are considered. Proposals are made to improve the regulatory legal framework. The Council exercises public control over compliance with federal laws and the laws of the Murmansk region on the protection of the natural environment in the places of traditional residence and traditional economic activities of the Sami. There is also a working group on fisheries under the Council. In addition, representatives of the indigenous people of the Murmansk region are included in:

- Public Chamber of the Murmansk Region;
- subcommittee of the Public Chamber of the Murmansk Region on Interethnic Relations, created in accordance with the Law of the Murmansk Region dated July 11, 2018 No. 996-01-ZMO;

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– Council for Nationalities and Religious Denominations under the Public Chamber of the Murmansk Region;

– thematic working group on ensuring interethnic harmony, the activities of which are aimed at implementing by the Government of the Murmansk Region Decrees of the President of the Russian Federation dated 05/07/2022 No. 602 “On ensuring interethnic harmony”, dated 08/21/2022 No. 1199 “On assessing the effectiveness of the activities of executive authorities of the constituent entities of the Russian Federation ” Also, representatives of the indigenous small Sami people are included in the Public Councils under the government authorities of the Murmansk region (Ministry of Internal Policy and Mass Communications of the Murmansk Region, Committee on Culture and Arts of the Murmansk Region, Committee on Physical Culture and Sports of the Murmansk Region, Ministry of Natural Resources and Ecology of the Murmansk Region region). There are 7 public associations of indigenous peoples in the Murmansk region, one of the many regional associations of indigenous peoples is the Public Organization of the Murmansk Region “Association of the Kola Sami” (hereinafter referred to as the Association). The activities of the Association are aimed at solving problems of creating the necessary conditions for the preservation and development of the cultural heritage, traditions and customs of the indigenous peoples, medical and social services, the preservation of traditional lifestyles, traditional types of economic activities and crafts of the indigenous peoples. The Association is the founder and member of the Association of Indigenous Peoples of the North, Siberia and the Far East of the Russian Federation, and is a member of its Coordination Council. Representatives of the Association are members of the Sam Sobbar Sami Assembly, the Council of Representatives of the Indigenous People of the North under the Government of the Murmansk Region, and the working group on the creation of the Khibiny National Park. Currently, special attention is paid to regional development, which depends on a number of

objective and subjective factors that influence economic growth. Among the objective factors influencing the economic development of a territory are: production potential, human capital, resource provision; researchers are increasingly talking about the influence of the geographical factor. The geographical factor in the research of scientists is presented differently: on the one hand, it is the location of the region, its foreign economic relations, on the other hand, it is the climatic conditions that determine the structure of the economy. Within the framework of modern conditions, special interest arises in the territories of the Arctic zone of the Russian Federation, which is natural; it is in these territories that climate changes are formed. The regions of the Arctic zone of the Russian Federation are in harsh climatic conditions and the level of their development depends on a large number of factors, which include the influence of the climatic factor. The Arctic zone includes: 1) completely or partially northern territories 8-mi operating entities: the Republic of Sakha (Yakutia); Krasnoyarsk Territory; Murmansk region; Arkhangelsk region; Nenets Autonomous Okrug; Yamal Nenets Autonomous Okrug; Taimyr (Dolgano-Nenets) Autonomous Okrug; Chukotka Autonomous Okrug; 2) lands and islands specified in the Resolution of the Presidium of the Central Executive Committee of the USSR dated April 15, 1926 “On declaring lands and islands located in the Arctic Ocean as the territory of the USSR”; 3) internal sea waters, territorial sea, exclusive economic zone and continental shelf. As part of the proposed study, the level of development of the regions of the Arctic zone of the Russian Federation will be considered, and socio-economic development will be analyzed. The subject of the study is the process of regional development of the regions of the Arctic zone; the object of the study is the Arctic regions wholly or partially included in the Arctic zone (Table 1). Based on a draft federal law published in 2018, the Arctic zone was defined as a part of the Arctic that is subject to the jurisdiction of the Russian Federation.

Table 1. Composition of the Russian Arctic

Regions	Territories included in the entire Arctic	Territories that are partly part of the Arctic
Murmansk region	+	
Nenets Autonomous Okrug	+	
Yamalo-Nenets Autonomous Okrug	+	
Chukotka Autonomous Okrug		
Republic of Karelia		+ Loukhsky, Kemsy, Belomorsky district
Komi Republic		Vorkuta urban district

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Arhangelsk region		+ Onezhsky, Primorsky, Mezensky districts, Arkhangelsk, Severodvinsk, Novodvinsk, as well as the Arctic islands administratively belonging to it (Novaya Zemlya, the ZF-I archipelago, etc.).
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One of the main indicators characterizing the level of regional development is the GRP indicator. Based on the values of this indicator, one can judge

the dynamics and level of development of the territory (Table 2).

Table 2. GRP per capita of the regions of the Arctic zone, million rubles

	2016	2017	2018	2019	2020	2021
GRP of the Russian Federation	317,515.3	348,641.5	377,006.0	405 147.7	449,097.9	472 161.9
Republic of Karelia	241688.0	251981.4	281021.6	301818.1	335944.5	371452.0
Komi Republic	487363.5	541155.3	550386.2	557641.3	613975.0	640622.9
Arhangelsk region	360165.9	391146.2	417776.4	456985.8	532533.7	584111.3
Murmansk region	333511.6	361968.4	395213.7	427090.7	525475.7	560380.2
Krasnoyarsk region	413172.4	416272.7	441084.9	493985.7	582345.8	615803.9
The Republic of Sakha (Yakutia)	508674.4	566387.0	597037.4	688540.1	780139.8	903611.1
Chukotka Autonomous Okrug	883368.7	896822.1	877612.8	1142504.1	1226152.0	1323201.3
Nenets Autonomous Okrug	3913588.7	3685897.1	4035943.2	4329031.1	5210143.9	5821559.8
Yamalo-Nenets Aut. district	1820301.3	2209803.4	2544898.0	3025745.6	3336453.4	3670257.6

The results of the study of GRP per capita showed that the regions of the Arctic zone are characterized by high GRP indicators. The obtained result allows us to talk about the development of these territories; a possible reason for the obtained results is the significant resource potential that provides the Arctic territory with potential for development.

The Arctic territories, due to difficult climatic conditions, vast territory, relatively small number of inhabitants, remoteness - and therefore, it would seem, the economic inexpediency of their development - pose a special challenge for the countries of the Arctic region in terms of the development of transport infrastructure. Researchers note that the key difference between the northern regions and the southern ones is desolation. Thus, the population density in the Tyumen region, Krasnoyarsk and Khabarovsk territories is 1–2 people per 1 sq. km, in the Magadan region - 0.3–0.4 people per 1 sq. km. The northern territories contain 80% of all the country's mineral resources - hydrocarbons, diamonds, rare, non-ferrous and precious metals; 93% of natural gas, 75% of oil, including gas condensate, 98% of diamonds, almost 100% of cobalt, platinum group metals, apatite concentrate, 90% of copper, nickel, 90% of gold are produced here, half of the forestry and

fisheries products are produced. “A resident of the Russian North is hundreds of times richer in natural territorial resources and living space than the average inhabitant of the planet.” At the same time, in his article Gogolev P.V. emphasizes that the concept of “north” in legislation is used as a legal category that “comprehensively takes into account the physical (geographical, climatic) and socio-economic (presence or absence of infrastructure) features of the territory of human residence, spatially encircling a significant part of Russia parallel to the Arctic Circle.” The gradual development of the unique natural resources of the Arctic North and the protection of territories are slowly but surely ensuring an influx of workers, military personnel, and increasing the population. However, if you look at a map showing road density per 100 square kilometers, the northern part of the continents contains many times fewer roads than the south. According to experts from the National Research University Higher School of Economics, the cost of building roads in the Far North due to the inclusion of additional design solutions that increase the stability of the roadbed exceeds the average by 10–30%, and due to the low development of infrastructure, transporting the necessary materials becomes completely difficult task. Maintaining the

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road network in satisfactory condition due to frequent fluctuations between positive and negative ambient temperatures is also a negative factor. How to develop the Arctic territories, whose riches are talked about so much? One of the solutions to reduce the financial burden is small aviation - and in this work we will focus on the possible result of actively attracting entrepreneurs to carry out this activity. According to the general definition contained in Article 2 of the Civil Code of the Russian Federation, entrepreneurial activity is an independent activity carried out at one's own risk, aimed at systematically generating profit from the use of property, the sale of goods, the performance of work or the provision of services.

*increase cargo and passenger traffic, including by attracting tourists to previously inaccessible points. The example of the United States of America, namely the state of Alaska, can serve as proof of our point of view. As of January 2022, Alaska had 9,346 registered aircraft, 7,933 pilots, 400 public airports, 282 land bases, 114 sea-based bases, approximately 747 registered landing points—and that doesn't include unimproved lakes or gravel sites. According to statistics provided by the McDowell Group, 1,857,500 people visited Alaska during the summer of 2022, and of those, 747,100 (40%) used air travel. This led to the fact that air tourists alone spent up to 1,494,200,000 (1.4942 billion rubles) dollars. However, three-quarters of visitors who used air travel reported wildlife viewing as their top travel activity, with shopping being the next most popular activity. Thus, we can say that the development of tourism will indirectly affect the growth of traditional cultural crafts, which will have a beneficial effect on the preservation of the culture of indigenous peoples of the North and the development of small businesses. In addition to tourists, this category also includes scientists, for example, historians, ethnographers, anthropologists and linguists, who will have the opportunity to conduct their field research at lower costs;

*increase the transportation of vital or urgent cargo. Decent livelihoods, including meeting the demand for goods of all those living in the northern regions, are considered by some researchers as the most important condition for the successful implementation of programs for the development of the Arctic. Of course, air transportation will increase the prices of goods, but with the formation of a permanent market, the development of technology and increased competition, this type can become a significant source of goods. Let us note that in 2022, the centralized supply (only) of “fuel to remote areas of the Khabarovsk Territory will cost 3.6 billion rubles,” 2.07 billion rubles were allocated from the budget of the Arkhangelsk region to co-finance issues of local importance, and directly to support 3,990,000 rubles were allocated for the delivery of flour and medicines to areas with limited delivery times. Yes,

for the most part, cargo is delivered by water transport, however, we consider it correct to point out that the involvement of small aviation from private companies when creating a state order will be a good lever for the development of entrepreneurship and small aviation in the Arctic regions. However, for the sake of honesty, we note that in order to enter the market for cargo transportation services in the regions of the Far North, there are significant barriers to entry for new participants, such as “a significant amount of initial capital for entering the markets; high cost of transportation associated with small cargo flows in the opposite direction; high risks; imperfect state regulation of tariffs for northern deliveries; untimely financing of northern supplies from budgets of various levels;

* connect populated areas and create infrastructure that can be used not only by civil, but also by state aviation. This infrastructure will need to be maintained, repaired and refilled, which will allow the service to be transferred to private hands. Infrastructure can be understood, in accordance with Art. 1 of the Federal Law of 01/08/1998 No. 10-FZ “On state regulation of aviation development” not only airfields, airports, but also objects of a unified air traffic management system, centers and flight control points for aircraft, storage facilities for aviation equipment, and others used for in the implementation of aviation activities, structures and equipment - and all this can also be used, including by the military or the Ministry of Emergency Situations. With the development of the Northern Sea Route, the risk of emergency events inevitably increases - and the presence of a prepared air transportation infrastructure will significantly reduce damages and losses due to rapid deployment on site;

* more efficiently carry out cartographic, geodetic, and other land management work; reforestation, environmental protection work and monitoring of the state of the environment in places of traditional residence and traditional economic activity - that is, to more successfully implement, among other things, those tasks that are spelled out in program documents - for example, the Concept of sustainable development of indigenous peoples of the North and the Far East Russian Federation. Improving technologies (including global positioning and orientation), modernizing public relations and regulations in these areas makes it possible to transfer increasingly greater powers from the public sphere to private companies;

*to facilitate agriculture in terms of pollination, the distribution of chemicals, as well as to monitor traditional sectors of the economy, such as reindeer husbandry, hunting, fishing, fur farming, and cattle breeding. It is not without reason, as researchers note, that the version of modernization carried out during the USSR period - with the widespread involvement of aviation - was a softened version of the

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development of traditional economic sectors, “which for many years made it possible to preserve the material basis of the national cultures of small peoples”; hunting and fishing have received serious development potential for decades, the “development of indigenous peoples has accelerated with the formation of autonomous okrugs, national regions, hereditary (village) self-government bodies and the organization of state medical, trade, consumer and transport services for reindeer herders, hunters, fishermen, leading nomadic and semi-nomadic Lifestyle”.

Let us note that, despite great prospects, at the moment, to implement the above ideas, a huge amount of work is required - and this industry needs very close and comprehensive attention from the state and society. Of course, plans for the development of aviation, including small aviation, for example, are mentioned a lot in various program documents: in the Fundamentals of State Policy of the Russian Federation in the Arctic for the period until 2020 and beyond, and in the Strategy for the Development of the Arctic Zone of the Russian Federation and ensuring national security for the period until 2035; Order of the Ministry of Natural Resources of Russia dated April 22, 2020 No. 342 “On approval of the main directions for the development of the system of state natural reserves and national parks in the Russian Federation for the period until 2035”, and in the “Strategy for the socio-economic development of the Northwestern Federal District for the period until 2035”; indirect references to this are also found in such a program document as the “Strategy for the development of tourism in the Russian Federation for the period until 2035”, approved by Order of the Government of the Russian Federation dated May 31, 2020 No. 941-r. However, the researchers note only a general interest in fulfilling the assigned tasks - “the current documents do not contain a general list of all activities of interrelated programs, elaboration of the issues of financial support for each activity, assessment of the degree of participation in the financing of budgets of different levels, or definition of special rules of tax policy. “...” contains activities that cannot be regulated programmatically, since they relate to the permanent functions of state authorities and local governments to provide a range of state and municipal services.” ETC. Alushin, as well as Bratanovsky S.N. and Shustova M.V. express the opinion that currently state support for entrepreneurship using civil aviation is in the nature of short-term and targeted, minimal assistance. At the same time, the current transport legislation, both federal and regional, in most cases does not take into account the specifics of private activity in this area - including the functioning of small, ultra-light aviation. Currently, we have to admit that this area does not have a clear legal basis, and its development is carried out spontaneously. Thus, at present, many features of

the organization of insurance, maintenance and parking of small aircraft, the establishment of transport tariffs and fees, taxation and incentive systems are not reflected in legislative acts. “We note that the Civil Code of the Russian Federation and the Air Code allow the transportation of passengers and cargo by small aircraft on an ongoing basis. However, the corresponding rules and conditions have not yet been adopted at the federal level.” In fairness, we still point out that the Government is slow, but is taking steps to increase support for small aviation - thus, criticized for lack of efficiency (since it concerned a small number of airports, and the amount of accrued subsidies did not keep up with inflationary processes in the economy) Resolution of the Government of the Russian Federation of December 20, 2007 No. 907 - was replaced by Resolution of the Government of the Russian Federation dated 02/09/2018 No. 135, where the list of airports that can qualify for subsidies from the federal budget was significantly expanded; in 2016, the Government of the Russian Federation issued Decree No. 570 dated June 22, 2016 on providing subsidies to manufacturers of aircraft with a passenger capacity of up to 19 people - however, there is no data on the recipients of these subsidies. To summarize a brief excursion into this difficult but extremely fascinating topic, we emphasize that the Russian Federation, at least in its program documents, is interested in the development of small aviation, including in the polar regions, since small aviation can significantly increase the chances of successful development of the northern territories, including by attracting and developing business activities. Saving of the population seems to be one of the general directions of modern policy of the Russian Federation. Demographic tasks are identified among the priority tasks in the latest Decree of the President of the Russian Federation V.V. Putin: ensuring sustainable natural population growth; increasing life expectancy to 80 years by 2035. It is emphasized that the implementation of breakthrough scientific, technological and socio-economic development and an increase in the country’s population depend on their solution. This task is especially relevant for the Arctic regions of Russia, where population reproduction is accompanied by certain risks caused by the natural, climatic and socio-economic specifics of the Arctic zone. In the Republic of Sakha (Yakutia), the main threats to demographic security include the lack of significant population growth, which is due to changes in the ratio of sources of population formation. The migration outflow of the population is not compensated by natural growth; Until 2013, the negative migration balance exceeded natural growth. Although in recent years there has been some improvement in the migration situation, nevertheless, in the republic the migration balance coefficient remains almost 2 times higher than in the Far Eastern Federal District. Modern trends in natural growth have

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again returned to their previous vector of decline. Although for 2018–2020 the natural increase rate increased 1.9 times, but the results for 2022 showed a reduction in the natural increase rate by 17%. The total fertility rate, which had previously been increasing, has acquired negative dynamics since 2018 (2019 – 2.09, 2020 – 1.93). Only in the rural population this indicator exceeds the level of simple reproduction (2.59 – 2021). The ratio in the distribution of births by birth order changes. Although the share of children third or more in birth order in 2021 increased slightly compared to 2018 (from 30% to 31.7%), the absolute numbers of those born decreased slightly (2021 – 4899 children, 2022 – already 4866 children). In the area of population mortality, there are much more serious problems that make it possible to position them as the main threats to the demographic security of the region. This is a high proportion of deaths in working age, excess mortality among men, high population losses as a result of external causes of death. The latter acts as one of the significant points in the characteristics of mortality in the region. The excess mortality of men, which is generally characteristic of mortality processes, in the case of external causes of death manifests itself even more clearly. As a result of problems in mortality, life expectancy did not reach 70 years until 2021. The excess mortality of men also determines their lag in life expectancy. Changes in the processes of fertility, mortality and migration directly affect the age structure of the population; The population is aging. The share of the elderly population has more than doubled since 1990: from 6.7% to 16.4% in 2022. The aging of the population occurs simultaneously with a reduction in the proportion of children, which is typical for almost all regions of Russia. In a certain sense, the risks of demographic security include the presence of significant territorial differentiation in the reproduction of the population of the republic, which necessitates the development of special measures to save the population separately for groups of territories or population groups. This applies primarily to the northern and Arctic municipal regions of Yakutia. Thus, the main threats to demographic security in the republic include a negative migration balance, a reduction in the birth rate, the presence of high losses of the working-age population, the persistence of excess male mortality and a low level of life expectancy, which ultimately affects the lack of significant demographic growth. A survey of 879 indigenous women (Nenets) of the Arctic zone of Western Siberia was conducted. Reproductive health indicators were analyzed depending on age, area of residence, nomadic or sedentary lifestyle, social factors and education, the presence of genital and extragenital pathology for the period 2018–2021. The reproductive health of women in the Tazovsky and Yamal regions is characterized by a higher birth rate and a low level of artificial termination of pregnancy,

but, due to the extreme living conditions in the tundra, a high level of spontaneous termination of pregnancy. On the contrary, in the Nadym region, the level of induced abortion is higher, and the level of birth rate and spontaneous abortion is low. Among the indigenous inhabitants of the tundra, Despite the extreme living conditions in the plague and the generally low level of education, we note a significantly higher number of pregnancies and births, as well as spontaneous abortion, but less frequent artificial termination of pregnancy and the lowest level of gynecological pathology. They also have an earlier onset of menopause; From extra genital pathology, they often suffer from chronic bronchitis. Among the indigenous residents of national villages, despite more comfortable living conditions in the village and, generally, an average level of education, we note a higher level of gynecological diseases with an inflammatory component and from extra genital pathology - a high incidence of excess body weight. Noteworthy is the lower number of registered marriages and the high level of widowhood and living alone compared to residents of the tundra. Living in the Far North is accompanied by contact with a number of negative natural factors; for women, the target of the negative impact of these factors is a woman's ability to conceive, bear and give birth to healthy offspring. The health of indigenous women living in the tundra requires close attention. The nomadic lifestyle creates significant difficulties in providing quality medical care, especially during pregnancy. The study of the reproductive function of indigenous women living in the Arctic zone of Western Siberia is especially relevant not only from a medical and social perspective, but also important in terms of preserving the people. 879 people were examined, of which 627 were indigenous residents (Nenets) of the Yamal, Nadym and Tazovsky districts of the Yamalo-Nenets Autonomous Okrug. An analysis of reproductive losses and mortality of children was carried out depending on ethnicity, area of residence, nomadic or sedentary lifestyle for the period 2018–2021 by analyzing scientific medical literature and our own research conducted in the form of a survey of the female population. When surveying respondents, information on the course of 1650 pregnancies was summarized. To assess the significance of differences between groups, the χ^2 criterion was used. The significance of the differences was considered established at $p < 0.05$. Among respondents, such a pregnancy outcome as the birth of children was almost twice as common among people living in the Tazovsky (51.0%) and Yamalsky (44.9%) districts of the Yamal-Nenets Autonomous Okrug compared to residents permanently residing in the Nadymsky district of the Yamal-Nenets Autonomous Okrug (29.7%) ($\chi^2 = 28.8$; $p < 0.001$ and $\chi^2 = 11.8$; $p < 0.001$). Such a serious complication of reproduction as the threat of termination of pregnancy,

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on the contrary, was twice as common among residents of the Nadymsky district (31.3%) compared to respondents from the Tazovsky district (9.4%) ($\chi^2=50.5$; $p<0.001$) and Yamal (12.9%) ($\chi^2=23.5$; $p<0.001$) districts of the Yamal-Nenets Autonomous Okrug. Among respondents, the birth of children was 60.0% more among indigenous people living in the tundra (66.7%) compared to newcomers (41.4%) ($\chi^2=29.0$; $p<0.001$). Artificial termination of pregnancy was almost twice as often among non-resident respondents (50.0%) compared with native village residents (28.0%) ($\chi^2=73.7$; $p<0.001$) and five times more often when compared with indigenous tundra inhabitants (7.8%) ($\chi^2=82.3$; $p<0.001$). Spontaneous miscarriage, on the contrary, was three times more common among indigenous tundra residents (25.5%) compared to migrant respondents (8.6%) ($\chi^2=30.8$; $p<0.001$) and twice as often compared to indigenous village residents (12.9%) ($\chi^2=17.3$; $p<0.001$). The death of children under 18 years of age among indigenous tundra residents (24.4%) is three and a half times more common ($\chi^2=36.8$; $p<0.001$) compared to indigenous village residents (6.8%) and eight times more common among compared with the newcomer (2.9%) female population ($\chi^2=41.7$; $p<0.001$). Residents of the Northern Territories, in comparison with residents of temperate latitudes, are characterized by: early aging, the development of dystrophic changes in the reproductive system, reproductive pathologies, and early onset of menopause. The state of reproductive health is heterogeneous among different groups of women: local Caucasian, aboriginal nomadic and sedentary populations, which is associated with the characteristics of life, health care and length of residence in extreme conditions. Positive socio-economic changes have led to an increase in life expectancy, and as a result, a lengthening of the menopause period in women. Early studies showed differences in endocrine profiles between Aboriginal and Caucasian populations in the

North, primarily before menopause. We examined 188 postmenopausal women living in the European North: Arkhangelsk region, Mezen district, Soyana village (65°46' N), Sovpolye village (65°17' N), Dolgoshchelye village (66°05'N); Nenets Autonomous Okrug, village Nelmin Nos (67°58'N); Yamalo-Nenets Autonomous Okrug: s. Se-Yakha (70°10' N), village. Tazovsky (67°27' N), village. Gyda (70°53'N). Of these, 76 people are the local Caucasian population, living here for three or more generations, 26 people are the nomadic aboriginal population, 86 people are the settled aboriginal population. Health status and socioeconomic living conditions were determined by questionnaire. Blood collection, preparation and storage of serum and plasma were carried out in accordance with GOST R 52623.4-2015, clause 9 and GOST R 53079.4-2008. Hormone levels were determined using an ELISYS Uno plate ELISA analyzer (Human, Germany), kits produced by DRG and Labor Diagnostika Nord (Germany), Hema-Medica and Alkor Bio (RF). The norms of these sets are taken as normative values. Statistical processing was carried out using Statistica 10.0. Based on the results of the Shapiro-Wilk test, nonparametric analysis methods were selected. The results are displayed as Median, 10th and 90th percentiles, then Me (10%; 90%). The significance of differences between indicators was identified using the Mann-Whitney U test. Differences were considered statistically significant if the probability of incorrectly accepting the null hypothesis of equality of medians was $p \leq 0.05$. P values from 0.05 to 0.1 were considered as a trend (t). The greatest number of differences between the levels of endocrine indicators of the reproductive system in postmenopausal women was identified in the group of the local Caucasian population compared to the aboriginal population; the differences in the groups of nomadic and sedentary women are minimal (Table 3).

Table 3. Levels of sex hormones, androgen binding globulin, antisperm antibodies and dopamine in postmenopausal Northern women.

Hormone name - (normal values)	Local Caucasian population	Nomadic aborigines	Sedentary Aborigines	p values
	1	2	3	
	Meh (10%; 90%)	Meh (10%; 90%)	Meh (10%; 90%)	
N	76	26	86	
Age	57.00 (48.00; 69.00)	55.50 (48.00; 65.00)	56.00 (50.00; 67.00)	

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Luteinizing hormone (5.0-57.0 IU/l)	24.71 (6.48; 46.90)	21.46 (7.78; 34.55)	20.09 (5.52; 34.15)	1-3 = 0.034
Follicle-stimulating hormone (10-150 IU/l)	46.42 (25.82; 95.93)	57.51 (8.40; 87.90)	62.22 (5.02; 92.03)	
Prolactin (1.9-26.4 ng/ml)	9.28 (5.08; 19.20)	12.77 (7.24; 22.28)	11.30 (7.38; 25.79)	1-2 = 0.030 1-3 = 0.021
Progesterone (0-2.3 nmol/l)	5.45 (0.40; 11.40)	2.83 (0.72; 7.98)	3.95 (1.77; 8.59)	1-2 = 0.065 (t) 1-3 = 0.072 (t)
Estradiol (0.07-0.23 nmol/l)	0.160 (0.090; 0.360)	0.178 (0.089; 0.82)	0.148 (0.088; 0.258)	
Total testosterone (0.5-4.3 nmol/l)	1.82 (0.88; 2.79)	1.34 (0.43; 2.40)	0.92 (0.51; 2.51)	1-2 = 0.055 (t) 1-3 = < 0.001
Testosterone free (<55 years - 0.0-2.9, > 55 years - 0.0-1.6 pg/ml)	1.23 (0.30; 3.35)	0.66 (0.07; 1.65)	0.72 (0.18; 2.25)	1-2 = 0.020 1-3 = 0.031
Dehydroepiandrosterone sulfate (DHEA-S) - (0.27-6.75 µmol/l)	3.00 (1.20; 5.97)	2.52 (1.75; 6.62)	5.44 (1.48; 8.81)	1-3 = 0.040 2-3 = 0.064 (t)
Androgen binding globulin (15-120 nmol/l)	53.42 (25.90; 142.35)	86.55 (45.42; 334.71)	100.85 (45.77; 294.90)	1-2 = 0.010 1-3 = < 0.001
Antisperm antibodies (0-60 IU/l)	20.41 (5.87; 29.47)	40.55 (29.96; 47.30)	38.90 (27.97; 52.00)	1-2 = < 0.001 1-3 = < 0.001
Dopamine (<0.653 nmol/l)	0.402 (0.000; 0.573)	0.412 (0.000; 3.079)	0.263 (0.000; 0.686)	1-3 = 0.061 (t)

Living in similar climatic conditions, but different degrees of adaptation to them and way of life are the main reasons for such significant differences in the endocrine status of the local Caucasoid in relation to the aboriginal population. The latter showed significantly higher levels of prolactin, DHEA-S, androgen binding globulin and antisperm antibodies, as well as significantly lower or trending levels of total and free testosterone, progesterone, luteinizing hormone, in relation to the local Caucasian population. The savings of the population in the northern regions largely depends on the mortality rate of the population, which is associated with losses of demographic potential along with migration outflow.

The specific age structure of the population of the Republic of Sakha (Yakutia) ensures a relatively low overall mortality rate. However, there is a high proportion of deaths in working age, and this figure for men during 2010–2021. 2 or more times higher than the same figure for women. The male population has the greatest problems in preserving demographic potential. Excessive male mortality as a serious problem of demographic security has been observed for a long period of time, and in working age it is much higher than the index for the population as a whole. The indices in excess of male mortality from external causes of death are very high (Table 4).

Table 4. Male excess mortality index in the Republic of Sakha (Yakutia) for 2016-2021.

	2016	2017	2018	2019	2020	2016/2021
From all reasons	1.66	1.75	1.69	1.55	1.48	0.89
From external causes of death	4.51	4.77	4.08	4.57	4.47	0.99
From all types of transport injuries	3.38	3.72	3.80	3.67	2.96	0.88
From suicide	5.54	6.04	4.25	4.63	6.26	1.13

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From murders	5.36	5.95	5.25	10.46	4.45	0.83
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The most serious threat in terms of mortality in the region is high mortality due to external causes, which until 2022 were in 2nd place in the structure of causes of death. In 2021, they accounted for 16.2% of the total number of deaths (compared to 24.6% in 1990). In men, this class of causes of death retained its second position in the structure of causes of death. The external mortality rate is especially characteristic for the northern and Arctic regions of the republic. During

2000–2018 the mortality rate from external causes of death decreased from 164.4 to 135.4 (for both sexes). Decrease in the absolute number of deaths from external causes for 2000–2018. is accompanied by positive dynamics in reducing the share of these causes of death in the total number of deaths (Table 5).

Table 5. Dynamics of deaths from external causes for 2000-2018, people.

	2000	2003	2006	2010	2013	2014	2015	2016	2017	2018
Deaths, total, people.	7470	9325	9696	9402	8992	8918	8351	8239	8165	8053
Died from external causes, people.	1836	2341	2186	1872	1740	1637	1533	1482	1392	1302
Share in the total number of deaths, %	24.58	25.10	22.55	19.91	19.35	18.36	18.36	17.99	17.05	16.21

The predominant causes of external mortality are suicides and murders. In total, in 2018 they accounted for 37.1% of the total number of deaths from external causes (47% in 2017). An increase in the mortality rate was typical for suicides (1.4 times). For other reasons, a decrease was noted: from murders (1.2 times), from accidental alcohol poisoning (1.5 times). The most favorable dynamics of deaths due to road accidents (for 2000–2018 by 38.9%). A specific characteristic of mortality from external causes is the high proportion of deaths of working age. The predominant causes of external mortality are suicides and murders. In total, in 2018 they accounted for 37.1% of the total number of deaths from external causes (47% in 2017). Thus, problems in the field of mortality pose one of the main threats to the demographic security of the northern region. Among measures to reduce mortality, priority should be given to measures to reduce external mortality, mortality of the working-age population and excess mortality of men. In measures to reduce external mortality, paramount importance should be given not so much to medical prevention, but mainly to social prevention measures, which will be more effective in reducing the scale of mortality from external causes. Solving problems in the field of protecting health and increasing the efficiency of the health care system for indigenous peoples of the North is justified by the general direction of state policy and is one of the most important conditions for the socio-economic development of the region. In the Yamalo-Nenets Autonomous Okrug, a state policy is being pursued, which includes various measures regarding the

indigenous peoples of the North, aimed at improving the quality and standards of life of the indigenous peoples of the North, creating favorable conditions for a long, safe, healthy and prosperous life. Despite the success of the ongoing activities, there are problems in the healthcare sector regarding the difficulty of providing medical care in remote and hard-to-reach areas, especially in cases of pregnancy and childbirth, as well as diseases of infants under one year old. Infant mortality deserves special attention, since its level largely characterizes not only the general health of newborns, but also affects the life expectancy rate. In recent years, there has been a downward trend in infant mortality rates overall in the Yamalo-Nenets Autonomous Okrug, but at the same time they remain quite high in rural areas. In 2017, the infant mortality rate in places of traditional residence and traditional economic activities of indigenous peoples was 14.75 %. In 2018, the largest number of deaths was registered in the Yamal (6 infants) and Tazovsky regions, the main cause of which is acute pneumonia. The reduction in indicators was achieved through measures aimed at improving medical care for pregnant women and children, among which can be identified, namely:

- *advanced training of obstetricians and gynecologists (including through remote webinars);
- *providing the population with means of communication in order to ensure life safety and preserve health;
- *the work of the Commission to analyze the causes of maternal, perinatal, infant and child

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mortality (supervised by the Governor of the Autonomous Okrug);

–*developed methodological recommendations and memos for parents (concerning the most dangerous conditions in children, the most common symptoms and syndromes of diseases in which first aid is important in preventing the development of complications);

–*the work of sanitary assistants (allows first aid to be brought closer directly to the tundra camp);

–*organization of re-evacuation (this solution allows patients to be delivered to their place of permanent stay after discharge from hospitals).

These and other activities are reflected in documents such as: “Strategy for the development of healthcare of the Yamalo-Nenets Autonomous Okrug for the period until 2035”, “Information on the results of the activities of the Department for the Affairs of Indigenous Minorities of the North of the Yamalo-Nenets Autonomous Okrug in 2021”, “Resolution of the Governor of the Yamalo-Nenets Autonomous Okrug dated December 28, 2021 No. 132-PG “On approval of the People’s Program of Indigenous Minorities of the North in the Yamalo-Nenets Autonomous Okrug.” Despite the in-depth study of this problem, several areas can be identified that will improve the efficiency of providing assistance to pregnant women and children, namely:

*implementation of a satellite tracking system for the movements of families of tundra dwellers (will allow rescue services to track the location of nomads in the event of an emergency, which is especially important if a pregnant woman refuses prenatal hospitalization);

*providing hospitals with all-terrain vehicles (allows to increase the availability of medical care);

*maintaining information databases for complete records of pregnant women and children who may need medical care and who live in hard-to-reach areas (this measure will make it possible to have information about families in which there is a possibility of infant death);

*introduction of remote telecommunication technologies for the provision of medical care (allows you to identify and diagnose diseases without leaving your place of permanent residence, and increases the possibility of contacting when the first symptoms of disease appear).

The main problem is related to the accessibility of care and these measures are aimed specifically at increasing the efficiency of providing medical care and introducing specialized and high-tech assistance to the indigenous peoples of the North of the Yamalo-Nenets Autonomous Okrug, paying special attention to improving medical care for the nomadic population, families of reindeer herders who have children under one year of age or pregnant women. The territory of the Yamal Peninsula has the most severe climatic and geographical conditions, manifested in the influence

of extreme values of average monthly temperatures and air humidity, and wind speed. The population uses an open hearth to heat their homes most of the year. In total, cold and exposure to pollutants from an open lesion leads to a high prevalence of chronic non-obstructive bronchitis. The anthropogenic and technogenic impact of oil and gas infrastructure on the health of Arctic aborigines is one of the most important. We investigated the question of whether the increase in the prevalence of chronic non-obstructive bronchitis occurs due to the proximity of oil and gas production facilities and settlements among the indigenous inhabitants of the tundra. The object of the study was the inhabitants of the tundra of the Tazovsky region (which does not yet have a long history of developing oil and gas fields). A total of 242 indigenous people of the tundra were examined. The diagnosis of chronic non-obstructive bronchitis was established according to the WHO definition with normal indicators of external respiratory function. According to the results of the study, the prevalence of the disease among residents of the tundra was: Yeseyakhinskaya - 40.0%, Tanamskaya - 40.0%, Tazovskaya - 11.1%, Yuribeyskaya - 33.3%, Gydanskaya - 31.1%, Mesoyakhinskaya - 40.9 %, Antipayutinskaya and Nakhodkinskaya - 50.0%. Consequently, the prevalence of this disease (chronic bronchitis) is not affected by oil and gas production facilities, since there are no production facilities in the areas of maximum prevalence of chronic non-obstructive bronchitis. Gas and oil production facilities are located in the south of the Tazovsky Peninsula, and not in the north and central part of the Tazovsky region, where the most unfavorable situation is in terms of the prevalence of chronic non-obstructive bronchitis. Industrial transformation in the Arctic regions of the Yamal-Nenets Autonomous Okrug over the past decades has subjected the “lifestyle” of indigenous residents to serious changes. The development of the gas and oil industries leads to a significant reduction in pastures and the number of deer. Increasingly, there is a transition to a sedentary lifestyle. Psychological and social adaptation of indigenous people to new conditions inevitably leads to the formation of a new behavioral stereotype. The level of mental health, violation of mental adaptation, of the population becomes the main subject of study, since complete mental health is regarded as optimal adaptation, in which the interaction of a person with his biological and psychological aspects determines not only the level of psychological health, but even when diseases occur, it affects the clinical manifestations, course and further prognosis. Purpose of the study: to conduct a level assessment of the state of neuropsychic adaptation among indigenous residents, in conditions of lifestyle transformation, living in the Arctic region of the Yamal-Nenets Autonomous Okrug. The study included 232 practically healthy people, from among the

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indigenous small population of the Yamal-Nenets Autonomous Okrug (Nenets), living in the village. Nori, Kutopyugan, Nadym district, village. Antipayuta, Tazovsky village, Tazovsky district.

Significantly more women took part in the study compared to men at $p < 0.01$.

Table 6. Prevalence of “current complaints-symptoms” among respondents with different levels of neuropsychic adaptation %

Symptoms	Second group Psychoadaptive states	Third group Psycho maladaptive states
1. Feeling of general weakness and lethargy	72.5	67.0
2. Fatigue, feeling tired	59.6	52.4
3. Concern about the possibility of serious illness	59.6	50.0
4. Decreased, bad depressed mood	50.0	59.7
5. Increased heart rate	-	52.4
6. Headaches	48.3	45.1
7. Insomnia, sleep disorder	40.2	45.1
8. Changes in mood for no apparent reason	-	43.9
9. Lack of self-confidence and self-confidence	-	43.9
10. Feeling anxious	-	42.6
11. Increased irritability, short temper	46.7	41.4
12. Tearfulness, tendency to tears	-	36.5
13. Feeling of a “lump” in the throat	-	36.5
14. Strong feelings of guilt	-	36.5

The comparative analysis showed that as the adaptive functions of the body decrease, the prevalence of “current complaints”, both psychosomatic and psychosocial, increases. In the group of respondents with psychoadaptive conditions and in the group with psychodisadaptive conditions, the prevalence of psychosomatic “current complaints” was equally often noted: a feeling of general weakness and lethargy - 72.5% and 67.0%; fatigue, feeling tired 59.6% and 50.0%. Complaints of a psychosocial nature were quite high in both groups, such as: fear and apprehension about the possible occurrence of a serious illness - 59.6% and 50.0%; reduced bad and depressed mood was noted in 50.0% and 59.7% of cases. The analysis showed that among respondents in the third group, “current complaints” were represented to the maximum, but not only isolated symptoms were encountered, but their combinations were observed: sleep disturbances and fatigue, a feeling of fatigue was noted in 25.6% of cases. Concern about the possible occurrence of a serious illness and a feeling of general weakness and lethargy were noted by respondents in 36.5% of cases, headaches, and decreased depressed mood in 20.7% of cases. The correlation analysis carried out separately in each group showed that in the group with (non-pathological mental maladjustment), the closest direct connections of the total score (SPA) with social factors were identified: fear of a serious illness ($r=0.37$ at $p < 0.002$), with sleep disturbances ($r=0.31$ at

$p < 0.014$), and a weak connection with the factor characterizing the emotional background - low mood and depression ($r=0.25$ at $p < 0.05$). In the third group with psycho-disadaptive states (pre-pathology), the most widely represented relationships between the total score (TSS) and symptoms and complaints characterizing the psycho-emotional state. A direct correlation was found with irritability, short temper, increased anxiety, and decreased depressed mood ($r=0.42$ at $p < 0.001$). Significant relationships were identified with factors reflecting activity and performance: feeling of weakness, lethargy, fatigue, feeling tired ($r=0.42$ at $p < 0.001$). Direct connection with psychosomatic complaints: headaches, feeling of a “lump” in the throat” ($r=0.42$ at $p < 0.001$). With psychosocial factors: difficulties in communication ($r=0.41$ at $p < 0.001$), fear of the possible occurrence of a serious illness ($r=0.30$ at $p < 0.06$). A weak direct correlation was noted with loss of interest in life, indifference to everything that happens ($r=0.23$ at $p < 0.03$). Our studies have shown that individuals with optimal adaptation with prognostically favorable indicators accounted for about forty percent, which is 1.4 times more than individuals with signs of neuropsychic adaptation disorders. A pronounced decrease in adaptive potential was noted in the group of people with a psychodesadaptation state (prepathology), who had a high prevalence of “current complaints-symptoms”. Increased maladaptive symptoms, accompanied by a wide range of

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psychosomatic and psychosocial complaints, may be the first symptoms of diseases. It is necessary to conduct an in-depth psychodiagnostic and medical examination with this group of respondents, in combination with methods of psychological or (psychotherapeutic correction). In this regard, the development of a system of psychological assistance to residents of ethnic villages in YAMAL remains a very important task. Food security is an important component of national economic security of both the country as a whole and a particular region. In accordance with the policy documents of the Food and Agriculture Organization of the United Nations (FAO) and the “Doctrine of Food Security of the Russian Federation” (2001), this concept is used to characterize the state of the national or world food market and is interpreted as “the conditions under which people at any time have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary and nutritional needs and preferences for an active and healthy life” (FAO, 2021). Its components are food independence, physical and economic accessibility of food, and its safety for the consumer. Food security involves solving the following main tasks, namely:

- *providing the population of the territory with food products according to scientifically based standards without infringing on the competitiveness of the domestic food market and the interests of economic security;

- *protection of the population from low-quality imported and domestic food products, provided on the basis of control of quality characteristics according to established parameters in the monitoring mode;

- *continuous improvement of nutritional standards for gender and age groups of the population, especially in environmentally unfavorable regions, and stimulation of consumer interests in purchasing products that improve human health;

- *formation of the required size of reserve food funds for their use in the event of extreme situations (natural disaster, lean years, military conflict, etc.).

Despite the presence of program documents that secure the priority status of the problem of food security in the Russian Federation, in some regions (especially in the Arctic) it is very acute. Moreover, according to Professor V.A. Ivanova, “In terms of the degree to which the population is provided with medical nutrition standards through its own production, Russia is one of the countries that do not ensure the food security of the state.” This increases the significance of this problem and requires the development of emergency measures not only at the local but also at the federal level. Food security in the Russian Federation should be considered diversified even at the regional level, if it is identified with the concept of a subject of the federation. This is especially true in the Arctic zone of the Russian Federation, where there is a significant differentiation

in the level and quality of life of the permanent population living in populated areas and indigenous peoples leading a nomadic lifestyle. The significance of this distinction is noted by the Food and Agriculture Organization of the United Nations through the FAO Policy on Indigenous and Tribal Peoples (Rome, 2016). She estimates that indigenous peoples make up approximately 5% of the world's total population (and 15% of the total population of the Russian Arctic), but they account for 15% of the total number of people living below the poverty line. Indigenous peoples are at greater risk of food insecurity than other populations “due to high levels of poverty, declining resource availability and increasing dependence on cheaper, highly processed foods.” During the World Food Summit in November 2009, FAO Member States committed to “actively promote the consumption of foods, especially locally available foods, that diversify and balance diets as the best means of addressing micronutrient deficiencies and other forms of malnutrition, especially among vulnerable populations.” For indigenous peoples, food security also means the right to choose food and prepare it according to traditional methods. A sustainable food system using local foods ensures the preservation of ecosystems and traditions of indigenous peoples. Thus, the right to food is closely linked to the realization of cultural rights, and both rights must be realized together. In 2018, FAO prepared a regional review of the state of food security problems in Europe and Central Asia for 2021 and 2022. Analysis of the statistics showed that there were a range of issues that required attention, including rural deterioration, persistent poverty, poverty-driven migration, unsustainable use of natural resources and threats posed by climate change, as well as changing dietary patterns. In such circumstances, policy responses must be aimed at coherently addressing the underlying economic, social and environmental challenges to food security through interventions at the national and local levels. However, the FAO conclusions in relation to Russia are based primarily on statistical data collected at the level of federal subjects, and, therefore, do not reflect the real differentiation of the “degree” of food security problems in urban and rural areas, among the permanent population of municipalities and indigenous peoples leading a traditional way of life. There are practically no data on monitoring the level and quality of life of the latter in the Arctic region. The exception is a significant corpus of publications on nutrition and food security among the indigenous people of Alaska, as well as scientific works by employees of the State Institution of the Yamalo-Nenets Autonomous Okrug “Scientific Center for Arctic Studies”. According to FAO and the World Health Organization (WHO), global factors affecting the security of the food supply, including among indigenous peoples, are:

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*rapidly rising fuel prices with a dual effect: increased production costs and increased sales costs;

*extreme weather conditions in the main cereal producing countries;

*declining global cereal stocks as growing demand gradually (especially since 2005) outpaces supply;

*increasing demand for biofuel products;

*growing demand for food in emerging economies;

*impacts of climate change on agriculture, fishing, hunting and gathering.

Along with these problems, among the indigenous peoples of the Arctic, food security takes on specific features. Thus, in May 2022, the Inuit Circumpolar Council (Canada) prepared a background document of the Steering Committee in the field of health strategy for the Inuit of the Arctic region, "Food security in the Arctic region," which formulated two main problems in this area for indigenous peoples living in the Arctic region, and exactly:

*high prices, often combined with economic vulnerability;

*decrease in consumption of products provided by flora and fauna. The situation is complicated by environmental pollution and global climate change.

When developing specific ways to solve the problem of food security for the population of the Arctic territories, it is necessary to take into account its specific features. The most significant of them include:

–*low food self-sufficiency due to limited production capabilities in extreme natural conditions and dependence of the population's food supply on imports;

–*small rural population and poor provision of agricultural resources;

–*insufficient development of the agri-food sector and rural infrastructure;

–*lack of stable connections with areas of food production imported to the Arctic and subarctic regions;

–*focal nature of settlement and seasonal delivery of food to inland areas [10].

However, the development of logistics infrastructure and provision of regular food supplies will not completely solve the problem of food security of the indigenous peoples of the Arctic region. The guarantor of their savings can be, first of all, the preservation of traditional food patterns. This is only possible if the traditional economic activities of the nomadic population (reindeer herding and fishing) are developed and supported. And this, in turn, means the need to solve a complex of strategic problems, namely:

–*the development of biotechnologies that create demand for the procurement of plant raw materials, which will allow the indigenous population

leaving reindeer herding to switch to the procurement of raw materials, while continuing to lead a traditional way of life in the tundra. Increasing the profitability of procurement of reindeer herding products;

–*support for a traditional economy focused on the procurement of venison, or integration into the world economy through the development of antler reindeer husbandry;

–*transition to modern technologies for supplementary feeding of reindeer and development of penned reindeer husbandry;

–*preserving the nature of the tundra from overgrazing;

–*adherence to the historically established principle of common use of pastures, or transition to land surveying and the introduction of the concept of "ancestral lands";

*creation of a risk management system in reindeer husbandry based on the development of a scheme for the optimal use of pastures, forecasting overgrazing, preventing epizootics and deaths of reindeer based on remote monitoring of the condition of pastures, the movement of reindeer herder families and reindeer herds;

*monitoring the consumption of traditional foods and the medical and social well-being of the indigenous population. Development of consumption standards for various population groups. Studying ways to enrich the diet while reducing the consumption of traditional foods;

–*analysis of indicators of the family economy of residents of the tundra and national villages. Study of the transformation of reindeer herding culture;

–*creating economically advantageous conditions for reindeer herders to supply venison to national villages.

A comprehensive solution to the problems of traditional types of economic activity, as well as reasonable participation in providing food to the territories inhabited by indigenous peoples, will create favorable conditions for reducing the threat to food security and saving the indigenous population of the Arctic region. The involvement of Arctic territories in economic circulation, which are the resource storehouse of the Russian economy, causes population growth. A fruitful life in extreme climate conditions is possible with adequate nutrition. Affordable, high-quality food supply for the population of the Arctic zone of the Russian Federation (AZRF) is based both on local agricultural production and fishing, and on the import of food from other territories. This determines the specifics of food security in the Arctic territories. The term "food security", accepted in world practice, is used to characterize the state of the food market of a country, region and the world food market. In the materials of the Food and Agriculture Organization of the United Nations (FAO), the "Doctrine of Food Security of the Russian Federation", the components of food security are food

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independence, physical accessibility of food, economic accessibility of food, food safety for the consumer. Theoretical and methodological aspects of food security are constantly evolving. Currently, food security is interpreted as the satisfaction of each social group of the population with quality food according to rational consumption standards. The principle of food independence is unacceptable for regional food security. Self-sufficiency of the region is possible only with those food products for the production of which there is a high bioclimatic potential, land and labor resources. Food self-sufficiency is unattainable in regions with unfavorable conditions for agricultural development, primarily in the Arctic zone. So the level of self-sufficiency of the population in food consumption in the Murmansk region. in 2021 it amounted to 6.2% for potatoes, 0.4% for vegetables, 7.8% for meat, 8.1% for milk, 3.8% for eggs, and 0.3% in the Chukotka Autonomous Okrug; 6.5; 34.9; 0.2 and 2.4%. When justifying approaches and aspects of food supply for the population of the Arctic territories, it is necessary to take into account the following features, namely:

- *low food self-sufficiency due to limited local production of agricultural products;
- *dependence of the population's food supply on imports;
- *low rural population and availability of biological resources;
- *lack of stable connections with areas of food production imported to the Arctic regions;

*focal nature of settlement and seasonal delivery of food to inland areas.

Local agricultural production, due to unfavorable extreme conditions for development, is not able to provide the population with its own food. The basis for food supply for the population of the North and the Arctic is formed by the import of food products from other regions of the country and from abroad. An analysis of food imports into the Komi Republic showed that in 2021, 46.7 thousand tons of meat and meat products were imported into the region, which is 221% of the size of its own production, 174.7 thousand tons of milk and dairy products (309%), 134.2 million pieces eggs (113, 59.7 thousand tons of vegetables and melons (280%). Now the share of imports of food products of animal origin from the size of own production significantly exceeds this figure in 1990. The Russian Arctic is characterized by a low rural population. If in Russia as a whole the share The rural population is 26%, then in the Arctic zone it is only 12% (Table 7). With a small share of the rural population, its size in the subjects whose territories are entirely included in the North and Arctic zone decreased by 461 in 2000–2021. 6 thousand people Analyzing the current and future state of food self-sufficiency of the population of the Arctic, one should, first of all, proceed from their natural and resource potential. Here, compared to Russia, the provision of biological resources is significantly lower, with the exception of the number of deer per capita (Table 8).

Table 7. Share of rural population as of January 1, %

Country, region	2001	2005	2009	2013	2017	2021
Russia	27	27	26	26	26	26
Regions of the Far North and equivalent areas	23	23	22	22	21	21
Arctic zone*	12	eleven	12	12	12	12

Table 8. Availability of agricultural resources (per 100 people) in 2021

Country region	Cultivated area, ha			Cattle	Including cows	Pigs, goal.	Reindeer, goal.
	cereals	potato	vegetables				
Russia	31.9	1.5	0.5	13.0	5.7	14.7	1.1
Regions of the Far North and equivalent areas	0.8	0.8	0.2	8.7	3.8	2.4	16.1
Arctic zone	-	0.07	0.0	0.7	0.3	0.8	80.5

In the Arctic zone of the Komi Republic, compared to other territories, the per capita provision of farmland is 4.1 times lower, cattle – 430 times, pigs – 36 times lower. Moreover, with the population declining in 2000–2021. 2 times, the provision of

sown areas per capita was 4 times. Low provision of biological resources, unfavorable conditions for agriculture (lack of heat, short growing season, poor soils, excess moisture) hinder the population's self-sufficiency in local food products. Taking into

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account the peculiarities of agricultural production in the Arctic zone, in the future it is necessary to place emphasis on the municipalities of the southern and central regions of the North with more favorable conditions for the functioning of agriculture, as well as on the formation of rear food bases located in favorable agricultural regions adjacent to the Northern zone. An important role in food supply for the population of the Arctic territories belongs to agriculture and fishing. Own agricultural production and commercial farming here is aimed at supporting the population with meat, milk, sea, river and lake fish, eggs and greenhouse vegetables, and wild plants. These food products, as well as cranberries, lingonberries, cloudberries, blueberries, are indispensable in the balanced diet of Arctic residents, being at the same time medicines. Agriculture and fishing in the northern and Arctic territories has a long history. It developed along with the development of natural resources. Its specialization was formed under the influence of natural conditions, geographical location, natural-historical and socio-economic factors in the production of low-transportable and perishable products and products of traditional industries. The share of the North and Arctic zone in the population of the Russian Federation is 6.8%, the area of farmland is 2.5, and the number of cattle is 4.5%. In the northern and Arctic territories there are 1,605 thousand animals. domestic reindeer, or about 2/3 of the world's population. Of the total agricultural production in Russia in 2021, 3.3% of potatoes, 2.0 of vegetables, 2.3 of milk, and 1.4% of meat (by weight) were produced here. The share of fish catch from seafood production was 50.6%. Due to the reduction in production, the share of the northern and Arctic territories in the total agricultural production of the country is decreasing. Natural conditions in the Arctic zone hinder the development of agricultural production. Favorable conditions and competitive opportunities for agriculture are: long daylight hours during the growing season, good supply of moisture to plants; significant tracts of forage lands, including floodplain meadows, labor resources; good opportunities for the production of organic products in environmentally friendly areas; industrial nature of the economy, allowing significant financial resources to be directed to modernize the industry and comprehensive development of rural areas; presence of significant potential of agricultural science. The products of traditional industries are competitive not only in the regional, but also in the national and international food markets. Market reforms have had an extremely negative impact on agriculture. Moreover, the rate of decline in the volume of vegetables, livestock and poultry products in the Arctic zone was higher than in the North zone. In the Russian Arctic for 1990–2015. the production of vegetables decreased by 15 times, meat by 3.7 times, milk by 4.5 times, eggs by 34 times. In the Northern

zone during this period, meat production decreased by 3 times, milk by 2.7 times, and eggs by 3.8 times. Since 2005, there has been a slight increase in meat production due to an increase in venison. For 1990–2015 in all categories of farms in the North and Arctic, the number of deer decreased by 41%. The number of domestic reindeer fell especially sharply in the Chukotka Autonomous Okrug (3.2 times). An increase in the number of deer during the years of reforms occurred in the Yamalo-Nenets Okrug (by 50%). Since the beginning of the 2000s. The number of deer is growing in all regions of the North and the Russian Arctic with the exception of the Murmansk, Magadan and Sakhalin regions. Rapid growth of the reindeer population in the Yamalo-Nenets Autonomous Okrug in the late 1990s – early 2000s. led to degradation of the vegetation cover of reindeer pastures. The reindeer capacity of pastures in the district, according to ecologists, is 386 thousand animals, and at the beginning of 2016 there were 733.5 thousand. On the Yamal Peninsula, 300 thousand reindeer are currently grazed, and there may be less than 100 thousand animals. This factor, as well as the abnormally hot summer of 2016, caused an outbreak of anthrax in Yamal. To stop the degradation of tundra ecosystems in Yamal, the number of deer will have to be reduced by at least 200 thousand heads. The development of reindeer husbandry in the northern taiga will contribute to the preservation of depleted tundra pastures from irreversible degradation in a number of regions of the North and Arctic. Currently, there is positive experience in forest reindeer husbandry in the Khanty-Mansi Autonomous Okrug, Trans-Baikal Territory and Yakutia. Forest reindeer husbandry in Komi was widely used in the 20-30s of the last century. Then, before the start of market reforms, it successfully developed at the Pomozdinsky state farm. The reduction in agricultural production has led to a constant decrease in the supply of local food products to the population. An assessment of the ratio of the level of consumption of own food per capita to rational consumption standards in the Arctic zone indicates a decrease in this indicator for meat, milk, eggs and vegetables during the reform period. A particularly significant reduction in indicators was observed in the Murmansk region. and Chukotka Autonomous Okrug. The priorities for the development of our own agricultural production are: innovative modernization of food production; improvement of specialization, cooperation and integration; ensuring sustainable sales of products; transition to targeted management of each municipality's own food sector; formation of an effective organizational and economic mechanism.

The use of selection-genetic, technical-technological organizational-economic and socio-ecological innovations will allow the formation of the fifth and sixth technological structures in the agricultural sector. Innovation should be carried out

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not only in collective and peasant farms, but also in rural households, whose role in the conditions of cyclical economic crises is great. Small businesses may be more receptive (compared to large enterprises) to the use of innovations.

To implement the technical, technological and socio-economic development of the agricultural sector, significant financial resources will be required, including public investment. Since private investors in the Arctic, due to the low profitability of agriculture and long payback periods for investments, are not interested in investing capital in its development, in this case the role of the state is especially great. Financial support for the agricultural sector of the Arctic territories is proposed to be provided in the following areas, namely:

- *increasing the volume of financial resources for the agricultural development of the rural periphery through the redistribution of subsidies from agricultural organizations that are self-sustaining and self-financing;

- *state support for business entities implementing investment projects in the form of providing state property as collateral to ensure the fulfillment of loan obligations;

- *state support in the form of targeted grants to peasant farms;

- *support for small businesses that ensure increased employment in remote rural areas (development of private farms, organization of collection and processing of wild plants);

- *providing subsidies for the development of fish farming;

- *reimbursement of part of the costs of loans;

- *exemption of peasants from taxes for 5 years;

- *providing a preferential loan for the construction of livestock buildings for a period of up to 20–25 years, the purchase of machinery and equipment – for 6–8 years;

- *removal of restrictions on state support for agriculture under the “yellow basket”.

So, unfavorable natural conditions for agriculture, low availability of biological resources, and underdevelopment of agriculture from financial support hinder the food supply of the population of the Arctic territories. The basis of food supply is formed by the import of food products from other regions of the country and from abroad. During the period of market reforms, the share of imported food increased significantly. Increasing self-sufficiency in food will require accelerating the modernization of the agricultural sector, improving the living conditions and quality of life of peasants, intensifying and stimulating the sale of products, the formation of an effective organizational and economic mechanism, and the creation of rear food bases located in adjacent, favorable agricultural zones. The system and structure of human nutrition is determined by the availability of food resources (products), which depends on the

natural geographical environment, socio-economic living conditions, the availability of technologies for processing food resources and politics. Natural and climatic conditions determine the diversity of different types of animal resources and species of wild plants used as food. This is especially important for indigenous peoples (with hunting and gathering traditions), who have developed their balanced food system over centuries. In the modern world, it is quite difficult for indigenous peoples to maintain a certain food structure, which threatens the traditional knowledge necessary for its preservation. On the Kola Peninsula, traditional economic activity is represented by two main types of households that emerged by the end of the 19th century: indigenous peoples (Sami) and newcomers (Pomors and Komi-Izhemtsy). Despite the fact that both types are based on a natural resource base, the models of economic activity and food traditions are different. Let's focus on one of the main food resources of the region - fish. Fishing was one of the main means of subsistence for the Sami. Fish was divided into three categories: salmon; lake and river fish; sea fish: salmon, brown trout, palia, char, trout, grayling, whitefish, pike, etc. The fishing season, according to the way of life of the Sami, mainly lasted from spring to autumn; during this period, fish stocks were stocked, both for own consumption and for sale. The nutritional structure corresponded to the seasonal availability of food resources and the adaptation of the people to the local characteristics of the territory. This also determined food processing technologies, both for long-term storage and for current consumption.

Technologies for harvesting and storing fish were quite simple. To prepare fish for long-term storage, two methods were used: salting or drying in the sun without salt, for which the fish was stripped along the back, gutted and hung on poles. Supplies were stored in barrels buried in the ground. Former residents of the village of Varzino (northeast coast of the Barents Sea, the village was resettled in the 70s) remember how their parents buried barrels of fish, laying roofing felt, insulation and boards on top to make it convenient to open in winter. Both herring and salmon were stored this way. In summer they ate only fresh fish, in winter salted and dried. The peculiarities of preparing fish, associated with constant seasonal movements, are described in his book “Three Years in the Arctic Circle” by A.E. Fersman “Lapps fry fish in a very ingenious way, first cleaning it, sprinkling it with salt and poking it through the tail onto a stick. In this case, the fish is cut transversely, and its sides are cut with a sharp knife in several places. The stick is stuck into the ground obliquely near the fire, so that the fish is fried over the fire. A Lapp sitting by the fire changes the position of the stick several times, turning first one side or the other towards the fire; After 20–30 minutes, the fish is ready, having been fried in its own fat.” It is also necessary to note that, along with

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general trends in the nature of the people's diet, there are also local differences in nutrition associated with the peculiarities of the people's settlement. Depending on the location of the traditional household (pogost), the diet also differed. The coastal Sami treat the inhabitants of the central part of the peninsula with a certain degree of irony. "If you get married in Lovozero, you'll go and eat wet fish (whitefish). But we cannot live without our "vitamin" (that is, without salmon). Eating fish with berries was also one of the features of the traditional Sami food system. In the book "Lapponia" of 1674, I. Schaefer describes the fish dish of the Swedish Sami: "They like to eat fish with fresh cloudberries and from this mixture they prepare another very strange dish. The fish, boiled in water, is cleaned of bones and, mixed with cloudberries, crushed with a wooden pestle so that it turns out something like a stew, which is then slurped with spoons." Traditional Sami cuisine was often perceived negatively by the immigrant majority, although the Sami food is very balanced. It takes into account everything, including the method of extracting substances useful in the polar night, fat-soluble vitamins, as well as caloric content and other nutritional properties necessary for life in these latitudes. Politics plays an important role in preserving traditional food knowledge and the use of traditional feed systems by indigenous peoples. Colonization of the Kola Peninsula influenced the preservation of the cultural traditions of the indigenous people. In the 20th century, with changes in the way of life, much in cooking also changed. A variety of kitchen utensils appeared. Previously, the basis of kitchen utensils was a copper or cast iron cauldron; they cooked over a fire or a fire pit. Mass distribution of vegetables, in particular potato production dates back to Soviet times. A Pomor remains a Pomor only when he lives by the sea and is engaged in fishing - this is the self-determination of Pomors. Historically, the Pomors of the Kola Peninsula are immigrants from Novgorod. During almost 800 years of their stay in this region, they adapted to the natural environment. This applies to the highest degree to nutrition: "The adaptation of traditional nutrition represents the close attachment of this element of folk culture to the capabilities of the natural environment in the habitat. Adaptation means a person's action to change the conditions of food supply in accordance with his needs and demands, as well as adjusting newly introduced products and dishes to national taste." The first settlers brought the beginnings of agriculture to the region. Before their appearance, there was no bread at all in the culture of the indigenous population. The Pomors also grew turnips, which produced a bountiful harvest, and cabbage. Sea fish and fish dishes form the basis of Pomeranian cuisine. On the Kola coast of the White Sea there is still a saying: "If you don't eat crackers and don't drink tea, you won't work." Consequences of the loss of traditional food systems. If people

remain close to their traditional environment, reducing the use of their traditional food is a gradual process. People displaced from their homelands have little ability to retain traditional knowledge about available resources and technologies for processing and use. They are forced to adapt to new food patterns and are less likely to pass on traditional food knowledge to the next generation. In general, the loss of traditional food systems will result in a decline in culture-specific foods, reducing dietary diversity for rural residents, especially if hunting, gathering and other traditional activities are no longer practiced and food is purchased in stores. There may be medical consequences from changing Indigenous lifestyles. By reducing the use of marine mammals, fish and fish oils, indigenous peoples who have these items in their traditional food systems will see a reduction in the amount of omega fatty acids in their regular diets, which may affect the occurrence of various chronic diseases. Maintaining the integrity of knowledge about traditional cultural food systems is essential for sustainable development. The Arctic zone of Western Siberia is the homeland of indigenous peoples engaged in traditional reindeer herding and fishing. The life of a reindeer herder is harsh. In the structure of morbidity among the adult indigenous population, respiratory diseases occupy the first place. According to a number of authors, dietary intake of vitamins and ω -3 fatty acids prevents the development of chronic bronchopulmonary diseases. The main source of these protective food components for the indigenous population is traditional food (venison and local fish). The purpose of our study was to study the impact of traditional nutrition on the most important mechanisms for preventing respiratory and circulatory diseases among reindeer herders of the Yamal Peninsula. 1015 people were examined, of which 796 were indigenous village residents and 219 were indigenous tundra residents. Diet analysis was carried out using questionnaires developed at the Federal Research Center for Nutrition and Biotechnology. All patients underwent: history taking, examination by a therapist, pulmonologist. An analysis of the dynamics and monitoring of the consumption of venison and local fish was carried out for the period 2018–2022. Among the indigenous inhabitants of the tundra and national villages over the course of 5 years, there has been a decrease in the consumption of local fish by 50.0%, venison by 40.0%. The highest incidence of hypertension is observed in the Tazovsky region, chronic non-obstructive bronchitis and excess body weight - in the Nadym region. There was a tendency towards a decrease in the prevalence of chronic non-obstructive bronchitis and an increase in hypertension and excess body weight. Depending on the travel routes, an increase in the prevalence of chronic non-obstructive bronchitis was revealed due to the severity of the climate (increase in the northeast direction), excess body weight - depending on the availability of

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imported products (increase near large settlements). Thus, the health of the indigenous population is most influenced by the provision of traditional food products and the impact of weather and climatic factors. The use of animal and plant raw materials from the Arctic zone is not only a contribution to the health of the inhabitants of the Arctic, but also an important social project that makes it possible to provide the indigenous population with work and, at the same time, preserve the traditional way of life. In the food supply of the population of the Arctic and the Far North, a significant place is occupied by traditional industries - reindeer husbandry, fishing, hunting, procurement of wild products, etc. Of these, in economic and social terms, the most important industry is reindeer husbandry, since today in the Arctic there is no other type of domestic animal that could convert the phytoresources of many millions of hectares of tundra and forest-tundra into meat, antlers, EPS, leather and fur raw materials and other products useful for humans. Just like there is no other similar branch of livestock farming with which the fate of the indigenous peoples of the North would be inextricably linked. Sales of products from this industry are the main and often the only source of cash income for reindeer herders. In Russia, which ranks first in the world in the number of domestic reindeer, until recently reindeer husbandry was a branch of production specialization in more than 260 large collective and state farms. In the structure of marketable products of specialized farms, income from the sale of reindeer herding products before the

start of perestroika averaged 16–19% in the North. Denationalization of large reindeer herding farms, their transformation into privatized small collective ones, peasant, clan forms of management coincided with a period of general economic crisis in the country as a whole. Those regions that did not disaggregate and privatize existing reindeer herding farms turned out to be relatively viable - these are the Nenets and Yamalo-Nenets Autonomous Okrugs, the Komi Republic and the Murmansk Region. In all other Arctic regions, after the disaggregation of reindeer herding farms, there was a sharp decline in commercial production. During the period from 2018 to 2022, the number of domestic reindeer in the Russian Federation decreased by 22.4%. At the beginning of the new millennium, reindeer husbandry, as a commercial industry, survived only in four regions of Russia - the Murmansk region, the Komi Republic, the Nenets and Yamalo-Nenets autonomous okrugs. State support for reindeer husbandry in 2009–2011. due to the general economic situation in the country during the global crisis, it was slightly less than in the previous period, and in 2012–2013. increased slightly and contributed to a slight increase in the number of domestic reindeer. In 2013, the federal target program “Sustainable development of rural areas for 2014–2017 and for the period until 2020” and the industry program “Development of northern reindeer husbandry in the Russian Federation for 2013–2015” were approved with a total funding of 5.9 billion rubles.

Table 9. Number of domestic reindeer in the Russian Federation for 2018–2021.

Region name		2018	2019	2020	2021 as a percentage of 2018
No.	Russian Federation	1642.2	1531.6	1602.3	97.5
1	Komi Republic	89.9	85.31	85.8	95.4
2	Arkhangelsk region	188.5	173.4	179.3	95.1
3	incl. Nenets Autonomous Okrug	186.6	171.5	177.5	95.1
4	Murmansk region	54.9	54.4	56.2	102.3
5	Khanty-Mansi Autonomous Okrug	38.1	38.5	40.6	106.5
6	Yamalo-Nenets Autonomous Okrug	739.9	671.4	733.5	99.1
7	The Republic of Buryatia	0.5	0.6	0.6	120.0
8	Tyva Republic	2.5	3.3	3.5	140.0
9	Transbaikal region	2.6	2.9	3.1	119.2
10	Krasnoyarsk region	99.0	107.1	116.3	117.5
11	Irkutsk region	0.5	0.7	0.9	180.0
12	The Republic of Sakha (Yakutia)	177.1	165.3	156.0	88.1
13	Kamchatka Krai	42.3	44.8	48.8	115.3

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14	Khabarovsk region	6.0	5.8	6.1	102.0
15	Amur region	6.5	6.7	6.7	103.1
16	Magadan region	21.2	12.8	14.4	67.9
17	Sakhalin region	0.1	0.1	0.1	100.0
18	Chukotka Autonomous Okrug	172.5	158.2	152.3	88.3

The decline in animal numbers was especially noticeable in such regions as the Republic of Sakha (Yakutia) - by 11.9%, Magadan Region - by 32.1%, Chukotka Autonomous Okrug - by 11.7%. In the Northwestern Federal District, a slight decrease in livestock numbers was recorded in the Arkhangelsk Region (Nenets Autonomous Okrug) and the Komi Republic, in the Ural Federal District - in the Yamalo-Nenets Autonomous Okrug due to an environmental disaster on pastures in 2014. At the same time, albeit small, but positive dynamics showed the regions of forest reindeer husbandry: Khanty-Mansi Autonomous Okrug - 106.5%, Republic of Buryatia - 120.0%, Republic of Tyva - 140.0%, Irkutsk region - 180.0%, Trans-Baikal Territory - 119.2%. The stability of the livestock is demonstrated by the Khabarovsk Territory, Amur and Sakhalin regions. Such an important reindeer herding region as the Krasnoyarsk Territory demonstrates good growth rates of livestock - 117.5%. Unfortunately, for the Russian Federation as a whole, the planned figure for the program - 1.624 million animals - was not achieved in 2015. At the same time, the 2016 sample agricultural census showed the number of domestic reindeer at 1.906 million heads, which indicates the inaccuracy of the census of this type of animal using the survey method. In the natural-geographical format, reindeer husbandry can be divided into two large types: tundra and taiga. At the same time, the predominant part of reindeer herding farms can use both tundra and taiga zones during the annual nomadic cycle, i.e. in fact, it is interzonal reindeer husbandry. Of the 1,600 thousand domesticated reindeer, only 120 thousand, or less than eight percent, are grazed in the forest zone all year round; the rest of the reindeer herding is tundra or interzonal. Tundra interzonal

reindeer husbandry in the northwestern part of the Arctic zone of the Russian Federation can be a profitable sector of the economy even at the current level of prices for reindeer meat. In addition to increasing meat prices, the profitability of reindeer husbandry can be increased by approximately 1.5-2 times due to the sale of ESF, blood, skins, heads, dry horns, antlers, camus, etc. In this case, reindeer husbandry can successfully develop even in the taiga zone. By using new technologies that make it possible to obtain medicines from deer blood and endocrine glands, even higher incomes can be obtained. However, the introduction of such technologies is effective only when slaughtering a large number of reindeer, that is, only in tundra large-scale reindeer herding. According to the review "Analysis of the Venison Market in Russia," prepared by BusinesStat magazine in 2016, the Russian market's need for venison in 2011-2015. was almost entirely satisfied through domestic production. Over the five-year period, venison production decreased by 34.3% - from 9.9 thousand tons to 6.5 thousand tons. The dynamics of the indicator were multidirectional. In 2012 and 2014 his growth was recorded. In 2013 and 2015 Venison production showed a decrease of 14.2% and 32.3% compared to previous years, respectively. During these years, the main efforts of reindeer herders were aimed at increasing the number of animals. This was especially relevant in 2015 due to the need to eliminate the consequences of the local death of deer as a result of lack of food in 2013-2014. In 2016 and 2017 There was a significant increase in venison production - by 12.3% and 16.4%, respectively. This became possible thanks to the ongoing restoration of the livestock.

Table 10. Potential of the Far North pastures for grazing domestic reindeer

Region name	Total area of reindeer pastures, thousand hectares	Design reindeer capacity of pastures, thousand heads.	Actual livestock as of 01/01/2022, thousand heads.
Komi Republic	6342.0	110.0	85.8
Nenets Autonomous Okrug	12375.0	180.0	177.5
Murmansk region	7127.1	63.7	56.2
Khanty-Mansi Autonomous Okrug	6086.5	48.0	40.6
Yamalo-Nenets Autonomous Okrug	48551.6	452.0	733.5
Taimyr (Dolgano Nenets) MR	33194.7	91.6	112.0

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Evenki MR	12150.8	65.0	7.2
The Republic of Sakha (Yakutia)	92453.7	406.2	156.0
Kamchatka Krai	16506.2	135.0	48.8
Magadan Region	18475.9	122.0	14.4
Chukotka Autonomous Okrug	42597.8	410.6	152.3
By district Far North	295861.3	1962.1	1602.3

During the years of reforms, reindeer husbandry in the Russian Federation has largely lost its commercial value, primarily in the northeastern tundra and taiga part of the Arctic zone. At the same time, it retains its socio-economic and ethnocultural significance for the indigenous peoples of the North. Federal target programs for the development of northern reindeer husbandry were fully funded, but the effectiveness of their implementation turned out to be low: the number of reindeer in 7 regions did not reach the planned ones. Commercial reindeer husbandry is maintained only in 4 regions, and venison production in the Arctic zone, after some decline, is again picking up pace. This became possible thanks to the ongoing restoration of the livestock. In 2018, the production of deer for slaughter in live weight in farms of all categories was estimated to be 16.9 thousand tons, which is 62.5% or 6.5 thousand tons more than the 2016 level. In 2018-2020 production is growing at a more moderate pace - by 2.2-4.7% per year. Exports of Russian venison are growing and are expected to reach 600 tons in 2020. An important source of commercial products, including export ones, are antlers and reindeer antlers. The possibility of increasing the number of domestic reindeer in the Russian Federation is more than 360 thousand individuals. There are especially great prospects for increasing the number of livestock in the Republic of Sakha (Yakutia), the Chukotka Autonomous Okrug, the Magadan Region, the Kamchatka Territory, and the Evenki Municipal District. Forest commercial reindeer husbandry practically does not exist today due to the lack of shepherds who have the skills and technologies for year-round grazing of domestic reindeer in the taiga zone. The habitat of the reindeer species (*Rangifer tarandus*) is located in areas with a harsh arctic climate. Reindeer is an exclusively grazing animal; its diet contains no stimulating additives or industrial feed, with a variety of green vegetation in the summer and lichen (moss moss) in the winter. According to the international classification, such meat belongs to grass fed – raised on pasture. As a result of such nutrition, unique dietary characteristics of venison are formed: relatively low fat content, the predominance of biologically active microelements - copper, zinc, iron. It contains virtually no hormones, pesticides or antibiotics. In terms of the content of toxic substances: dioxins, chlorine, lead, cadmium, nitrates and nitrites,

venison is the safest type of meat. Scientific research data allows us to confidently recommend venison for regular, preventive, therapeutic, special, rehabilitation and baby food. According to the general chemical composition, venison contains protein - 21–23%, fat 3.3–4.8%. This ratio makes venison an important product of dietary and gerontological nutrition, especially for people suffering from overweight, cholesterolemia, and metabolic disorders. In the Arctic zone, about half of the venison comes from the slaughter of six-month-old animals. There is an opinion, that at this age their meat is less valuable in its biochemical, nutritional and taste qualities compared to meat from animals of older age groups. In 2015, GOST 32227-2013 “Deer for slaughter. Venison in carcasses and half-carcasses. Technical conditions”, according to which animals from 4 months to 2 years of age, regardless of gender, were classified as young deer; accordingly, the meat from their processing was called “venison from young animals”. Previous studies have shown that when slaughtering adult males, a carcass weighing 52–66 kg is obtained, adult females – 36–53 kg, the slaughter yield being 50.3 and 49.2%, respectively. When studying the morphological composition of carcasses of young animals of 6 months of age, it was found that they contain an average of 70% muscle tissue, fat – 4.4, connective – 8.3, bone – 17.3%, in adult carcasses, respectively, 70.9; 6; 7.1; 16%. The area of the “muscular eye” studied in domestic deer is 12-15 cm² in young animals 6 months of age and 18-22 cm² in adults (Fig. 1). The diameter of the muscle fiber is 33-37 and 42-60 μm, respectively. Taking into account the low cost of meat products, slaughtering young animals at an early age makes rearing them economically more profitable than keeping reindeer to older ages. Early slaughter has been practiced in industrial reindeer husbandry since the 60s of the last century; to increase the yield of marketable young animals in herds, it is recommended to increase the proportion of queens to 60-65%. In traditional ethnic reindeer herding, early slaughter of young animals is usually carried out to obtain high-quality skins for further tailoring of national clothing. Deer begin to be slaughtered for meat, as a rule, from the age of 1.5 years. The question of the quality and taste of meat when slaughtering young animals at 4-6 months of age still remains controversial. Opponents of early slaughter of deer point to the wateriness and low

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nutritional value of veal, while its supporters classify these qualities as positive, determining the dietary properties of young venison. Live weight, the weight of the carcass and internal organs of deer were determined by the weight method directly at the slaughter sites of reindeer herding farms in the Yamalo-Nenets Autonomous Okrug during autumn slaughter. Animals of 6 and 18 months of age, typical in development and live weight, were selected for slaughter. Slaughter, deboning, sampling, biochemical and organoleptic analysis of meat were carried out according to the methods of VNIIMP and VIZH. A total of 40 carcasses of males of each age were examined. The longissimus dorsi muscle was taken from 3 males and 3 females from each age group on a transverse section between the 9th and 12th ribs. Samples were cleared of surface fat and fascia and placed in a double polyethylene bag. Samples of minced meat and longissimus dorsi muscle were stored frozen at a temperature not exceeding 18°C before the study. The contours of the longissimus dorsi muscle were sketched on tracing paper, then the area of the “muscle eye” was determined using a planimeter. In the longissimus dorsi muscle, the

amino acids tryptophan (according to Graham and Smith) and hydroxyproline (according to Neumann and Logen, modified by Verbitsky and Deterage) were additionally determined. The protein quality indicator was determined by the ratio of tryptophan to hydroxyproline, the content of other amino acids was determined on an ND-1200 amino acid analyzer. The diameter of the muscle fiber was determined on the longissimus dorsi muscle, after preparation, using an MBI-1 microscope (8x objective) equipped with an AM-9-2 screw eyepiece-micrometer (15x eyepiece), which contained a microscopic ruler. In each sample, the thickness of 100 fibers was determined. Organoleptic evaluation of boiled meat and broth was carried out on a 5-point scale; the longissimus dorsi muscle was examined from 3 males from each age group. Calculation of the cost of venison was done according to the generally accepted method in reindeer herding farms. Our research has shown that the carcass weight of 6-month-old deer is 51.8% lower than that of adult males, i.e. almost 2 times; at 18 months of age this difference is reduced to 28.3% (Table 11).

Table 11. Changes in meat quality indicators depending on the age of reindeer

Index	6 months	18 months	Adults	Young animals in relation to adults, %	
				6 months	18 months
Live weight, kg	55.6	82.4	109.4	50.8	75.3
Carcass weight, kg	27.3	40.6	56.6	48.2	71.7
Slaughter yield, %	49.1	49.2	51.5	95.3	95.5
Meat factor	4.0	4.4	5.5	72.7	80.0
Area of the "muscle eye", cm ²	16.5	21.4	25.1	65.6	85.5
Muscle fiber diameter, mm	33.7	45.7	62.3	54.1	73.3
Fat in meat, %	4.5	5.1	6.7	67.4	76.3
Energy value, mJ/1 kg (kcal) OE	5.2 (1246)	5.6 (1332)	6.0 (1428)	86.8	92.8

The difference in slaughter yield between the studied groups is insignificant; it increases with age by 0.1–2.4%. Morphologically, meat has a complex tissue complex and the most valuable part of meat is skeletal muscle. The color of the muscle tissue in the studied samples was dark red, and in adult individuals it was darker than in young animals. The dark color of deer meat is due to the higher content of myoglobin, the hemes of which contain a lot of iron. With age, reindeer, like other farm animals, increase their meat coefficient (the yield of meat and fat per 1 kg of bones). In our experience, this increase was 20–27%. Another quality indicator of meat, the area of the “muscular eye,” increases in adults by 34% compared to 6-month-old animals and by 14% compared to 18-month-old animals. The diameter of the muscle fiber is 46% and 17%, respectively. An important indicator that determines the dietary properties of any meat is

the relative fat content. Venison obtained from the slaughter of 6-month-old calves has 33% less fat than that of adult males; when slaughtered at 18 months of age, this difference decreases to 24%. Accordingly, the energy value of venison increases with age by 13 and 8%. In almost all studied indicators, except for slaughter yield, adult deer had a significant advantage over young animals. One of the main characteristics of the value of proteins of any food raw material of animal and plant origin is the ratio of nonessential and essential amino acids or amino acid index. A comparative assessment of the amino acid composition of meat from animals of different ages (Table 12) showed that 6-month-old animals are inferior to 18-month-old animals in the content of lysine (42.0%), histidine (25.0%), arginine (34.0%), methionine (50.0%), isoleucine (36.0%) with a significant difference (p=0.001).

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Table 12. Changes in the amino acid composition of meat depending on the age of reindeer, g/100 g protein

Amino acid	6 months	18 months	Adults
Lysine	1.64 ± 0.05	2.33 ± 0.12	0.85 ± 0.10
Histidine	0.84 ± 0.01	1.05 ± 0.05	0.91 ± 0.13
Arginine	1.32 ± 0.06	1.77 ± 0.04	1.85 ± 0.44
Threonine	0.94 ± 0.01	0.91 ± 0.02	0.79 ± 0.26
Valin	0.93 ± 0.01	0.87 ± 0.05	0.48 ± 0.07
Methionine	0.14 ± 0.01	0.21 ± 0.02	0.18±0.10
Isoleucine	0.89 ± 0.02	1.21 ± 0.04	0.93±0.22
Leucine	1.64 ± 0.03	1.67 ± 0.06	1.27 ± 0.19
Phenylalanine	0.87 ± 0.02	0.83 ± 0.03	0.76 ± 0.06
Total essential acids	9.21	10.85	8.02
Aspartic acid	1.75 ± 0.03	1.79 ± 0.08	1.81 ± 0.51
Serin	0.81 ± 0.02	0.76 ± 0.02	0.42 ± 0.64
Glutamic acid	2.73 ± 0.05	3.81 ± 0.18	0.98 ± 0.17
Glycine	0.84 ± 0.01	0.78 ± 0.02	0.82 ± 0.95
Alanin	1.17 ± 0.02	1.12 ± 0.02	1.32 ± 0.25
Tyrosine	0.81 ± 0.02	0.72 ± 0.03	0.71 ± 0.11
Proline	0.83 ± 0.02	0.87 ± 0.02	0.67±0.14
Total nonessential acids	8.94	9.85	6.73
Amino acid index	1.03	1.10	1.19

In terms of the amount of essential amino acids (valine, leucine, threonine, phenylalanine), the difference does not exceed the limits of random variables. Young venison surpasses the meat of adult deer in the content of almost all essential amino acids with the exception of arginine (the difference is unreliable). Thus, in terms of the amount of essential amino acids, meat from 18-month-old deer exceeds meat from adult and 6-month-old animals by 36.3% and 17.8%, respectively; in terms of the sum of nonessential amino acids, this superiority was 62.5% and 10.2%. The amino acid index changes slightly with age: at 6 months of age its value is 1.03, at 18 months - 1.10, in adult deer - 1.19. The results of studies of the amino acid composition of the meat of Even breed reindeer in Sakha (Yakutia) showed that

calf meat is richer in methionine and lysine than adult animals. As is known, proteins of sarcoplasm and myofibrils of animal meat contain essential amino acids and do not contain the amino acid hydroxyproline. In connective tissue, proteins are deficient in amino acid composition (collagen, elastin, reticulin) and do not contain the amino acid tryptophan. Therefore, by the ratio of tryptophan and hydroxyproline, one can judge the biological value of meat proteins, and this ratio of amino acids is called the protein quality indicator (PQI). In our study, in deer at 6 months of age (Table 13), the tryptophan content is 40% higher in males, in females - by 44% than in 18-month-old animals.

Table 13. Protein quality index (PQI) of the longissimus dorsi muscle (m. Longissimus dorsi) of reindeer of various ages

Index	Age, months			
	6		18	
	Males	Females	Males	Females
Tryptophan, mg%	247.7 ± 11.47	273.7 ± 7.12	146.8 ± 2.64	155.2 ± 3.02
Hydroxyproline, mg%	23.4 ± 1.44	22.2 ± 0.95	9.3 ± 1.13	11.3 ± 1.76
BKP	11.8 ± 0.51	12.4 ± 0.54	17.0 ± 2.49	14.6 ± 1.48

The content of hydroxyproline decreases by more than half with age in deer. As a result, the BCP

of 18-month-old males exceeds the BCP of 6-month-olds by 41%, and in females by 18%, respectively.

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The lack of data in the literature on the ratio of tryptophan and hydroxyproline content in adult deer does not allow for a comparative analysis between groups of animals of different ages. It was previously noted that the maximum BCP is observed in 1.5-year-old deer and is largely associated with the fatness of

the animals. The organoleptic characteristics of meat and broth in 6-month-old calves were rated by experts as the lowest (Table 14); the quality of the broth was higher in adult deer. The total venison grade at slaughter at 18 months of age was equal to adult.

Table 14. Organoleptic evaluation of deer meat of different ages on a 5-point scale

Indicator under study	6 months	18 months	Adults
Boiled meat	4.2±0.22	4.8±0.19	4.5±0.33
Bouillon	3.9±0.36	4.4±0.25	4.7±0.41
Total score	8.1	9.2	9.2

A comparative analysis of the cost of meat from deer of different ages shows that the economic efficiency of slaughtering deer at 6 months of age is twice as high as slaughtering adults (Table 15).

This is due to low labor costs for raising deer up to 6 months of age with the same selling price of meat products.

Table 15. Cost of venison obtained at different ages

Expense item	6 months	Adults
Costs per 1 quintal of products, person/day,	2.7	5.2
incl. salary per 1 quintal of products, rub. %	490	1250
	63.3	72.9
Indirect costs per 1 quintal of products, rub. %	280	560
	36.7	31.0
Cost of 1 quintal of increase, rub.	780	1810

Thus, a comparative analysis showed that the meat of 18-month-old deer is superior to that obtained from the slaughter of 6-month-old calves in terms of fat content, amino acids, BCP and organoleptic indicators. The slaughter yield and amino acid index of reindeer change slightly with age. Due to the low content of metabolic energy, hydroxyproline and high amino acid index, venison can be used as a dietary product. To produce quality meat, deer should be slaughtered at 16–18 months of age. Mass slaughter of young animals at 6 months of age can significantly reduce the cost of venison production, and in case of a shortage of winter pastures, reduce the load on them. The latter is especially important for the overloaded tundra pastures of the Yamalo-Nenets and Nenets Autonomous Okrug.

The geographical concept of the Arctic includes territories whose southern border is the southern border of the tundra. But, based on Decree of the President of the Russian Federation of May 2, 2014 No. 296, the land territories of the Arctic zone of the Russian Federation include, in particular, the entire territory of the Yamalo-Nenets Autonomous Okrug, the southern border of which lies in the taiga zone. This allows us to use a larger range of historical examples that we find it possible to comment on.

In 1643, from the Berezovsky district, which included the territory that now belongs to the Yamal-Nenets Autonomous Okrug, a petition was sent to the tsar, speaking, among other things, about, firstly, the impossibility of paying tribute due to the lack of furs. The petitioners explained this absence by the “lean” years for squirrel, as well as for fish, which the petitioners had previously exchanged in dried form for “soft junk” from the visiting “Kun Kazym Samoyed”. This “self-eating” probably means the forest Nenets, who “in the year 151 fought... with the Karachi self-eating // Nenets of the coast of the Gulf of Ob // and did not go to wild trades.” Secondly, it reports famine to the point of mass mortality (“And many Ostyaks from Obdorsk [with] us and their children died of hunger,” “And many Ostyaks of the Kunovatsk volost with their wives and children died of hunger”). The mentioned events took place, in particular, in the territory that today belongs to the Shuryshkarsky district of the Yamal-Nenets Autonomous Okrug, i.e. to the southwestern, taiga part of the Autonomous Okrug. G.F. Miller in the 18th century, in “Description of the lower reaches of the Ob River and the rivers flowing into the Ob: from the place of its division into the Big Ob and Small Ob,” reported the death of the population of the town in the lower reaches of the Nadym River in 1730 [2]. The

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historian's report is confirmed by the tradition of local indigenous people. We are talking about a case of famine of a relatively small group of people caused by completely exceptional circumstances. Obdorsky assessor Yu.I. Kushelevsky, who in the 19th century, on the instructions of the Krasnoyarsk businessman M.K. Sidorov's research into promising summer and winter routes between the river. Yenisei and the village of Obdorsky, testified to the famine among the "Turukhan foreigners" in the spring of 1863. At the same time, Yu.I. Kushelevsky noted: "Fisheries along the river. Taza and especially at the mouth of this river are so rich that I have never seen anything like them anywhere. So my workers cast their small net and pulled out 90 salmon at a time, each weighing at least 15 pounds (more than 6 kg). There is nothing to say about moksuns, broads and pikes of amazing size." Trying to resolve the observed contradiction between the abundance of local natural resources and the poverty of the ethnic group, the traveler writes: "Meanwhile, the foreigners there are not able to get themselves a net. Need forces them to make seines from talnik bast and, despite this such an inconvenient and unusable means, they catch fish both for daily food and for reserve. The long, cold spring alone causes them to starve and even often starve to death." On another page of his notes, Yu.I. Kushelevsky reported a typical example of seasonal malnutrition in the family of a priest of the Tazovskaya church. Pictures reflecting the problematic food existence of the aborigines of the taiga and forest-tundra, whose reservoirs, according to travelers, were extremely rich in fish, suggest that one of the reasons for the hunger strikes of the indigenous groups of the region is the difference in the mentality of reindeer herders-hunters, on the one hand, and fishermen, on the other. Fishermen have never been forced to work as continuously as reindeer herders. In addition, with the presence of alcohol imported by merchants, fishermen could even afford the long group drinking bouts described by many contemporaries, which was unthinkable for the owners of reindeer herds. As a result, periodically, under unfavorable climatic conditions and abnormally prolonged springs, the results of the fishermen's labor were sometimes insufficient. Hunger began among them. Vasily Ivanovich Nemirovich-Danchenko (elder brother of the Russian theater reformer Vladimir Ivanovich Nemirovich-Danchenko), widely known in the late 19th and early 20th centuries. as a writer, traveler and describer of the northern outskirts of the Russian Empire, in particular, he visited the Turukhansky region, the territory of the western part of which falls on the current Tazovsky and Krasnoselkupsky districts of the Yamal-Nenets Autonomous Okrug. In the essay "Yuraks" we find the following: "The main occupation of the Yuras is reindeer herding. The deer gives them material for housing and fur and leather for clothing and methods of movement. The Yuraks value

it to such an extent that sometimes they do not dare to slaughter a domestic deer, whereas, having killed a wild one, they greedily pounce on its meat and eat it for 14 pounds. for everyone. They are ready to endure hunger rather than sacrifice one of these gentle and useful animals from their herd. Fishing and bird hunting provide them with abundant food, which is why in the summer they migrate to river and lake shores.

To the surprise of Russian researchers, the Khanty (with the exception of the Kazym) and Nenets, despite the abundance of berries, did not collect them, just as they did not collect and did not eat mushrooms at all. Culinary art did not play any significant role (as, indeed, it still does not). Large quantities of meat were consumed raw (as was fish), fresh in the summer and ice cream in the winter. In the spring, residents of the region collected goose eggs for food. The Nenets ate all birds, not excluding loons, skuas and raptors. The onset of the Bolshevik era brought completely new realities to the extreme north of Western Siberia, as well as throughout the country. Already in the very first years, the state's pressure on the population of the northern outskirts of the country grew disproportionately with previous times. As a result of the civil war, its manifestations in the form of anti-Bolshevik riots in 1921, as well as as a result of economic collapse, crop failure and state obstacles to self-organization of the population to overcome food shortages (bagmen), 1921 and 1922 became famine years for Russia. In many areas of the middle and lower Volga region, and other southern territories, this led to mass mortality; newspapers reported numerous cases of suicide and cannibalism. Mass mortality was also observed in the southern regions of Western Siberia, so in the Tyumen district the number of officially registered starvation deaths on May 20, 1922 was 573 people. In the far north of Western Siberia, the famine did not take its full form; however, the collapse of the fishing industry and the trade that accompanied it created significant problems, expressed at least in the depletion of both the diet and the volume of food. In addition to these destructive factors, after the suppression of the Siberian peasant rebellion of 1921, firearms were taken away from indigenous and non-indigenous local residents, which, as the press organ of the Tobolsk Military Revolutionary Committee "Soviet North" reported, "are partly stolen, partly stored and perishing in some "some primitive warehouses." As a result, as evidenced by one of the archival documents from 1922, a situation arose where hunters were forced to hunt as in ancient times with the help of bows and even simple sticks. Despite these collisions, part of the population of the territories adjacent to the north of Western Siberia tried to flee here to escape severe famine. As a result, for example, the number of residents of the largest village of He on the shore of the Gulf of Ob grew by 73% from 1921 to 1923. The

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northerners, despite all sorts of regulations and prohibitions, were, as always, saved, first of all, by the fish wealth of the local reservoirs. The assumption expressed before the revolution by individual officials, scientists and ordinary people about the process of extinction of the local “foreigners” that had been going on for a long time, since tsarist times, turned into almost an official statement in the first years of the new government. In materials prepared in 1922 for the leadership of the Main Northern Sea Route, a certain Berezyanin stated: “Our northern foreigners were once a large population of a free and rich country, which knew its heroes, its heroes, had its own laws and customs. Now these foreigners are just the pitiful remnants of dying tribes, who have stopped at one of the lowest stages of cultural development and are little by little deprived of even what once ensured, at least, their material well-being: reindeer husbandry has fallen into decay, the fur trade has greatly declined, even fishing poorly provides for foreigners - these natural fishermen.” Some dissonance with the above was followed by the recognition of the same author that he personally “... managed to collect statistical material in the summer of 1914 on the birth and death rates among the Ostyaks - Samoyeds of the river delta. Obi. It is necessary to make a reservation that the foreigners who were covered by the survey were in the most unfavorable living conditions. Despite this, out of 48 registered families, only one was childless, 2 families gave unclear testimony, 45 mothers had 223 children, or an average of 5 children for each mother. Thus, based on the obtained material, the childlessness of foreigners is not confirmed. But be that as it may, the general extinction of aliens remains a fact that must be taken seriously.” The history of the Arctic zone of Western Siberia knows examples of famine that occurred among special settlers who were “dispossessed” and deported to the far north of Western Siberia. This famine led to mass mortality. Including on about. Puiko, in the middle reaches of the river. Nadym, on the eastern coast of the Yamal Peninsula. Nenets reindeer herders were strictly forbidden to treat the settlers with any food. And the surrounding nomads could only do this in those rare cases when the authorities could not see it. As old-timer A.G. stated about the years of the Great Patriotic War. Kotlyarchuk: “We lived here at the expense of the Nenets. If it weren’t for them, we would have died of hunger here, like they did in Nadym.” In 1947, there was a famine among reindeer herders in the north of the Yamal Peninsula. The famine was a consequence of the authorities’ general, often repressive policy towards reindeer herders and a number of their specific short-sighted management decisions. As S.V. wrote Lezova, “Documentary evidence leads to the conclusion that the main goal of the actions of the Soviet government in Yamal during this period was the systematic destruction of the elite part of the native population and the destruction of the traditional life

support system of tundra reindeer herders. The administrative and economic policy of the Party and its local executors led to a catastrophic decline in North Yamal reindeer husbandry and brought the native population to the brink of extinction.” A number of documents indicate that the depletion of pastures was not the only reason for the population's hunger. For example, in a report to the chairman of the executive committee of the Tyumen regional council, Koshelev, the deputy chairman of the Yamalo-Nenets district executive committee, Pogorelov, reported on July 1, 1947: “At the same time, I am informing you that that in connection with the no less difficult situation of the national population in the Baydaratskaya tundra of the Priuralsky region and the Gydoyamskaya tundra of the Tazovsky region, a partial resettlement of collective farmers was carried out to collective farms located on the river. Ob: Priuralsky district 64 farms Tazovsky district 25 farms.” A secret telegram to the Tyumen Regional Party Committee from the Yamalo-Nenets Regional Executive Committee on June 30, 1947 reported: “... part of the population, especially reindeer herders, are in dire need of money to buy food, that is, systematic assistance. A set of products set at the established norm for a family of 4 costs 500 rubles a month or 6000 salary per year. 51 collective farms have a family income of less than 3500 rubles. Collective farm fishermen of the Shuryshkarsky district could not go out on expeditionary fishing trips without having the means to buy bread. Most collective farmers will not have any income in October and November, that is, between the fishing and fur seasons.” To summarize, we consider it appropriate to quote researcher I.I. Krupnik, who wrote: “...there is every reason to consider the demographic history of the Siberian Nenets during the first three centuries of contacts to be very successful. <...> the main factor contributing to the numerical growth of the Nenets and some of their neighbors in the 18th-19th centuries was their transition to a large-scale reindeer herding economy. ... Thanks to the rapid growth of herds of domestic reindeer, the increasingly frequent slaughter of animals for meat and skins for personal consumption, exchange, sale, etc. families of reindeer herders were able to switch to eating meat from their domestic animals more regularly. Seasonal and annual fluctuations in the abundance of food and regular hunger strikes, so typical for hunting or small-reindeer farming, have sharply decreased. In a large herd economy, reindeer meat has become an abundant and year-round resource. Even families with few reindeer now have the opportunity to eat reindeer meat through mutual assistance, exchange, and association with more prosperous families.” Just ten years ago, we had to observe widespread seasonal (winter) natural exchange between large-herd reindeer herders of Yamal, on the one hand, and low-reindeer and reindeer-less aboriginal fishermen of the southern

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coast of the Ob Bay, on the other. Reindeer herders offered reindeer meat and reindeer skins, and fishermen offered frozen and salted fish, yurok (dried fish fillet), varka (a mixture of melted fish oil with crushed fish meat and caviar) and wooden products (sledges and sorcerer boats). Opposing supporters of the ecological approach in anthropology, which explains the low population density in the Arctic by low "ecological capacity," I.I. Krupnik noted: "The land of Yamal accepted and provided the resources necessary for existence of several powerful waves of migrants - from the ancient hunter-reindeer herders of the Kharyuchi phratry to hundreds of families of Nenets and Khanty reindeer herders who fled collectivization and repression of the Soviet administration in the 1920-1930s. All of them found a place in Yamal along with the former inhabitants of this territory; for all of them, as well as for their descendants, the harsh arctic tundra of Yamal was a land of plenty, security and freedom." We find the description of famine in the Arctic zone of Western Siberia, if this zone is understood strictly physically and geographically, very difficult for the reason that the available historical information, even if it reflected serious food problems in the history of the region, these problems, as a rule, were caused either by very temporary natural conditions and did not last long, or exceptional personal circumstances of the place and time of a small group of individuals or individuals, or the actions of the state. In general, since the massive penetration of fishing industry into the Arctic zone of Western Siberia, i.e. from the end of the 19th century, food problems reaching the level of real famine arose only in Soviet times and were not initially caused by natural factors, but were generated in this region by state policy aimed, first of all, at increasing the "socialist marketability of the national economy." That is, to create the opportunity for the state to confiscate from the northerners any amount of the results of their labor in the form of deer, fish and furs, in return maintaining only a minimum level of food well-being. And at times without supporting him either.

Conclusion

The transition of Arctic single-industry towns to a sustainable model of development of the local economy and local community is a complex task,

taking into account the extreme dependence of reproductive processes on the life cycle of the city-forming enterprise. One of the foundations of sustainability in these conditions is the organic development of social and human capital. Institutions of interaction, formed within the framework of socially useful activities, are one of the key components of the formation of social capital of the local community, which, in turn, allows for the consolidation of human capital in the territory. The purpose of the study is to identify the characteristics of social activity and social capital of the local indigenous community, as well as the migration attitudes of population groups that are systemically important for its reproduction. A complex of sociological, statistical and general scientific methods was used. The general prevalence of social practices in the indigenous peoples community has been revealed, systemically significant population groups for the reproduction of social capital have been identified and characterized, and their migration attitudes have been identified and compared. Based on the results of the study, conclusions were drawn about the sustainability of the reproduction of the social capital of indigenous minorities, as well as the influence of its aspects on the consolidation of human capital. To increase local sustainability by consolidating social and human capital, it is necessary to intensify the efforts of local authorities to expand the social space by involving the surrounding indigenous peoples in the socio-economic processes, as well as to prevent institutional distortions in the work of social elevators. The scientific novelty of the study is determined by the methodological approach, which consists in the synthesis of the functional-role and time components of social activity in the analysis of sociological research data. Also, indigenous peoples as a new administrative entity within the Russian Arctic and a certain exception in terms of indicators of socio-economic development of Arctic single-industry towns have previously been studied to an extremely limited extent. The results have scientific value and practical applicability in the framework of the development of strategic documents for regional development, as well as the operational management of the socio-economic system of a single-industry town with indigenous minorities.

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