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Food supply in the Arctic: Municipal authorities' opinion*

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Abstract. The UN experts rightly point out that “inequality between different regions of a particular country is often more significant than inequality between countries”. The article considers the issues of food provision for the hard-to-reach areas of the Yakut Arctic based on the survey of the municipal authorities in the Arctic regions of the Republic of Sakha (Yakutia) on the current situation and problems of food supply. In general, the issues of ‘northern delivery’ are most acute for the hard-to-reach territories of Russia. The article is based on the results of the expert survey — representatives of the municipal authorities in 10 out of 13 Arctic regions of Yakutia. According to the empirical data, in most settlements and villages of the Arctic regions of Yakutia, there are such problems as a shortage and a narrow list of provided products, their low quality and high prices, lack of food control, insufficient number of vegetable stores and warehouses. Due to the high food prices, the most vulnerable groups are poor citizens, among whom families with children prevail. Despite the average indicators of the economic access of food, the transport access to food in the Arctic regions of Yakutia is critically low. In these areas, the cost of a food basket in the consumer basket, on average for a five-year period, turned out to be significantly higher than the average for the Republic of Sakha (Yakutia). The food market of the Yakut Arctic is very specific, primarily due to the peripheral geographic location and the underdevelopment of the transport infrastructure. Significant volumes of food deliveries with the participation of the regional budget can only affect the minimum prices of products. The situation is aggravated by the lack of a unified legal framework and organizational structure for hard-to-reach territories; therefore, ensuring their food security requires additional research and special management decisions.

Key words: food supply; northern delivery; transport inaccessibility; social inequality; Arctic zone of the Russian Federation; Yakutia; expert survey

Social inequality in Russia is a more acute problem than poverty. The features of inequality formed in the 1990s, and the structure of income, despite recessions and crises, has not changed much [6]. Aggregated national indicators conceal social inequality, which is most clearly expressed in the low physical and economic access to quality food for some groups.

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According to the 1966 International Covenant on Economic, Social and Cultural Rights, the participating states “recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions” [2]. The right to adequate nutrition is crucial for economic, social and cultural rights, and the provision of the population with food is an important indicator of the social state and an important element of national security [5; 16; 19].

Residents of remote Arctic and northern settlements are in the most vulnerable position in terms of food supply due to the extreme natural, climatic and geographical features combined with the low level of the social-economic development. Arctic regions are significantly inferior to other territories in terms of natural conditions for agriculture (cold climate, short vegetation period, poor soils, and excessive moisture); there are almost no conditions for crop and livestock production. Therefore, the basis of food supply in the Arctic is formed by food deliveries from other regions.

More than a half of the largest Russian region — the Sakha Republic (Yakutia) — is in the Arctic zone with extremely low winter temperatures, remote settlements of hard access and a small number of inhabitants. At the beginning of 2022, there were 75.6 thousand people, or 7.7% of the population in Yakutia. The entire territory of the Sakha Republic is unfavorable for agricultural production [9]. Despite the fact that, since the 17th century, the Far North had an economic model based on the export of raw materials and import of resources for livelihood, historically, the basis of the Arctic indigenous peoples’ nutrition was local: reindeer herding, hunting, fishing, gathering herbs. During the Soviet era, the Arctic peoples of Russia were under the pressure of external factors which lead to significant changes in the nutritional structure. The state, on the one hand, was interested in the development of these territories; on the other hand, did not create an infrastructure that would ensure independence from external supplies [3]. The ‘Northern Supply Haul’ of cargoes to the Arctic regions of the Sakha Republic has a seasonal character — in summer by rivers and in winter by ice/snow roads.

According to the Russian legislation, regions have the right of centralized purchases and supplies to the municipal areas of the Far North and similar territories. Thus, Yakutia annually subsidizes from the regional budget the transportation costs for the delivery of socially important food products (SIFP) to the hard-to-reach settlements. The main subsidies are received by the regional operator Yakutoptorg. The list of food products to be delivered to the remote settlements varies considerably by region: in Yakutia, this list includes 32 items.

Under the market economy, the Northern Supply Haul has become the most acute problem for the region due to the lack of financing — there is a tendency of reduction of volumes and assortment of food supplied. The situation is aggravated by the crisis of traditional activities and industrial development of the northern territories, which limited the access of the Northern indigenous peoples to traditional foods and transformed their traditional diet [7; 17; 18].

Municipal authorities are the closest to the real needs of the Arctic villagers; their social functions imply the smooth functioning of institutions of life support in local communities [12]: perishable food provision, ensuring necessary conditions for the functioning of all spheres of life, and so on. The article aims at revealing the opinion of the municipal authorities of the Arctic regions of the Sakha Republic (Yakutia) on the current situation with food supply.

The issues of food supply are considered in both Russian and international perspectives. Russian scientists tend to focus on import substitution and food self-provision, threats to food security, new approaches to food policy and assessments of the economic and financial access to food [4; 11; 13; 15]. The normative-legal acts adopted in Russia from 1994 to the present day do not reflect the real situation in the food sphere; they are applicable in favorable conditions without emergencies; moreover, the regional level of food security has specific features which are associated primarily with the historical division of Russian regions into producing and consuming [1]. Foreign studies focus on the sustainability of food systems in relation to environmental, economic and social aspects [22; 24], and the impact of climate change on food security in the regions [21]. The main limiting factor of food supply in the Arctic zone of the Sakha Republic (Yakutia) is transportation. Food and goods are mainly brought in by winter roads, and at other times, by air. In some settlements, food is delivered in summer by river transport.

The article is based on the expert survey of the representatives of municipal authorities in 10 Arctic regions of the Republic of Sakha (Yakutia). The data was collected in March 2021 with the semi-formalized interviews (the questionnaire consisted of more than 20 questions). The heads and deputy heads of the Arctic districts and rural settlements, heads and leading specialists of the departments and divisions of municipal administrations in the Arctic districts of the Sakha Republic (Yakutia) were interviewed (121 respondents in 6 settlements and 30 rural settlements, which is 30.2% of all settlements in the Arctic zone of Yakutia).

According to the municipal authorities, year-round roads fully provide with food only 9.5% of settlements in the Arctic zone, 24.3% are provided by winter roads, 22% — by air including ‘green flights’, and 22.6% — by river (Table 1). Winter roads provide the population of the Arctic regions with 51% to 70% of food products, river transport — with 21% to 50%, air and year-round road transport — with less than 20% each.

More than 76.8% of municipal officials consider food supply in their locality as the most acute problem. In most settlements and villages in the Arctic regions, the municipal authorities name such problems as shortages and a narrow list of products, low quality and high prices of food, lack of food quality control, lack of vegetable storage facilities and warehouses. In summer and fall, from July to the winter roads in December, there is a shortage of all kinds of food. More than 55% of experts mentioned the lack or shortage of fresh fruits and vegetables in their settlements, 33.1% — of milk and dairy products, 10% — meat products,

including beef, pork and sausages. Goods in short supply are quality baby food, eggs, fish and seafood, bakery and confectionery. It is very hard to find perishable food in the Arctic villages: the risk of loss during transportation is very high for entrepreneurs, and not all settlements have vegetable storage facilities and warehouses, so entrepreneurs try to bring long-term storage products that can be stored at temperatures below freezing.

Table 1

**Share of food and medicine supply
in the Arctic regions of the Sakha Republic (Yakutia)
by different ways of delivery (experts' estimates)**

Delivery method	Supply (%)			
	100 %	51–70 %	21–50 %	less than 20 %
year-round road transportation	9,5	14,3	9,5	66,7
winter roads	24,3	41,4	25,2	9
air transport	22	15,4	30,8	31,9
river transport	22,6	17,7	33,9	25,8

In summer and fall, products are delivered to the Arctic zone only by ‘green flights’ — the delivery of a limited set of SIFP is organized by the government of Yakutia. ‘Green flights’ bring fresh products only once or twice a year, during the off-road period. ‘Green flights’ are costly since first the cargo is transported by air to the district centers, then by helicopters to the remote villages. The cheaper way to deliver food is water transportation and then transportation by the An-24 flights. The experts believe that the ‘green flight’ brings 2 tons of fresh vegetables only once a year for more than 500 people, which is not enough.

The situation with food supply in district centers was assessed by the municipal authorities as more or less favorable. In remote villages, due to the lack of regular transportation and all-terrain vehicles, the access to food during the summer and fall seasons is a serious problem: in 17% of villages, there are no food suppliers or stores, and stalls or sales are organized at home by individuals. Only 5% of experts believe that it is possible to buy virtually all basic types of food in their locality, but there is a problem of their high cost. According to the official statistics of March 2020,

the average prices for vegetables and fruits in the Arctic regions of the Yakutia were 2–3 times higher than the average prices in Yakutsk.

Due to high food prices, the low-income groups are in the most vulnerable situation, primarily families with children. The standard of living in the Arctic regions is lower than that of the Republic's average. According to the Ministry of Labor and Social Development of the Sakha Republic, in 2019, more than 12 thousand people, or 17.8% of the total population of the Arctic zone of Yakutia were registered as in need for social support. The share of those in need in the Arctic regions of Yakutia exceeded the average Republic's indicator twice (9.1%). Every fifth person living in the Arctic regions cannot afford food of proper quality at current prices. Inaccessibility of some food products, low incomes of the local population and high costs of living in the Arctic regions do not allow the population to maintain a sufficiently high level of consumption, which is the basis of the standard of living [23].

The majority of experts consider the high cost of transportation (94.9%), high prices for basic goods (68.6%), and inaccessibility of quality and inexpensive mobile Internet communications (61.9%) the main factors affecting the standard of living in the Arctic regions. Due to high transportation costs, the real cost of the minimum set of food products in the consumer basket is significantly higher than in the rest of the region. Low incomes of the majority of the population in remote villages determine a poor assortment of the delivered food from the cheap low-quality segment. Poor food supply in the Arctic regions lead to the deterioration of nutrition, inaccessibility of a nutritious and healthy diet. 21.6% of experts rated the quality of delivered food as very low.

One of the main reasons for a limited range of food supply to the Arctic regions is the lack of storage and marketing infrastructure, of warehousing and transit terminals [14]. More than 83.3% of experts say that there is no adequate storage for crops in their locality. Only 1% have a sufficient warehouse for vegetables, and 15.7% have a warehouse but not big enough or in despair, i.e., it is impossible to bring perishable and frost-prone products in large quantities. Personal subsidiary farms and traditional activities play an important role in the food supply of the Arctic regions [10]. According to the experts, on average, 19.5% of the population fully meet the needs of their households in meat, fish, berries and vegetables by traditional activities (Table 2), almost 30% — by half, and 32.2% — by 25%. Only 18.8% of the population are not engaged in traditional activities and do not have personal farmsteads. 28.7% fully meet their needs in berries, 24.8% — in fish, 16.8% — in meat of wild animals and game, and 7.5% — in vegetables. The population is least self-sufficient in vegetables (44.3%). For families living in the Arctic zone, it is common to exchange traditional food, for example, fish for reindeer, or fish and meat for help or some service.

Table 2

Expert estimates of the role of subsistence farming and traditional activities in meeting the food needs in the Arctic regions of the Sakha Republic (Yakutia)

Food	No	Up to 25 %	Up to 50 %	Up to 100 %
Meat	8	39,8	35,4	16,8
Fish	8,8	30,1	36,3	24,8
Berries	13,9	28,7	28,7	28,7
Vegetables	44,3	30,2	17,9	7,5
Average	18,8	32,2	29,6	19,5

The municipal authorities believe that there are prospects for breeding pigs, poultry, rabbits and other in the Arctic zone of Yakutia (66.7%), but there are barriers (some experts mentioned examples of successful poultry and pig farms). More than 33% of experts believe that there are no prospects for breeding the early maturing animals in the Arctic zone due to the high cost of keeping, expensive feed, difficult delivery, lack of desire, lack of outbuildings to keep early maturing animals, the need to heat outbuildings in winter, high heating fees, lack of forage and hayfields, lack of veterinary services in the settlements. To solve these problems by private and peasant farms, the suggest “to develop the social contract program”, “to breed Yakut horses”, “to ensure the state support in providing mixed fodder and production base”, “to feed the soon-to-be-breeders with self-caught fish”, etc. However, 46.9% of the experts say that the local population has little interest in raising pigs, poultry and other livestock — only 8%, be the experts’ estimate, are interested in breeding early maturing animals.

In general, the municipal authorities assess their activities and the decisions of the republican authorities to solve the problems of food supply to the Arctic regions as insufficient. To the question “How effectively do the republican and municipal authorities perform their duties of food provision to the people of your locality?”, 32.4% of the experts answered “definitely effective”, 29.7% — “rather ineffective” and 5.4% — “completely ineffective”; 32.4% found it difficult to answer the question.

To change the situation with the poor food supply, municipal authorities take various measures: cooperate with the state operator Yakutoptorg in organizing the delivery of food by ‘green flights’ and setting the quantities and assortment of products. The experts consider the quantities and assortment of food products delivered by ‘green flights’ insufficient: “green flights are needed at least two or three times a year instead of one”; “there are not enough fruit and vegetable deliveries, it is necessary to organize more green flights”; “we need subsidized air transportation to deliver fresh products”. To increase the number of ‘green flights’, the experts suggest to reconsider the transport scheme of the ‘northern delivery’, to introduce effective planning of freight traffic, to increase subsidies to the state

operator, to reduce the costs of air transportation by engaging small aircraft and river shipping. The municipal authorities consider cargo shipment by the Northern Sea Route from the European part of Russia one of the most promising options for the Arctic regions. In additions, the delivery of food products should be organized to the settlements rather than the district centers, for which the municipal authorities suggest to open Yakutoptorg stores in all settlements and support Yakutoptorg municipal operators in building food stores and warehouses.

The municipal authorities consider the state support for entrepreneurs another important step in improving the food supply system in the Arctic zone. They highly appreciate the role of small and medium-sized business in the food supply. According to the Federal Tax Service, in Yakutia, at the beginning of 2020, there were 305 small businesses (2.7% of all small businesses in the region) and 1,594 individual entrepreneurs excluding private farms (6.3%) in the Arctic zone. In the retail trade, there were 57 small enterprises (2.6%) and 449 individual entrepreneurs (4.7%). According to the experts, small enterprises and individual entrepreneurs deliver up to 70% of food products to the Arctic regions.

Under the high rural unemployment, many entrepreneurs in the Arctic were forced to become entrepreneurs and perform social functions as well. The municipal authorities cooperate with individual entrepreneurs to calculate the amount and assortment of food products, to control prices and quality of the delivered products. However, for the most part, entrepreneurs are engaged in the purchase, delivery and sale of food products without any state support. Their key problem is the complicated transportation scheme, and the experts believe that urgent measures are needed to support entrepreneurs in solving this problem — it is necessary to subsidize transportation costs, to introduce low-cost credits for providing the population with food, to introduce tax incentives for the Arctic entrepreneurs.

In many Arctic villages, there is a hidden food market: ‘apartment sellers’, ‘private sellers selling illegally’, ‘citizens selling at home’. According to the experts, the hidden food market accounts for up to 30% of the total turnover of goods in the Arctic zone (individuals deliver food of poor quality and sell it through personal networks, the shelf life of products is violated).

The municipal authorities mentioned another important aspect of food security in the Arctic regions — the state support for agricultural producers, communities of indigenous peoples and private subsidiary farms. The municipal authorities help agricultural producers with supplies of fodder, and much work is done to open winter roads on time. In winter, the municipal authorities organize the delivery of meat, venison and fish from the nearby areas. The experts suggest the following measures of the state support for agricultural producers: “to open small farms in all areas of agriculture; today only large farms are subsidized, and our small ones cannot compete with them”; “it is necessary to support the start-ups of agricultural producers”; “to establish enterprises for processing reindeer meet and fish products for local sales”.

Inequality in food and nutrition remains an important criterion of the level of social equality, an indicator of social well-being and of the efficiency of the social state [8]. According to the World Bank, the level of spatial inequality in Russia is higher than in most similar economies [9]. Compared with other regions of the Far Eastern Federal District, the average monthly income in 2005–2020 in Yakutia was higher, which proves the effectiveness of the measures taken by the Government of the Republic of Sakha (Yakutia). In 2018, the consumer-purchasing power of nominal wages decreased in the country in general, in all federal districts, in the Republic, and very significantly in its Arctic economic zone. In 2017–2019, that the average monthly wage in the Arctic regions of Yakutia were below the national average by 4.8%. In the Arctic regions of Yakutia, the average consumer basket for the five-year period of 2015–2019 was by 69.3% higher than the national average. The average volume of social payments and the taxable money income of the population in the Arctic municipalities are lower than the national average by 3%. On average, in the Arctic regions of Yakutia, the prices for eggs are 80% higher than in the capital of the Republic, for potatoes — by 194%, for salt — by 186%, for milk (2,5–3,2% fat) — by 139,2%, because the volume of food deliveries with the state support remains low.

In 2020, the average share of the delivered food products compared to the rational nutrition norms for the Arctic zone of the Sakha Republic was: flour — 50.1%, sugar — 27.1%, salt — 8.3%, pasta — 16.9%, vegetable oil — 6.8%. The impact on the minimum price for these products was insignificant. In addition, food prices in the Arctic regions do not seem to depend on traditional factors in the developed competitive retail environment. The food market in the Arctic zone is characterized by peripheral location, difficult accessibility, and special features of the consumer behavior (natural exchange, traditional products, informal sector), which limits the possibilities of competition and determines the presence of state operators responsible for providing SIFP (primarily flour) and ensuring food security (physical and financial access to SIFP).

Despite unfavorable conditions for agriculture, high prices for food, goods and services, both in the Sakha Republic and in its Arctic zone, compared to other Russian regions, the average situation is not critical in terms of the food economic affordability. In general, transportation costs affect final consumer prices to a greater extent under certain seasonal and other natural factors, which can be leveled with the modernization of equipment used in the delivery of products to settlements, and of infrastructure for the long-term storage of food products. The reduction of final prices for the main foods products can be achieved only by increasing the capacity of the early food delivery, modernizing transport and storage infrastructure, implementing the state policy on healthy diet, and changing the unhealthy eating habits. Due to the complex multi-stage food delivery to the largest region of the country with the highest degree of transport and energy isolation and, thus, an underdeveloped infrastructure, none of the experience and

established practices of the entities of the Russian Federation in food provision to hard-to-reach areas can be applied. Therefore, one of the key conditions for a comprehensive system of food supply and its efficiency is a unified regulatory-legal framework at the federal level and a clear organizational structure applicable to hard-to-reach territories.

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Продовольственное обеспечение в Арктике: мнение муниципальных властей*

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Аннотация. Эксперты ООН справедливо отмечают, что «неравенство между разными регионами отдельной страны зачастую оказывается более значительным, чем неравенство между странами». В статье рассмотрены вопросы обеспечения продовольствием труднодоступных районов якутской Арктики на основе опроса муниципальных властей арктических районов Республики Саха (Якутия) о сложившейся ситуации и проблемах продовольственного обеспечения. В целом вопросы «северного завоза» — острейшая проблема для труднодоступных территорий России. Статья основана на результатах экспертного опроса — представителей муниципальных органов власти 10 из 13 арктических районов Якутии. Согласно полученным данным в большинстве поселков и сел арктических районов Якутии наблюдаются такие проблемы, как дефицит и узкий перечень завозимых продуктов, их низкое качество и высокие цены, отсутствие контроля за продовольствием, недостаточное обеспечение овощехранилищами и складами. В результате высоких цен на продукты питания в наиболее уязвимом положении оказываются малоимущие граждане, среди которых преобладают семьи с детьми. Несмотря на среднестатистические показатели экономической доступности продовольствия, транспортная доступность арктических районов Якутии критически низка. В этих районах стоимость продуктового набора потребительской корзины в среднем за пятилетний период оказалась значительно выше среднереспубликанских значений. Продовольственный рынок якутской Арктики весьма специфичен, прежде всего, вследствие периферийного географического положения и неразвитости транспортной инфраструктуры. Завоз значительных объемов продовольствия с участием регионального бюджета может влиять только на минимальные цены продуктов. Ситуация усугубляется отсутствием единой нормативно-правовой базы и организационной структуры для труднодоступных территорий, поэтому обеспечение их продовольственной безопасности требует дополнительных исследований и особых управленческих решений.

Ключевые слова: продовольственное обеспечение; северный завоз; транспортная недоступность; социальное неравенство; Арктическая зона Российской Федерации; Якутия; экспертный опрос

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