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OAJI (USA) = 0.350

SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2022 Issue: 10 Volume: 114

Published: 28.10.2022 <http://T-Science.org>

Issue



Article



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ON THE BASIC DIRECTIONS AND TASKS OF THE SOCIO-ECONOMIC DEVELOPMENT OF THE REPUBLIC OF SAKHA

Abstract: *in the article, the authors analyzed the effectiveness of the developed Strategy for the Development of the Republic of Sakha (Yakutia) in the Russian Arctic in order to pursue a unified state policy, namely: determination of individual areas, priorities, goals and objectives for solving key problems of socio-economic development of the Arctic territories; promoting the creation of social infrastructure, including transport; development of the economy of renewable natural resources; introduction of advanced technologies, development of international cooperation in the Arctic; ensuring environmental safety.*

The strategy is the basis for the development of the Action Plan for its implementation, the adjustment of the Arctic sections of the state programs of the Republic of Sakha (Yakutia) and the state program of the Republic of Sakha (Yakutia) for the development of the Arctic territories, the territorial planning scheme of the Republic of Sakha (Yakutia).

The Strategy uses materials from the analytical report of the Center for Strategic Research of the Republic of Sakha (Yakutia) "Strategy for the socio-economic development of the Arctic zone of the Republic of Sakha (Yakutia) for the period up to 2035". The Strategy takes into account the recommendations of the research work "Assessment, the main trends in the change in the natural and socio-economic condition, human potential of the Arctic economic zone of the Republic of Sakha (Yakutia)", developed by the North-Eastern Federal University. M.K. Ammosov, the Academy of Sciences of the Republic of Sakha (Yakutia) as part of the Program of Comprehensive Scientific Research of the Russian Academy of Sciences in the Republic of Sakha (Yakutia), aimed at developing its productive forces and the social sphere for the period up to 2035.

Key words: *Advanced Development Territory (TOR), economic activity, significance, efficiency, socio-economic development strategy, financial condition, sustainable TEP, resources, profit, profitability, priority, preferences, demand, competitiveness.*

Language: *English*

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Citation: Shcherbakov, D. S., Tikhonov, A. A., Prokhorov, V. T., & Volkova, G. Y. (2022). On the basic directions and tasks of the socio-economic development of the Republic of Sakha. *ISJ Theoretical & Applied Science*, 10 (114), 701-749.

Soi: <http://s-o-i.org/1.1/TAS-10-114-64> **Doi:**  <https://dx.doi.org/10.15863/TAS.2022.10.114.64>
Scopus ASCC: 2000.

Introduction

UDC 339.138:327.51

The main directions for the implementation of this Strategy in individual municipalities of the Republic of Sakha (Yakutia) are:

a) dredging of the Anabar, Lena, Yana, Indigirka and Kolyma rivers;

b) the integrated development of the regions of the Anabar and Lena basins, taking into account the development of mineral resource centers, including the world's largest deposit of rare earth metals, Tomtor, alluvial diamond deposits in the territories of the Anabar, Bulun, Olenek regions, the Verkhne-Munskoye diamond deposit, the Taymylyr coal deposit, West Anabar Oil Mineral Resource Center;

c) integrated development of the village. Tiksi, including the development of dual-use infrastructure, including the reconstruction of the seaport of Tiksi and its terminals;

d) comprehensive development of the territories located in the Yana River basin, providing for the construction of energy and transport infrastructure facilities, the development of the mineral and raw material base of solid minerals in the Yana basin,

including the Kyuchus gold deposit, the Prognoz silver deposit, the Deputatsky tin ore deposit and the Tirekhtyakh tin deposit;

e) comprehensive development of the territories located in the Indigirka River basin, ensuring their energy security and diversifying the economy by developing the Krasnorechenskoye coal deposit, organizing the production of building materials based on basalt and building stone deposits;

f) integrated development of the territories located in the Kolyma River basin, providing for the modernization of the river port Zeleny Mys and the development of the Zyryansk coal mineral resource center;

g) creation of modern infrastructure facilities for the storage and study of paleontological finds for the implementation of the World Mammoth Center project, as well as the development of a scientific, cultural, ethnographic and expedition tourism cluster;

h) creation of a network of trade and logistics centers to ensure the delivery of fuel, food and other vital goods to settlements located in remote areas;

i) creation of an emergency rescue unit and an Arctic crisis management center in the village. Tiksi (Figure 1).



Figure 1. Republic of Sakha (Yakutia)

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Main part

The Strategy for Socio-Economic Development of the Arctic Zone of the Republic of Sakha (Yakutia) for the period up to 2035 (hereinafter referred to as the Strategy) was developed in accordance with the Law of the Republic of Sakha (Yakutia) dated October 26, 2016 1742-Z No. 1041-V "On strategic planning in Republic of Sakha (Yakutia)", Decree of the President of the Russian Federation dated 07.05.2018 No. 204 "On national goals and strategic objectives of the development of the Russian Federation for the period up to 2024", Decree of the Head of the Republic of Sakha (Yakutia) dated 27.10.2018 No. 145 "On the strategic directions of the socio-economic development of the Republic of Sakha (Yakutia)". The strategy takes into account the main provisions of the Fundamentals of the State Policy of the Russian Federation in the Arctic for the period up to 2035, the Spatial Development Strategy of the Russian Federation for the period up to 2025,

The strategy is a strategic planning document of the Republic of Sakha (Yakutia), developed as part of goal-setting for the Arctic zone of the Republic of Sakha (Yakutia), the socio-economic conditions within which require the allocation of certain areas, priorities, goals and objectives of socio-economic development.

The Arctic zone of the Russian Federation and the Republic of Sakha (Yakutia) (hereinafter - AZ RS (Y)) includes the territories of 13 districts: the Abyisky ulus (district), the Allaikovsky ulus (district), the Anabarsky national (Dolgan-Evenki) ulus (district), Bulunsky ulus (district), Verkhnekolymsky ulus (district), Verkhoyansk district, Zhigansky national Evenki district, Momsky district, Nizhnekolymsky district, Oleneksky Evenki national district, Srednekolymsky ulus (district), Ust-Yansky ulus (district), Eveno-Bytantaisky national ulus (district) Republic of Sakha (Yakutia) (Figure 2).

The strategy was developed in order to pursue a unified state policy for the development of the Arctic zone of the Republic of Sakha (Yakutia): identifying individual areas, priorities, goals and objectives for solving key problems of the socio-economic development of the Arctic territories; promoting the creation of social infrastructure, including transport; development of the economy of renewable natural resources; introduction of advanced technologies, development of international cooperation in the Arctic; ensuring environmental safety.

The Strategy is the basis for developing an Action Plan for the implementation of the Strategy, adjusting the Arctic sections of the state programs of the Republic of Sakha (Yakutia) and the state program of the Republic of Sakha (Yakutia) for the development of the Arctic territories, the territorial planning scheme of the Republic of Sakha (Yakutia),

updating the Strategy for the socio-economic development of the Republic Sakha (Yakutia) for the period up to 2032 with a target vision up to 2050.

The Strategy is aligned with the strategic planning documents developed and approved (approved) by the state authorities of the Russian Federation in terms of the powers of the Russian Federation and the Republic of Sakha (Yakutia) on subjects of joint jurisdiction of the Russian Federation and the Republic of Sakha (Yakutia).

The strategy used materials from the analytical report of the Center for Strategic Studies of the Republic of Sakha (Yakutia) "Strategy for the socio-economic development of the Arctic zone of the Republic of Sakha (Yakutia) for the period up to 2035 (draft)".

The Strategy takes into account the recommendations of the research work "Assessment, the main trends in the change in the natural and socio-economic condition, human potential of the Arctic economic zone of the Republic of Sakha (Yakutia)", developed by the North-Eastern Federal University. M.K. Ammosov, the Academy of Sciences of the Republic of Sakha (Yakutia) as part of the Program of Comprehensive Scientific Research of the Russian Academy of Sciences in the Republic of Sakha (Yakutia), aimed at developing its productive forces and the social sphere for 2016-2020.

The Arctic zone The Republic of Sakha (Yakutia) is a priority geostrategic territory of the Russian Federation, located in the Eastern Arctic. The area of the Arctic Yakutia is 1,608.8 thousand square meters. km, or more than half of the entire territory of the republic (3,083.5 thousand sq. km). In the north, its natural boundaries form the Laptev and East Siberian seas. The total length of the sea coastline exceeds 4.5 thousand km. In the west it borders on the Krasnoyarsk Territory, in the east - on the Chukotka Autonomous Okrug, in the south - on 6 municipal districts of the republic: Mirninsky, Nyurbinsky, Vilyuysky, Kobyaysky, Tomponsky and Oymyakonsky.

The Arctic zone of the Republic of Sakha (Yakutia) includes:

- 13 districts, including 4 national;
- 84 municipalities of the settlement level, including 29 national ones;
- 119 settlements: 2 cities, 10 urban-type settlements and 107 rural settlements, 22 of which have no permanent population.

The Arctic regions are divided into groups according to the basin principle of the main navigable rivers: Anabar, Prilenskaya, Yanskaya, Indigirskaya, Kolyma group of uluses are shown in Table 1.

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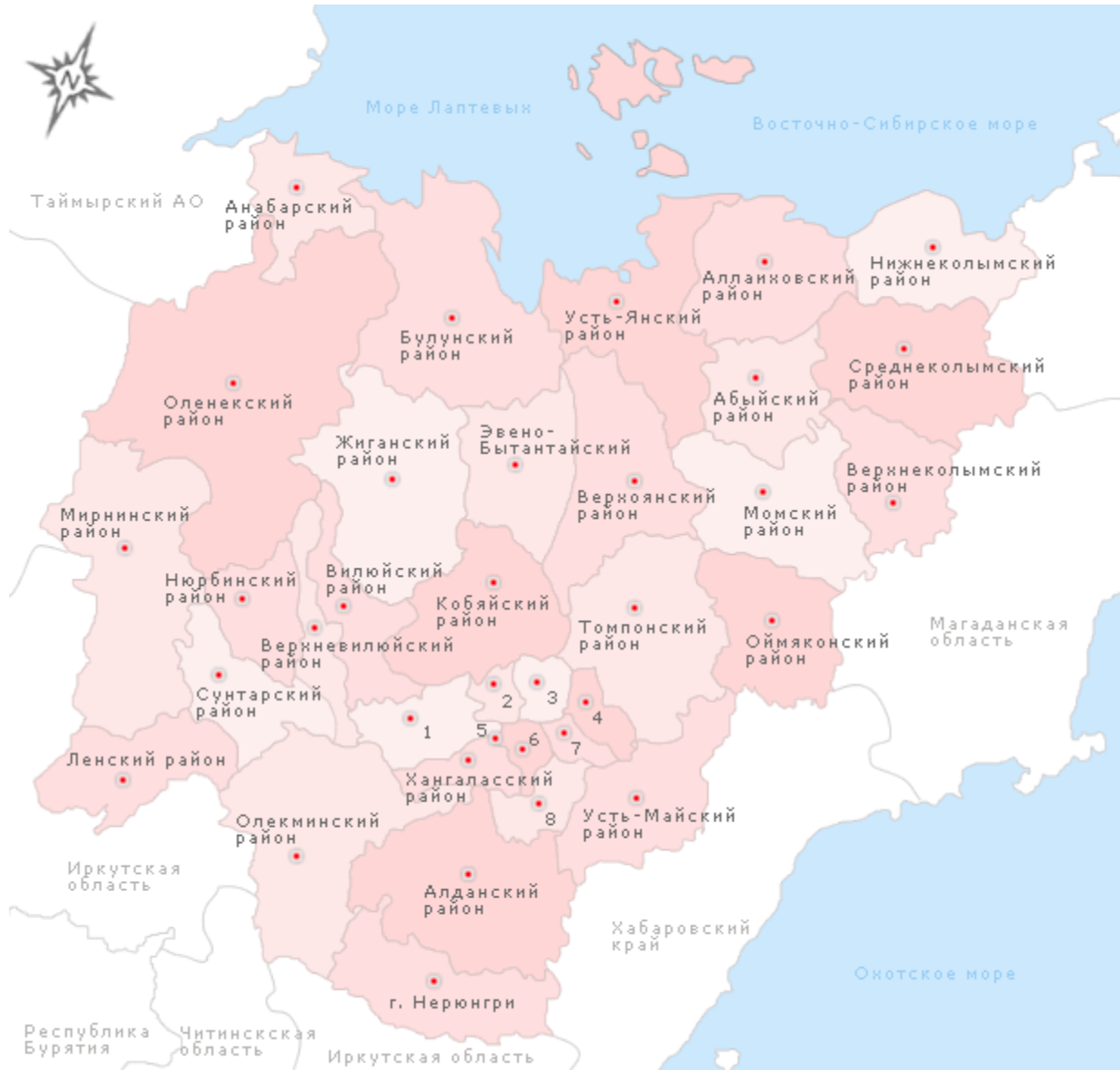


Figure 2. Administrative zoning of the Republic of Sakha (Yakutia)

Table 1. Distribution of the Arctic regions by basin groups

| | | | | |
|--|---|--|--|---|
| Anabar group(7,745 people (11.5%), 7 settlements, of which 1 living) | Prilenskaya group(12,518 people (18.5%), 15 settlements, of which 2 are n.zh.) | yang group(20,988 people (31%), 43 settlements, of which 5 are living) | Indigirskaya group(10,660 people (15.7%), 20 settlements, of which 1 living) | Kolyma group(15,763 people (23.3%), 34 settlements, of which 13 are n.zh.) |
| Anabar national Dolgano-Evenki, regional center-With. Saskylakh; 3 us. point, of which 1 n.zh.; population - 3597 people. (5.3%) | Bulunsky, district center - town. Tiksi; tenus. items, of which 1 n.zh.; number population - 8340 people. (12.3%) | Ust-Yansky, District center p. Deputy; 10 settlements, population - 7028 people. (10.4%) | Allaikhovskiy, district center - urban-type settlement Chokurdakh; 6 us. points, of which 1 n.zh; number of population - 2708 people. (4.0%) | Nizhnekolymsky, regional center -town Chersky; 13 us. points, of which 9 n.zh; number of population - 4290 people. (6.3%) |

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a river port in the settlement of Nizhneyansk) and berths on Arctic rivers in the settlements of Ust-Kuyga, Batagay, Zyryanka, Yuryung-Khaya; regional and local winter roads; 14 airports that are part of the Federal State Enterprise "Airports of the North" (Saskylakh, Olenek, Zhigansk, Tiksi, Ust-Kuyga, Sakkyryr, Batagay, Deputatsky, Moma, Belaya Gora, Chokurdakh, Chersky, Srednekolymysk, Zyryanka); 53 airfields.

There is no year-round land transport system connecting the Arctic zone with neighboring territories and settlements within the zone. All passenger transportation, both in long-distance and intra-regional traffic, is carried out only by air, while for freight traffic, seasonal modes of transport are also used - winter roads and inland waterways. At the same time, waterways are uncontested for the delivery of life-supporting goods.

The share of transport costs in the cost of the final product is several times higher than the average Russian level, reaching up to 40-70%, and in the cost of imported products it can exceed 80%. The short terms of operation of a winter road (up to 46 days), navigation on the Northern Sea Route (about 2 months) and Arctic rivers (from 20 days to 4 months) affect the increase in inventories, which entails additional costs for organizing the delivery of goods to emergency order.

Due to the low population density, high-quality Internet communication is not available for the majority, the GSM coverage area is concentrated near settlements, while consumers are offered only voice communication, SMS and Internet using 2G technology. As a result, the state of "digital inequality" of the Republic of Sakha (Yakutia) AZ remains, electronic services via mobile communications remain inaccessible.

In the regions of the Arctic zone, the most critical occupancy of students (2-3 students) is preserved, as well as the largest number of small schools (over 50%). The resource provision of general education schools of the AZ of the Republic of Sakha (Yakutia) as a whole is the lowest throughout the republic: the provision of amenities for schools in the Arctic zone averages only 32%, most schools in the macrodistrict need major repairs, and 12% of schools are in emergency condition. The lack of competition among students, the unsettledness of educational institutions directly correlates with low academic performance.

The Republic bears an additional burden on maintaining a network of medical organizations and their structural subdivisions (round-the-clock beds, staff of doctors and paramedical personnel) in small and hard-to-reach settlements in excess of the normative network. At the same time, it is impossible to carry out the full scope of preliminary and periodic examinations, medical examinations due to the lack of "narrow" specialists in low-capacity central district and district hospitals that are not provided for by the

methods of calculating the staff of regulatory documents. The unsatisfactory state of the material and technical base of the central district hospitals is due to the large physical deterioration of buildings and structures built in the period 1960-1990, according to the type of execution, 83% of the buildings are wooden.

At the beginning of 2019, the share of dilapidated and dilapidated housing in the AZ of the RS (Y) is 23.4% (or 374.8 thousand sq. m.). The share of dilapidated and dilapidated housing stock is especially high in Allaikhovskoye (71.2%), Abyisky (43.6%), Verkhnekolymsky (40.2%), Oleneksky (38.9%) districts.

In all districts there are problems in the communal complex: the problem of leakage of fecal water needs to be solved; high depreciation of utility facilities, undeveloped engineering infrastructure, high proportion of heat energy losses, shortage of workers in housing and communal services, etc. The technical condition of the communal infrastructure is characterized by low efficiency of energy capacities and large losses of energy carriers. The average efficiency of boiler houses is at a rather low level of less than 60%, which leads to a significant waste of fuel.

More than 60% of the population of the AZ of the RS (Y) are rural residents. The share of agriculture in the gross municipal product of the AZ of the RS(Y) is about 3.9% (RS(Y) - 1.8%). Among the districts, the Verkhoyansk district (26.8% of the total gross agricultural output), Anabarsky (17.6%), Srednekolymsky (12.3%) and Eveno-Bytantaysky (9.3%) regions make the largest contribution to the industry, which predominantly engaged in the breeding of cattle and meat herd horses.

As of January 1, 2019, the AZ of the RS (Y) contains 106.3 thousand heads of deer or 72.5% of the total livestock in the RS (Y). The main share of the deer population is kept in the farms of Ust-Yansky (22.8% of the deer population of the AZ of the RS (Y)), Anabarsky (16.6%), Bulunsky (13.3%), Eveno-Bytantaysky (12.4%), Nizhnekolymsky (12.3%), Momsky (10.3%) districts. Despite state support, there is a decrease in the number of deer every year. In Abyisky and Allaikhovskoye (Indigirskaya group), the branch of northern domestic reindeer breeding has completely disappeared.

In order to consolidate financial resources and develop hunting, fur and leather and footwear industries in Yakutsk, the Sakhabult Financial and Agro-Industrial Concern operates - a full-cycle enterprise that includes fishing, harvesting, processing, production and sales in its own retail chains. The company is in a difficult situation and needs financial recovery.

In addition to fur-bearing animals, the population of the AZ of the RS (Y) in order to ensureIn order to meet their own needs for meat, the

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wild reindeer of the Leno-Olenek and Sundrun populations are shot. A growing wolf population has a significant impact on the resources of wild ungulates and damage to agriculture.

Fishing is one of the basic industries in the Arctic regions, where, according to the results of 2018, more than 83.4% of the industrial catch of the republic is concentrated (according to the results of 2010 - 77.9%). The bulk of the fish (68.5% of the catch in the Republic of Sakha (Yakutia)) is caught in 4 coastal areas of the Lena river basins, the river. Yana, b. Indigirka, r. Kolyma: Bulunsky (23% of the catch in the Republic of Sakha (Yakutia)), Ust-Yansky (19.2%), Allaikhov and Nizhnekolymsky (13% each) uluses. Since 2015, the AZ of the RS(Y) has been modernizing the fishery complex, as a result of which the technology for storing and processing products has improved, the fish catch has increased by 15% (by 600 tons).

In the Arctic zone of the Republic of Sakha (Yakutia), the workforce amounted to 35.2 thousand people in 2018, since 2010 the workforce has decreased by 9.2% (-3,568 people). The structure of employment is dominated by the public sector. The education sector employs more than 25%, the production and distribution of electricity, gas and water - 14.4%, public administration - 14%, health care and the provision of social services - 10%.

The Arctic zone is characterized by a difficult social situation: at the end of 2018, the share of the population with incomes below the subsistence level was 19.6%, the registered unemployment rate was 4.9%, which is 2.9 times higher than the national average (1.7%), recorded the mortality rate is higher than the average national level (9.9‰ versus 7.8‰), the migration loss rate for 2018 was (-) 11.5 per 1 thousand people, which is more than 3.5 times higher than the national average (- 3.0‰).

Large and unique deposits of diamonds, gold, non-ferrous and rare earth metals, coal, fossil mammoth ivory are located in the Arctic zone, the territory has a high hydrocarbon potential. The extractive industry and the corresponding industrial funds are localized in the raw materials centers of the Anabar, Olenek, Bulun, Verkhoyansk, Ust-Yansky, Verkhnekolymsky regions. For the further development of the natural resource potential of the Arctic zone of Yakutia, it is necessary to carry out comprehensive geological exploration work. The region is distinguished by insufficient geological knowledge due to the underdevelopment and inaccessibility of the territory.

The development of the Arctic territories directly depends on the social responsibility of business. The Anabarsky and Oleneksky districts, which are part of the "diamond province", are directed to the development of social infrastructure, which positively affects the quality of life of the population. Unlike other regions of the AZ of the RS(Y), in all 6

settlements of the Anabar group, population growth is recorded. The districts of the Anabar group are leaders among the Arctic regions in terms of investment in fixed capital, natural population growth (according to the results of 2019 per 1000 population: Anabar - 14.7%, Olenek - 12.7%, AZ RS (Y) - 5, 4%, RS(Y) - 6.4%), the size of the average monthly nominal accrued wages, the commissioning of residential buildings.

Formed in the middle of the 20th century, the territorial production complex for the extraction of ore minerals (primarily tin and gold), as well as long-term plans for the development of new deposits (Kyuchus, Tirekhtyakh, Prognoz), the creation of energy and transport infrastructure, make it possible to assess the areas of the Yanskaya group as a single promising area for the growth of the Arctic economy of the republic.

In the Arctic zone of the Republic of Sakha (Yakutia), a large layer of cultural traditions of the indigenous peoples of the North has been preserved. In places of compact residence, Evenks, Evens, Yukaghirs, Dolgans, Chukchis, Northern Yakuts, the Russian old-timers (Russian Ustyintsy and Pokhodchans) conduct traditional economic activities - the descendants of the first Russian explorers, Cossacks and polar explorers. The implementation of major investment projects will have a significant impact on the development of territories where the indigenous peoples of the North lead a traditional way of life. The Republic of Sakha (Yakutia) is a leader among Russian regions in protecting the rights and interests of the indigenous population; the region has a law on ethnological expertise.

Particular attention in the region is paid to ensuring environmental safety. In industrial areas, there are concentrated places of environmental damage inflicted in past years, including hydraulic structures of tailing dumps of liquidated mining enterprises (Deputatsky and Batagay GOK, Kularskaya ZIF), accumulation of non-ferrous and black metal scrap. Today, the national project of the Russian Federation "Clean Country" includes the liquidation of the tailings of the Kularskaya gold processing plant in the Ust-Yansky region.

Work is underway to include the event "Cleaning the territory of the village of Tiksi, Bulunsky district of the Republic of Sakha (Yakutia) from accumulated scrap metal."

In the Arctic Zone of the Republic of Sakha (Yakutia), environmental projects are actively implemented, including international ones: since 1996, the project "Resettlement of musk oxen in the Arctic zone of Yakutia" has been implemented, Yakutia participates in international projects of the Arctic Council, the Northern Forum, UNEP / GEF, WWF, including in the Bear Patrol project to monitor and protect the polar bear.

The unified Arctic network includes 69 protected areas with the status of federal, republican and local

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significance with a total area of 739 thousand square meters. km. (46% of the territory of the AZ of the RS (Y)). In 2018, the Novosibirsk Islands federal state nature reserve was created, in 2019 - the Kytalyk National Park (Allaikhovsky District). Work is underway to establish the Medvezhiy Islands State Nature Reserve (Nizhnekolimsky District).

High ecological potential and variety of landscapes attract tourists from all over the world. The highest point of the northeast is located in the Momsky district Siberia - Mount Pobeda (3003 m). Tourist projects "Verkhoyansk - the Pole of Cold of the Northern Hemisphere", "Conquerors of the Cold" are being implemented in the Verkhoyansk region. The hallmark of the region is the Arctic cruise along the Lena River to the Arctic Ocean "Yakutsk-Tiksi-Yakutsk", which is in demand mainly among foreign tourists. For the development of the cruise, it is necessary to carry out measures to improve the parking lots of ships in the Arctic villages: Zhigansk, Siktyakh, Kyusyur, Neelova pier in Tiksi, upgrade the cruise fleet, introduce high-speed amphibious equipment, and organize transport systems.

AZ RS (Yakutia) is a unique place for observing climate change and sustainable development of the Arctic. Scientific research in the region is carried out by the Institutes of the Siberian Branch of the Russian Academy of Sciences, the Far Eastern Branch of the Russian Academy of Sciences, the Moscow and St. Petersburg Institutes of the Russian Academy of Sciences, higher educational institutions, Roshydromet and a number of other scientific and research and production organizations. There are 10 polar hydrometeorological stations operating in the coastal zone of the region. Up to 15 Russian and international expeditions are carried out annually in the Tiksi region alone. Near the village of Tiksi is the Ust-Lensky State Nature Reserve of federal significance, on the territory of which the Russian-German complex expedition Lena has been operating since 1998 on Samoilovsky Island, carrying out research in the Lena Delta and within the entire coast of the seas of Eastern Siberia, including coastal -shelf zone.

Накопленный

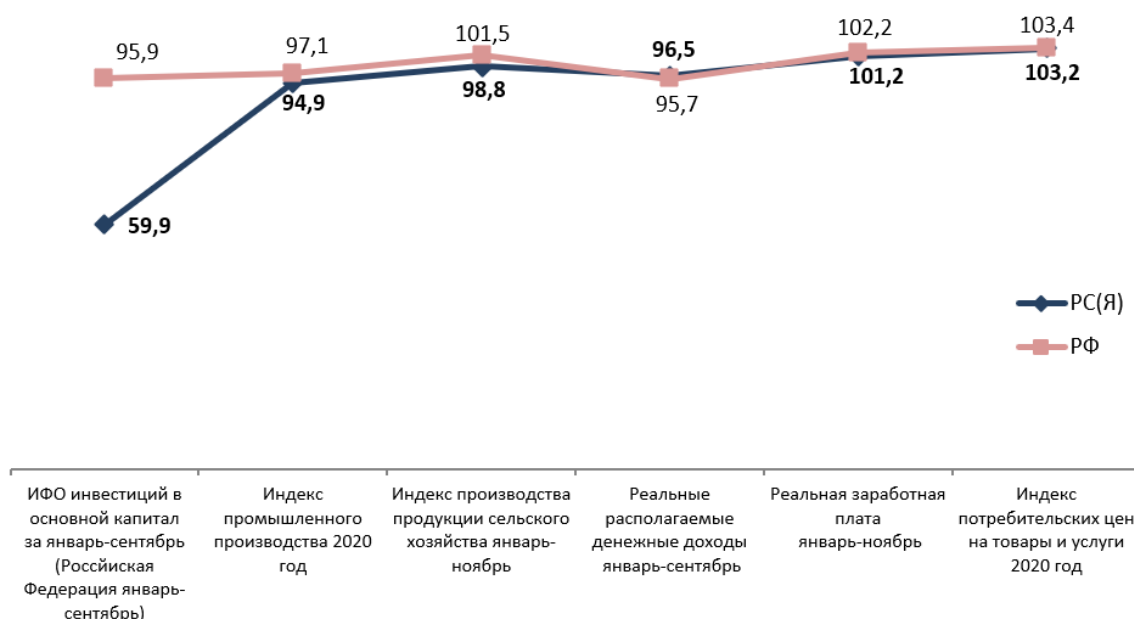


Figure 4. Dynamics of the main indicators of the socio-economic development of the Republic of Sakha (Yakutia) in comparison with the Russian Federation

Climate warming, which began in the second half of the 20th century, led to an increase in the average annual temperature in the Arctic. According to the AZ of the RS (Yakutia), sources of natural emergencies with a very high level of risk are hydrological phenomena, which are classified as "Extreme Risks". Catastrophic floods are caused by heavy rainfall, spring floods with the formation of

congestion. Under the conditions of climate change, the increase in the number of catastrophic floods during spring floods and summer-autumn floods will only increase. These possible emergencies jeopardize the life of the population on the territory of the Kolyma group of districts.

Based on the results of a comprehensive analysis of the Arctic zone of the Republic of Sakha (Yakutia),

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the main trends, problems, disproportions and limitations in the socio-economic development of 13 Arctic regions of the republic were identified (Figure 4).

The main limitations and constraints are related to:

- extreme climatic conditions of the territory (the lowest average annual temperatures in the country, a long heating season, ultraviolet insufficiency), which are absolutely and extremely uncomfortable zones for human habitation;

- significant infrastructural restrictions, primarily inaccessibility, the lack of a year-round ground transport system connecting the Arctic zone with neighboring territories and settlements within the zone;

- increased resource intensity and northern appreciation in its extreme Arctic form (Arctic appreciation), due to the characteristics of the territory;

- extremely high costs and low competitiveness of local industries;

- high vulnerability of natural complexes to anthropogenic impact and the duration of their restoration;

- lack of comprehensive provision of comfortable conditions for living, working and recreation of the population, poor accessibility and lack of quality of basic social services (education, healthcare, cultural and leisure institutions, etc.);

- low level of improvement, dilapidation and accident rate of most of the housing stock, depreciation of energy and housing and communal services;

- an increase in the risks of emergencies associated with the deterioration of life-supporting infrastructure and the climatic factor;

- the absolute dependence of life support facilities and living conditions and the population on the northern delivery;

- non-compliance of the inland waterways of the Lena Basin with the definition of "Main inland waterways" both in terms of transport infrastructure and the dimensions of waterways;

- continuing migration outflow of the population (mainly, the outflow of the young, able-bodied population aged 16 to 35), the reduction in the number of able-bodied population. The key defining competitive advantages of the Arctic zone of the Republic of Sakha (Yakutia) are:

- ethnocultural potential of the territory; a population with unique Arctic competencies and traditional farming skills;

- significant natural resource potential of the territory:

- ✓ industrial mineral reserves;

- ✓ flora and fauna, which have a high biological activity of biological media, organs and tissues, which are valuable hunting and fishing resources, raw materials for the medical and food industries;

- ✓ unique fossil mammoth fauna;
 - ✓ significant potential of surface water resources;

- ✓ potential for the development of ecological, hunting, fishing tourism;

- the presence of explored deposits of minerals in demand on the world market (diamonds, gold, non-ferrous and rare earth metals), high potential for hydrocarbon raw materials;

- the presence of navigable waterways, an extended route of the Northern Sea Route along 5 coastal regions of the republic with operating ports in the lower reaches of the northern rivers Anabar, Lena, Yana, Indigirka and Kolyma, which flow into the Arctic sea areas and are the arteries of the Northern Sea Route;

- the unique transit potential of the territory, providing the shortest route to the countries of the Asia-Pacific region to the Northern Sea Route (taking into account the prospects for the implementation of the anchor infrastructure of investment projects in the Anabar, Olenek regions and access to the BAM);

- state policy of support, preservation and development of traditional types of economic activities of the indigenous peoples of the North, northern Yakuts and the Russian-speaking old-timers (reindeer herding, fishing, hunting);

- stable ecological situation, relatively low environmental impact on the territory, preservation of natural landscapes in vast areas in the natural "untouched" form, giving the status of specially protected natural areas (SPNA) to half of the territory of the Arctic zone of the Republic of Sakha (Yakutia);

- regional enterprises providing life support in the Arctic and developing local production on a systematic basis (PJSC LORP, JSC AK Polar Airlines, KP Roads of the Arctic, State Unitary Enterprise Housing and Utilities of the Republic of Sakha (Yakutia), JSC Sakhaenergo, JSC Tuymaada-Agrosnab, JSC Yakutoptorg, JSC FAPK Sakhabult, etc.)

- geopolitical significance of the Arctic; high research potential, availability of basic research infrastructure and potential for interregional and international cooperation;

- implementation of a unified state policy for the development of the Arctic territories. carrying out geological exploration, development of minerals in demand on the world market (diamonds, gold, hydrocarbons, rare earth metals, tin), implementation of related infrastructure projects, development of

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industrial production on the principles of social responsibility and respect for nature, will provide additional income to budgets of all levels, socio-economic development of territories, improvement of living standards of the population;

□ the introduction of a new transport subsystem based on technology adapted to the Arctic conditions, the development of small aircraft, the modernization of airports, the restoration of regular navigation along the basins of the main rivers, the Northern Sea Route will increase life safety in the Arctic, increase the mobility of the population, and will help reduce transport costs;

□ the development of the Northern Sea Route, the change in the logistics of the Northern Delivery will create new niches for the development of strategic water transport enterprises, the cargo turnover of ports in the lower reaches of the Arctic rivers will increase, and an increase in employment will be ensured;

□ smoothing spatial disparities through the priority development of Internet technologies, providing affordable high-speed Internet communications will have an impact on the introduction of digital transformation and the development of telemedicine, distance education, online commerce, the provision of banking and government services, the development of creative industries;

□ the construction of new sources of electric and heat energy: mini-nuclear power plants, mini-CHPs running on local fuel, power plants using liquefied natural gas will significantly reduce the cost of supporting the life of the Arctic settlements, ensure a gradual transition to electric heating, free up backup diesel power plants, and increase the reliability of the energy sector;

□ carrying out a comprehensive renovation in regional centers of economic growth: the construction of modern social facilities adapted for the polar conditions, energy-efficient and environmentally friendly housing, the organization of public spaces at the expense of existing programs for the resettlement of citizens from emergency housing, the integrated development of rural areas will significantly reduce the cost of the maintenance of settlements, will increase the attractiveness of centers of economic growth for the labor force, will strengthen centrifugal processes to attract the population;

□ support for the development of Arctic tourism in areas with high tourism potential:

Bulunsky, Zhigansky, Momsky, Verkhoynsky, Neizhnekolymsky districts will diversify the economy of municipalities and will contribute to the creation of new jobs;

□ state policy for the development of traditional industries of the North, modernization of agricultural sectors, inter-municipal cooperation and well-coordinated interaction of existing enterprises will give impetus to the development of enterprises in related and related industries: deep processing, biotechnology, food and light industry, logistics, transport, trade;

□ demand in the consumer market for organic food products will accelerate international certification, branding and export of local products;

□ climate change in the Arctic, the geostrategic position of the region will determine the demand for the scientific potential of the Republic of Sakha (Yakutia) in polar research, the study of permafrost in the Eastern Arctic;

□ inter-municipal and inter-regional cooperation, synchronization of strategies for the socio-economic development of the Arctic regions according to the basin principle will activate social development, strengthen the economic ties of the regions, and create a cluster effect for local enterprises.

The main goal of the Strategy is to improve the level and quality of human life in the Arctic zone of the Republic of Sakha (Yakutia) on the basis of innovative and environmentally friendly disclosure of the economic potential of the Arctic regions.

Achievement of the main goal of the Strategy is ensured by the implementation of the following strategic priorities:

1. Development of human capital
2. Balanced spatial development
3. Development of the economy of renewable natural resources
4. Implementation of large investment and infrastructure projects
5. Rational nature management and environmental projects
6. Scientific and educational center "Sever"
7. Interregional and international cooperation.

The prospective socio-economic development of the Arctic zone of the Republic of Sakha (Yakutia) is based on four development vectors - industrial, transit, environmental and innovative, which will be implemented simultaneously in various configurations in the base and innovative scenarios.

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Индекс промышленного производства



▼94,9%
▼97,1%
к 2019 году



добыча алмазов (кроме технических)
68,4% 69,1%



добыча сырой нефти, включая газовый конденсат
113,8% 91,3%



добыча природного газа
2,3 раза 93,0%



добыча угля каменного и бурого
103,2% 90,6%



добыча золота
108,2% 101,6%

Figure 5. Industry and mining in the Republic of Sakha (Yakutia)

Base Scenario characterized by the implementation of major projects for the development of mineral deposits in new areas of production, the development of transport. In the period up to 2035, priority measures will be implemented to develop and develop the mineral resource base and meet the existing and future demand for transport and energy services (Figure 5).

Industrial development is expected in areas located in the basins of the Anabar and Yana rivers. In the Oleneksky district, access to the design capacity of the Verkhnemunsky diamond mining enterprise with a volume of 3 million tons of ore per year and a supply of reserves until 2041 will be ensured. In 2022, the development of the world's largest deposit of rare earth elements Tomtor will begin, the predicted resources of which are 154 million tons of ore with a high content of niobium, terbium, yttrium and scandium. Alluvial gold mining will resume in the Yano-Indigirsky and Kolyma regions. The main centers for the extraction of fossil mammoth tusk will be the Ust-Yansky, Allaikhovskiy, Bulunskiy, Abytsky, Nizhnekolymskiy regions.

The basing of units of the Northern Fleet in the settlement of Tiksi will make it possible to modernize the seaport and airport in the settlement of Tiksi. The development of large deposits of the Baimskaya ore zone in the Bilibinsky district of the Chukotka Autonomous Okrug will contribute to the development of the Zeleny Mys port and the construction of the Zeleny Mys highway - the border of the Chukotka Autonomous Okrug.

The airport network will be reconstructed, including air sites in hard-to-reach and remote settlements. The development of small aircraft, all-terrain and river transport will expand the geography of routes, increase the transport accessibility of the population.

The construction of ships at the Zhatai shipyard will contribute to the renewal of the river fleet of

various modifications, increase in cargo and passenger traffic in water transport.

The construction of FOCL along the routes Udachny-Olenyok-Kharyyalakh, Zhilinda-Saskylakh, Khandyga-Ust-Nera-Khonuu-Zyryanka-Srednekolymsk-Bilibino will provide the population of the regions of the Anabar, Indigirsky and Kolyma basins with high-quality and affordable Internet connection. With the introduction of electronic services in hard-to-reach and remote settlements, the quality of banking and government services, telemedicine will improve, and educational opportunities will expand.

In power supply, the basic version of the Strategy provides for the construction of new energy facilities in 8 Arctic regions (Abytsky, Allaikhovskiy, Bulunskiy, Verkhoyansk, Momskiy, Olenekskiy, Srednekolymskiy, Ust-Yansk). It is planned to upgrade generation facilities in 14 settlements, 17 DPPs, 2 SPPs with a total capacity of 17 MW will be put into operation. Capital investments in the amount of 1.8 billion rubles will be required.

In connection with the decommissioning of the first power unit of the Bilibino NPP, an updated energy system of the Chaun-Bilibinsky energy district will be formed, that is, the main direction of development will be the formation of a new configuration of the energy system of the Chaun-Bilibinsky energy center. At the same time, the village of Chersky, Nizhnekolymskiy district, will not be included in the Chukotka energy system, the electricity supply to the consumers of the village will be carried out from a new diesel power plant with a capacity of 4800 kW, installed instead of an outdated diesel power plant (5720 kW).

As part of the implementation of the agreement with State Corporation Rosatom, a low-capacity nuclear power plant will be built in the Ust-Yansk region, which will provide energy to settlements, remote industrial enterprises for the development of the Kyuchus deposit and alluvial gold deposits.

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The main focus in the housing sector will be directed to the modernization of the communal infrastructure, maintenance, overhaul and reconstruction of the housing stock. The basic version of the modernization of the communal infrastructure of 13 districts was formed in accordance with the investment programs of the State Unitary Enterprise Housing and Communal Services of the Republic of Sakha (Yakutia) and JSC Teploenergосervis (Ust-Yansky District) for the period up to 2025. The investment programs provide for the construction and reconstruction of heat networks with a length of 37.6 km, re-equipment, reconstruction and construction of boiler houses with waste heat networks with a total capacity of over 173 MW, transfer to a 2-loop system to increase the service life of equipment in order to reduce operating costs 20 boiler houses, installation of frequency converters in order to reduce electricity consumption, equipping with specialized equipment and other activities. The volume of investments

provided by the programs for 2018-2025 amounts to 2.4 billion rubles - the funds of the State Unitary Enterprise "Housing and Communal Services of the Republic of Sakha (Yakutia) and JSC "Teploenergосervis".

Within the framework of the republican targeted program "Resettlement of Citizens from Emergency Housing Stock for 2019-2025", 8,438 people are to be resettled from the housing stock with a total area of 155.68 thousand square meters. m. covering all 13 Arctic regions.

The plan for the overhaul of apartment buildings is being implemented in accordance with the regional program for the overhaul of common property in apartment buildings (MKD) located on the territory of the Republic of Sakha (Yakutia), which was developed for a long-term period (until 2043). The volume of capital investments for the period under review will amount to 1.1 billion rubles.

Индекс продукции сельского хозяйства



Figure 6. Agriculture in the Republic of Sakha (Yakutia)

Improvement of individual residential buildings according to the baseline scenario includes projects envisaged by the subprogram "Improvement of individual residential buildings" of the state program of the Republic of Sakha (Yakutia) "Providing high-quality housing and improving the quality of housing and communal services for 2020-2025". The amount of funds needed for the improvement will amount to 260 million rubles.

Based on the approved programs, the pilot villages will be renovated: a model scheme for the development of a "smart" polar village with compact development and improvement of public spaces, the construction of well-maintained, energy-efficient and environmentally friendly social facilities and residential buildings (Figure 6) will be implemented.

Solid waste disposal will be carried out in places of accumulation through incineration. In order to preserve the environment, the import of products, containers and packaging, the disposal of which is not economically and technologically ensured, will be limited, requirements will be established for the construction of facilities in the Arctic from materials that are environmentally friendly during disposal (do not emit toxic substances during combustion, do not form the accumulation of scrap metal). Measures will be taken to eliminate the accumulated environmental damage of past years (tailing dumps of the Kularskaya gold processing plant, Deputatsky and Batagay mining and processing plants, scrap metal).

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Figure 7. Housing construction in the Republic of Sakha (Yakutia)

In the agro-industrial complex, it is planned to stimulate employment and self-employment of the population, organize the purchase of trade products in regional centers, create infrastructure (trade and logistics centers, purchase vehicles for transportation), modernize production by creating complexes for deep processing of reindeer breeding and fishing products.

During the implementation of the strategy, small businesses will implement projects in the production of building materials, transport services, landscaping, small-scale mining, food industry, and event tourism (Figure 7).

Creation of the scientific and educational center of the Arctic and Subarctic "North", authoritative scientific platforms of the Arctic subjects on the basis of NEFU. M.K. Ammosov and the Academy of Sciences of the Republic of Sakha (Yakutia) will promote the development of international scientific and congress and exhibition tourism.

The conditions for the implementation of the innovative scenario are the offensive state policy of the Russian Federation for the development of the Far East and the Arctic, amendments to legislation that take into account the specifics of life in the Arctic, state support for the implementation of anchor infrastructure projects, the creation of a preferential regime for investment projects, constructive Russian-Chinese and Russian-Japanese cooperation, favorable situation in the world markets for raw materials, timely training and attraction of competitive human resources.

On the territory of the Ust-Yansky ulus, until 2032, a project of open-pit separate mining is being implemented at the placer tin deposit "Tirekhtyakh Creek". The commercial development of the Zapadno-Anabarskoye oil and gas field, located in the Anabar region, will begin.

According to the Energy Strategy of the Russian Federation for the period up to 2030, the formation of oil and gas complexes on the continental shelf of the Republic of Sakha (Yakutia) with the development of the relevant industrial, transport and social infrastructure will not only provide the region with its own energy resources, but also diversify the export

supplies of Russian hydrocarbons, directing them to countries of the Asia-Pacific region.

The implementation of offshore projects, the intensive development of the Northern Sea Route with the creation of appropriate infrastructure on the coast of the Eastern Arctic with the participation of large Russian and international companies with state support will determine the construction of the Anabar seaport. The construction of the energy and supply transport infrastructure of investment projects in the Anabarsky and Oleneksky districts will make it possible to qualitatively change the structure of the economy of the Republic of Sakha (Yakutia) and significantly increase the share of the oil and gas industry. The key task of the Transport Strategy of the Russian Federation for the period up to 2030 will be implemented to integrate into the global transport space, to realize the country's transit potential. The project will entail the industrial development of the areas of the "diamond" province, the Kempendyai ASEZ, the Tarynnakh mining and processing plant,

With the maximum development option provided for by the Strategy for the Development of Railway Transport of the Russian Federation for the period up to 2030, the construction of the Nizhny Bestyakh-MomaMagadan railway line will create additional conditions for considering the possibility of building the Moma-Zyryanka-Ugolnoye railway line, which will ensure that the export products of the Kolyma Basin reach the domestic Russian and international (through the port of Magadan) sales markets.

Construction of a reference highway with the organization of year-round road communication between Central Yakutia and the Arctic region Yakutsk-Khandyga-Ust-Nera-Khonu-Belaya Gora Syagannakh-Uyandino-Deputatsky-Ust-Kuyga, in the east direction Belaya Gora-Srednekolymsk will remove transport restrictions in the basins of the three largest water transport arteries of the north-east of Russia - the Yana, Indigirka, Kolyma rivers. In the future, until 2050, the Kolyma federal highway will reach the Pacific Ocean (Sea of Okhotsk) through - with. Ayan of the Khabarovsk Territory.

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The large-scale growth of the economic potential of the Republic of Sakha (Yakutia) will provide a solution to the priority problems of the Arctic regions, a high level of the quality of life of the population, create conditions for comfortable living and creation of a person in the Arctic at a level higher than the Russian average.

Legislation on responsible subsoil use, ethnological expertise will contribute to the constructive interaction of subsoil users, authorities and the population, and the sustainable development of the indigenous peoples of the North.

In the implementation of the innovative scenario, the preservation of environmental safety will be a priority. The regulatory and legal implementation of the mechanisms of the "green" economy in the AZ of the Republic of Sakha (Yakutia) will create strict requirements for the reclamation of disturbed lands, the use of energy-saving technologies in all areas, the construction of energy-efficient buildings and structures, and the processing of solid waste.

Solid waste disposal will be carried out by briquetting and incineration in cogeneration plants. The maximum transfer of boiler houses to local fuel, the construction of cogeneration power supply systems (mini-CHP) will ensure the replacement of the centralized heat supply system with electric heating with the gradual withdrawal of diesel power plants to reserve capacities, which will increase the reliability of housing and communal services and energy.

Renovation of all regional centers and supporting settlements of the Arctic zone of the Republic of Sakha (Yakutia) will be carried out, which will become centers of attraction for the population. Renovation of key villages with high tourism potential, implementation of measures to simplify entry into the territory of the border regime for foreign citizens will be the key to the breakthrough development of Arctic tourism, increasing passenger traffic, and creating popular cross-polar air routes (Figure 8).

Грузооборот транспорта



Пассажиروоборот транспорта



Figure 8. Transport in the Republic of Sakha (Yakutia)

The laying of a submarine fiber-optic communication line along the Northern Sea Route and the channels of the Arctic rivers will make it possible to remove the problem of the "digital divide", to provide the settlements of the Arctic regions with affordable and high-quality Internet communications.

The deployment of a network of regional IT parks with a center in Yakutsk will create the prerequisites for the development of creative areas (production of Internet applications, cinema, advertising, blogging, crowdsourcing, etc.).

Оборот розничной торговли



Объем платных услуг



Figure 9. Situation on the market of goods and services in the Republic of Sakha (Yakutia)

Modernization of the agro-industrial complex, an increase in demand for environmentally friendly

products will allow reaching a deep waste-free processing of reindeer breeding and fishing products,

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ensuring the development of fish farming and the food industry, meeting domestic demand for agricultural products and providing access to new markets,

including exports, creating new jobs for the population Arctic regions (Figures 9 -10).

Среднемесячная начисленная заработная плата



▲101,2%
▲102,2%
реальный рост
к январю-ноябрю 2019

Уровень безработицы



7,3%
5,8%
в январе-ноябре 2020

Figure 10. Average income and unemployment rate in the Republic of Sakha (Yakutia)

The creation of the REC "North" will contribute to the formation in the village. Tiksi (Bulunsky district) of the International Center for Scientific Research of the Arctic on the basis of the resources of the Academy of Sciences of the Republic of Sakha (Yakutia) and the Yakut Scientific Center of the Siberian Branch of the Russian Academy of Sciences for a comprehensive study of the natural environment in the Eastern sector of the Russian Arctic.

The implementation of the strategy is expected in three stages, corresponding to the stages of the implementation of the strategy of the republic:

1 stage (2020-2025): creation of institutional and infrastructural conditions. Implementation of national projects defined by Decree of the President of the Russian Federation dated May 7, 2018 No. 204 "On national goals and strategic objectives for the development of the Russian Federation for the period up to 2025". Achieving the values of key indicators of social development of the Arctic zone of the Republic of Sakha (Yakutia) to a level not lower than the Russian average. The beginning of the implementation of key investment projects, laying the foundations for the formation of an energy efficient economy.

2 stage (2025-2030): implementation of key investment projects, reaching the design capacity of the main companies. Renovation of regional centers and supporting settlements.

3 stage (2030-2035): implementation of socio-economic development measures aimed at outstripping the all-Russian growth rates of indicators characterizing the quality of life and incomes of the population of the Arctic zone of the Republic of Sakha (Yakutia), including indigenous peoples.

The directions of the strategic priority for the development of human capital are focused on improving the demographic situation by implementing goals aimed at securing and attracting the population to the Arctic zone of the Republic of Sakha (Yakutia), a radical improvement in the reproductive health of the population, reducing

mortality, spiritual development and promotion of family values, training competitive personnel from among the local population.

In the state of preschool and general education, the following trends are noted:

- there is a deterioration in the condition of the preschool educational institution due to a gradual increase in the number of buildings requiring major repairs;

- the resource provision of general education schools in the Arctic zone is generally the lowest throughout the country: the provision of amenities for schools in the Arctic zone averages only 32%, most schools in the district need major repairs, 12% of schools are in disrepair;

- almost all schools in the Arctic zone are provided with security systems (94%). 100% of schools are connected to the Internet, although the speed of the Internet connection does not meet modern requirements;

- in the regions of the Arctic zone, the most critical occupancy of students (2-3 students) is preserved, as well as the largest number of small schools (over 50%).

The main reasons for the low rates of passing the USE in the Arctic regions are: the low level of improvement of educational institutions, the lack of competition among students of small schools, the teaching of several subjects by rural teachers due to a lack of specialists.

The main tasks of the development of education until 2024 will be implemented as part of the implementation of the Strategic Decree of the Head of the Republic of Sakha (Yakutia) dated November 22, 2018 No. 190 "On strategic directions for the development of education in the Republic of Sakha (Yakutia)". An important role will be given to the development of the system of continuous education in the Arctic zone of the Republic of Sakha (Yakutia), the equalization of educational opportunities: from the

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- improving the means of primary laboratory diagnostics of cardiovascular and oncological diseases at an early stage.

- introduction and development of technologies aimed at improving medical information systems;

- optimization of monitoring of high-risk pregnant women;

- implementation of a system of emergency telemedicine consultative diagnostic assistance to patients and victims in emergency situations.

Elimination of shortage of personnel in the healthcare system, advanced training of medical personnel:

- staffing medical organizations with medical personnel through targeted training;

- further support for the Zemsky Doctor and Zemsky Paramedic programs;

- development and implementation of measures aimed at attracting medical personnel to the Arctic regions.

"Arctic FAP" development and approval of the standard design of the Arctic FAP by 2024.

"Inter-district medical centers" Organization of an inter-ulus multidisciplinary medical center in the village of Batagay, Verkhoyansk district, on the basis of the branch of the air ambulance of the State Institution of the Republic of Sakha (Yakutia) "Republican Center for Disaster Medicine of the Ministry of Health of the Republic of Sakha (Yakutia)" in order to increase the provision of the population of the Arctic zone of the Republic of Sakha (Yakutia) with specialized medical care.

Organization on the basis of the Sredne-Kolyma Central District Hospital of an inter-district cardiovascular center in order to provide the population of the Kolyma-Indigirka basin with specialized medical care.

"Arctic Telemedicine" Ensuring the availability of highly qualified diagnostics of cardiovascular diseases to the population, through telemedicine technology for remote telecardiodiagnostics of Holter monitoring of patients in the Arctic regions. As part of the implementation of program activities for the development of telemedicine in 2020-2024, a large-scale system of emergency telemedicine consultative and diagnostic assistance to patients and victims in emergency situations will be created, covering all medical outpatient clinics, medical and obstetric stations in the Arctic. To equip outpatient clinics and FAPs with modern diagnostic equipment with remote data transmission.

"Mobile medical teams" A system for organizing visits of medical teams from the city of Yakutsk to the settlements of the Arctic regions to provide specialized medical and dental care to the population.

Expected results:

□ Increasing life expectancy to 77 years.

□ Reducing the level of general morbidity of the population to the national average (7,668 cases per 10,000 population).

□ Reducing mortality from diseases of the circulatory system (up to 450 cases per 100 thousand people), infant mortality (up to 4.5 cases per 1 thousand births).

□ The staffing level of doctors and paramedical personnel is at least 90%.

□ Ensuring coverage of all citizens with preventive medical examinations at least once a year.

□ Satisfaction of the population with medical care is at least 70%.

Construction of cultural and sports complexes (8 units);

Creation of multifunctional creative spaces on the basis of cultural institutions;

Increase by 2025 recreational areas (parks, squares, etc.) in settlements by 30%;

Overhaul of cultural and sports institutions during the implementation of energy service contracts;

Increasing the mass character of the population involved in physical education and sports;

Creation of municipal testing centers for the All-Russian physical culture and sports complex "Ready for Labor and Defense" (TRP).

Increasing the motivation of the population to maintain a healthy lifestyle. Involvement of the public in the dissemination of a network of support centers for a healthy lifestyle.

"Creative space" Multifunctional cultural and leisure centers, combined with the functions of trading activities, catering, small business, will become a space for recreation and leisure for creative work, sports, mass events, watching movies and reading books. It will be, on the one hand, a place where you can just spend time, on the other hand, a place for creative people to work. The centers will become a point of dissemination of the culture of the peoples of the North, an environment of a new quality for creative people, the organization of schools of the third age, the education of harmoniously developed and spiritual and moral youth.

"Construction of ethnocultural centers of the indigenous peoples of the North" Construction of the ethnocultural center "Eige" in the village of Zhigansk in 2021, a multifunctional center in the village of Nelemnoye in the Verkhnekolymsky ulus in 2022.

"Sewing workshops" Stimulating the creation of sewing workshops in creative spaces, consumer service centers in the Arctic regions.

"Healthy lifestyle in the Arctic" Development of a network of support centers for a healthy lifestyle with a wide involvement of the public and opinion leaders. Conducting active outreach activities, conducting educational programs among schoolchildren and the adult population, organizing

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regular medical examinations in order to identify signs of diseases in the early stages, promote a healthy lifestyle, prevent alcoholism and drug addiction, counteract tobacco consumption, spread a culture of healthy balanced nutrition.

"Arctic family". A competition among young families with many children in the Arctic regions of the Republic of Sakha (Yakutia) aimed at promoting family values.

Expected results:

□ creation of creative spaces in all cultural institutions of the Arctic municipalities by 2025;

□ increase in the proportion of the population satisfied with the quality of municipal services in the field of culture - up to 95%;

□ an increase in the share of the population of the AZ of the RS (Yakutia) systematically engaged in physical culture and sports - from 38.7% in 2018 to 50% by 2035;

□ improving the health of the population of the Arctic regions.

An analysis of the age structure of unemployed citizens revealed the predominance of the young able-bodied population aged 20-29 years. In the distribution of the unemployed population by level of education, 34.1% are citizens with secondary general education, 35.1% with secondary vocational education, and 19.4% with higher education.

The high level of unemployment is due to a decrease in the employment of the rural population, a discrepancy between the level of qualifications of applicants and vacant positions.

Of the 57 professions (specialties) in demand in the housing and communal services and energy, transport, industry and agriculture sectors, training in vocational education organizations of the Arctic zone of the RS (Yakutia) is carried out only in 31 professions (54%).

In order to consolidate resources and timely meet the needs of organizations, as well as reduce the number of unemployed, work should be carried out to organize and implement professional retraining courses based on the SPE of the Arctic zone of the Republic of specialists in popular specialties to the Arctic.

For the industrial development of the AZ of the RS (Yakutia), the human resources living in it are not enough, it will be necessary to attract specialists, including from outside the republic.

Creation by 2025 of territorial educational clusters in the Arctic zone, aimed at training and retraining workers in accordance with the needs of employers;

Ensuring close interaction of educational clusters with employment services and employers, creating a bank of in-demand professions, concluding contracts with enterprises and organizations for guaranteed employment of graduates;

Creation and development of training and production bases for POO SPO located in the Arctic uluses, including the training of drivers of all categories, the processing of venison, fish and in the field of folk arts and crafts (sewing workshops);

The introduction of applied professions that are in demand in the Arctic zone, the development by students of additional related qualifications; organization of summer labor internships for children and students in reindeer herds during the holidays;

Creation of a system of continuous education, training and retraining of professional personnel, organization of network interaction between institutions of general education, additional education, vocational education, industrial enterprises, business structures.

"Educational Clusters". Creation of unified educational clusters, creation of continuous forms of education, training and retraining for the required qualifications (specialties) of workers and specialists in the labor market of the Arctic zone in various fields.

Agro-industrial cluster on the basis of GBPOU RS (Yakutia) "Arctic College of the Peoples of the North" for training personnel in the field of fisheries and agriculture;

Unified educational cluster on the basis of GBPOU RS (Yakutia) "Tiksiinsky multidisciplinary lyceum" Tiksiinsky multidisciplinary lyceum for training specialists in industries, transport and hydrometeorology;

Consolidation of GBPOU RS(Y) "Zhigansky multidisciplinary lyceum" and GBPOU RS(Y) "Verkhoyansk multidisciplinary lyceum" into a single educational cluster for training workers and specialists in the field of agriculture, housing and communal services and energy.

"Workforce for the Arctic". Expansion of the list of vocational training programs, including vocational training (for people who do not have a working qualification), retraining and advanced training for the adult population, not only on the basis of professional educational organizations in the Arctic uluses, but also with the involvement of organizations located in other areas republics; the opening of new professions and specialties, such as "Reindeer breeder-mechanic", "Huntsman", "Taxidermist", "Hunter", "Mistress of the plague", "Bone and horn carver", "Souvenir making master", "Dockerman", "Ship mechanic".

Arctic Skills. Implementation by 2025 of a system for evaluating the performance of Arctic SVE institutions, including the results of participation in ArcticSkills and WorldSkills events.

"Start your career in the Arctic" The project provides for the provision of state support to young people who decide to get a job in the Arctic after graduating from educational institutions in the amount of 1 million rubles, subject to the conclusion of a contract for 5 years in popular specialties.

Expected results:

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In the Arctic zone of the Republic of Sakha (Yakutia), according to local authorities, in the register of households in particular need of social support, as of July 1, 2019, there are 5,910 families (17,107 people) or 24.3% of the total population of the Arctic.

The main factors of poverty in the AZ of the RS (Yakutia) are:

- a high level of prices in the AZ of the RS (Yakutia), outstripping the growth rate of average per capita monetary incomes of the population;
- high unemployment in rural areas;
- the current level of wages in the agricultural sector;
- high dependency burden associated with large families.

If the current trends in the development of the Arctic zone, characterized by a low quality and standard of living, persist, the outflow of the population, including the most promising population of working age, will continue, which is confirmed by sociological studies.

To achieve the goal, the following measures will be implemented:

- providing targeted material assistance to children from low-income families studying in educational institutions;

- development of a system of professional retraining of the unemployed in order to bring supply in the labor market in line with demand within the framework of the state program "Promotion of employment of the population of the Republic of Sakha (Yakutia) for the period 2025-2035";

- comprehensive diversification of the economy of the Arctic regions, support for the traditional industries of the North and alternative forms of employment and employment, including the development of crafts and tourism, marketing of products, facilitating access to natural resources, support for the activities of counseling centers and the development of infrastructure that allows the population to receive a decent income.

Solving the tasks of a strategic priority for organizing a balanced spatial development of the Arctic zone of the Republic of Sakha (Yakutia) will contribute to the organization of an optimal civilian infrastructure, increasing resource efficiency and environmental friendliness, improving the quality of life, and unlocking the economic potential of the region.

The problems of spatial development of the AZ of the RS(Y) are characterized by: focal nature of settlement, dispersion, significant remoteness and low transport connectivity of a number of settlements with a small number of inhabitants with a regional center, the presence of settlements with an unexpressed specialization and the lack of development prospects; the existing irrational planning of settlements, low

efficiency and unreasonably large length of communal, transport and energy infrastructure within settlements.

The primary tasks of the spatial development of the AZ of the RS (Yakutia) are:

- elimination of existing disproportions in the location of settlements: optimization of architectural and urban planning within settlements; liquidation of non-residential settlements, resettlement of settlements located in areas subject to the negative impact of water; increasing transport accessibility - arrangement of transport infrastructure: airports, air sites, moorings, roads and winter roads; development of small aviation, introduction of new types of transport; modernization of utilities and energy systems to ensure the provision of standard services to the population and reduce costs and unproductive losses; development of local deposits of OPI and coal, in order to reduce the cost of importing building materials and fuel resources; diversification of fuel resources; construction of trade and logistics centers, contributing to the optimal organization of the Northern delivery, the development of traditional industries of the North; improvement of the territorial organization of the provision of services to social sectors; restoration of the ecological balance within the boundaries of settlements through the construction of modern efficient water intake, sewerage and treatment facilities, the elimination of solid waste dumps.

The specifics of life support in the Arctic requires coordination and cooperation. As part of the implementation of the Strategy, close business ties will be established between enterprises, scientific and educational institutions, inter-municipal and inter-regional ties.

The strategy for the spatial development of the Arctic regions will be coordinated with the strategies of regional enterprises that provide life support in the Arctic and develop local production on a systematic basis (PJSC LORP, JSC AK Polar Airlines, KP Roads of the Arctic, State Unitary Enterprise Housing and Communal Services of the Republic of Sakha (Yakutia) ", JSC Sakhaenergo, JSC Tuymaada-Agrosnab, JSC Yakutoptorg, JSC FAPK Sakhabult, NAOC Taba, JSC Almazny Anabara, OOO Arctic Capital, etc.).

The activities of scientific and educational institutions will be directed to fundamental study, sectoral development and training of personnel for the Arctic territories: REC of the Arctic and Subarctic "North", Academy of Sciences of the RS (Y), Institutes of the Siberian Branch and Far East Branch of the Russian Academy of Sciences, NEFU named after. M.K. Ammosov, YAGSKhA, AGIKI, YaIVT, secondary vocational education.

The construction of the road Zeleny Mys - the border of the Chukotka Autonomous Okrug, the winter road Tomtor - Khatanga seaport will promote

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the interaction and development of neighboring settlements of Yakutia, Chukotka and the Krasnoyarsk Territory.

The main directions of the spatial development of the Arctic zone of the Republic of Sakha (Yakutia) at the federal level are:

dredging of the Anabar, Lena, Yana, Indigirka and Kolyma rivers; comprehensive development of the regions of the Anabar and Lena basins, taking into account the development of mineral resource centers, including the world's largest deposit of rare earth metals "Tomtor", alluvial diamond deposits in the Anabar, Bulunsky, Oleneksky districts, the "Verkhne-Munskoye" diamond deposit, Zapadno- Anabar oil mineral resource center; comprehensive development of the Tiksi settlement, including the development of dual-use infrastructure, including the reconstruction of the seaport of Tiksi and its terminals; integrated development of the areas of the Yana basin, taking into account the construction of energy and transport infrastructure, the development of the mineral and raw material base of solid minerals of the Yana basin, including the Kyuchus gold deposit, comprehensive development of the regions of the Indigirka basin, ensuring energy security and diversifying the economy of the regions on the basis of the development of the Krasnorechensk coal deposit, the production of building materials based on deposits of basalt and building stone; comprehensive development of the areas of the Kolyma basin, taking into account the modernization of the Zeleny Mys river port, the construction of the interregional highway "Green Cape-Border of the Chukotka Autonomous Okrug", the development of the Zyryansk coal mineral resource center, the construction of energy infrastructure based on a mini-CHP; development of the Zhatai shipbuilding and ship repair cluster for the purpose of providing technical support for river transportation in the Arctic territories of the republic; development of the interregional Scientific and Educational Center for the Development of the Arctic and Subarctic "North";

creation of a modern infrastructure for the storage and study of paleontological finds "World Mammoth Center", as well as the development of a scientific, cultural, ethnographic and expeditionary tourism cluster;

creation of a network of trade and logistics centers in the Arctic regions of the Republic of Sakha (Yakutia) to ensure the Northern delivery.

The reference points of growth will be represented by the regional centers of the Arctic zone - they form the framework of an active social and cultural life, centers for organizing road repair and transport services, and logistics centers. In addition to regional centers, settlements with a pronounced economic specialization and historically established centers of gravity will become the main settlements: Verkhoynsk, Ust-Kuyga, with. Yuryung-Khaya, s.

Kazache, s. Kyusyur, Sasyr village. The preservation of the national settlements of the indigenous peoples of the North, the creation of conditions for the integrated development of rural areas with a high demographic potential will become the basis for the natural increase of the resident population adapted to the Arctic conditions.

In order to optimize resources for the maintenance of social infrastructure in small communities in the Arctic, it is proposed to design multifunctional centers. Changes to federal building and sanitation regulations need to be initiated.

The basis of the economy of small settlements in the Arctic regions will be agriculture. The development of animal husbandry, traditional industries of the North, crop production will be carried out in accordance with the specializations of small settlements, defined in the strategies of municipalities.

Anabar group (7 settlements, of which 1 is non-residential, population - 7,745 people), including the Anabarsky and Oleneksky districts, is the leader among the Arctic regions in terms of socio-economic development, and in terms of such indicators as the volume of investment in fixed assets per capita, average monthly nominal accrued wages, natural population growth - ahead of the average republican and average Russian indicators. The districts are part of 8 districts of the "diamond province" receiving dividends on the shares of AK ALROSA, which go to the revenue side of local budgets.

The regions are national, the settlement of the population is the most compact among the Arctic regions - there are only 6 settlements in the Anabar basin. Over the years, there has been a positive population trend in the districts. The implementation of the project for the construction of the fiber-optic communication line Udachny-Olenek-Kharyyalakh-Zhilinda-Saskylakh will significantly increase the standard of living of the population, and will make it possible to differentiate the structure of the economy of the regions. In with. Olenyok, in the period up to 2024, a pilot project "Smart Village" will be implemented, aimed at digitalizing the economy of the settlement. Implementation of the project "Modern appearance of the Arctic village" in the village. Kharyyaly, Oleneksky district, will transform the village into a compact, energy-efficient model polar village with a layout of public spaces.

In the period up to 2035, another round of large-scale industrial development is planned in the Anabar basin. In the Oleneksky district, access to the design capacity of the Verkhnemunsky diamond mining enterprise with a volume of 3 million tons of ore per year and a supply of reserves until 2041 will be ensured. In 2023, the development of the world's largest deposit of rare earth elements Tomtor will begin. In the coming years, it is planned to carry out exploration work in the Leno-Anabar oil and gas field, the West-Anabar licensed area.

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The Anabar group can be considered as a model area for the future AZ of the RS(Y), which makes it possible to predict opportunities and threats for other 4 basin groups. Despite the industrial development, the Olenek region has a high level of unemployment. The project "Employment in the countryside" is being implemented, aimed at increasing employment among the local population, providing for the development of small and medium-sized businesses, traditional industries of the North, vocational training and employment of the local population.

In the Prilenskaya group (15 settlements, 2 of which are non-residential, the population is 12,518 people), which includes the Bulunsky and Zhigansky districts, the settlement of Tiksi will be formed as a base for fundamental scientific study of the Arctic zone of the Russian Federation, a stronghold for the creation of military infrastructure and a system of sustainable development of the Northern Sea Route on the basis of the seaport of Tiksi. The mining of diamonds and alluvial gold will continue in the Bulunsky District, and exploration work will be carried out in the Zhigansky District to identify hydrocarbon deposits.

Small settlements of the Prilenskaya group will specialize in reindeer herding, fishing, fish processing, and hunting. In settlements located along the river. Lena (Zhigansk, Siktyakh, Kyusyur, Bykov Cape) will develop tourist infrastructure for the Arctic cruise Yakutsk-Tiksi-Yakutsk. The resumption of the Moscow-Tiksi air route will also contribute to the development of Arctic tourism.

The development of the Yanskaya group (43 settlements, of which 5 are non-residential, the population is 20,988 people) - Ust-Yansky, Verkhoyansky, Eveno-Bytantaisky districts is associated with a historically formed territorial production complex for the extraction of ore minerals (primarily tin and gold), as well as long-term plans for the development of new deposits (Kyuchus, Prognoz, Tirekhtyakh). The creation of energy (FNPP) and transport infrastructure (the Yana road, the ports of Nizhneyansk and Ust-Kuyga) make it possible to assess the areas of the Yana group as a single promising growth zone for the Arctic economy of the republic.

In the Verkhoyansk and Eveno-Bytantai regions, it is promising to promote the local brand "marble meat" on the market based on the breeding of unique breeds of Yakut cows and Yang horses. Commercial reindeer breeding in the Ust-Yansk region will lead to the introduction of deep processing of products of traditional industries throughout the Yanskaya group, which will give impetus to the development of biotechnology in Yakutsk. In Ust-Yansky district, in order to increase fishing quotas, it is planned to implement a fish farming project and related projects for the deep processing of fish, the production of feed for reindeer breeding based on fish bone meal.

In the Indigirskaya group (Allaikhovskiy, Abyiskiy, Momskiy districts - 20 settlements, 1 of which is non-residential, population - 10,660 people), which has extensive reindeer pastures, the priority task will be to develop specialization in deer breeding both on the basis of inter-district cooperation within the group, and in cooperation with the Ust-Yansky and Nizhnekolymsky regions. The development of fisheries in the Allaikhovskiy district will give further impetus to the emergence of related areas: fish farming, deep processing of fish, floating fish bases, and the creation of a local brand of fish products. Streamlining the extraction of mammoth fauna will create conditions for the processing of mammoth ivory.

In small settlements of the Indigirka group, herd horse breeding will also develop (Abyiskiy, Momskiy districts), cattle breeding, including Yakut cattle (Momskiy), vegetable growing (Momskiy). In the Momskiy district, which has a high tourism potential, a tourism infrastructure will be built for the development of extreme and ethnographic tourism in the area.

Complex navigation on the Indigirka River requires new solutions for the development of local deposits of building materials, the Krasnorechenskoye coal deposit in the Abyiskiy district, the use of cogeneration plants, the transfer of diesel power plants to reserve capacities and transfer to electric heating.

Restrictions on the delivery of goods by water transport will determine the development of the production of building materials from local raw materials (Abyiskiy, Momskiy), the transfer of maintenance of the section of the winter road in the village of Khonus.Sasyr to the republican jurisdiction.

Kolyma group(34 settlements, of which 13 are non-residential, the population is 15,763 people) includes three municipalities: Nizhnekolymsky districts, Srednekolymsky, Verkhnekolymsky, united by a single development axis - the river. Kolyma with access to the East Siberian Sea. The prospects for the Kolyma basin are associated with the revival of the Northern Sea Route. An increase in coal production in the Zyryansk coal basin and the development of the transport infrastructure necessary for its export will increase the volume of cargo traffic on the Northern Sea Route by 1-1.5 million tons. The active development of the Baimskaya ore zone will make it possible to transform the Zelenomyssk river port into the leading transport hub of the Eastern Arctic. A project will be implemented to complete the construction of a mini-CHP in the village of Zyryanka, Verkhnekolymsky district.

In the field of agriculture, in small settlements, herd horse breeding (Srednekolymsky), reindeer breeding (in the entire Kolyma group), fishing, fish farming and fish processing (Nizhnekolymsky, Srednekolymsky), cattle breeding and vegetable

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2018 will increase by 30%, by 2035 - by 60%. The climatic features of the Arctic zone of the Republic of Sakha (Yakutia) require increased reliability and efficiency of engineering systems for the life of settlements. The complexity of the life support of the population is due to the vastness of the territory, remoteness of settlements, low population density. On average, the duration of the heating period in the Arctic is more than 9 months a year, and in some settlements of the Arctic zone it is year-round.

The priority problems of housing and communal services and energy in the Arctic zone of the Republic of Sakha (Yakutia) are the high depreciation of fixed assets and the low level of engineering arrangement, which determine the low quality of public services that do not meet the requirements of consumers. Significant unrealized potential of organizational and technological energy saving, mainly associated with depreciation of fixed assets, irrational planning decisions, high heat and energy losses, suboptimal transport scheme for fuel delivery, annually causes an increasing burden on the state budget.

The task of generating own electrical energy at housing and communal services facilities seems to be relevant, due to both high tariffs for electricity and the problem of the safety of communal thermal power facilities.

It is necessary to carry out energy-efficient measures as a matter of priority, gradually replace obsolete and obsolete operating boiler houses with modern energy-efficient technologies: cogeneration power supply systems (mini-CHP), which increase the efficiency of using primary fuel, increasing the efficiency of the power plant up to 80-90%.

The local energy sector of the Arctic zone is characterized by wear and tear of the electrical equipment of diesel stations up to 70%, most of them are located in unsuitable buildings, without taking into account fire safety requirements, sanitary working conditions of personnel. The overhead power lines that depart from diesel power plants are made on wooden poles and are also worn out by more than 70%. Specific costs for the production of electricity at diesel power plants average about 15 rubles/kWh, in especially hard-to-reach and remote settlements - up to 69 rubles/kWh.

The main directions in the field of ensuring the energy security of the Arctic regions will be the construction of new DPPs to replace worn-out ones, the implementation of energy-efficient measures, the diversification and improvement of the quality of fuel resources in order to optimize energy supply costs, incl. use of local fuel resources.

The current growth rate of the level of improvement, as well as the implementation of program measures to introduce new technologies, will make it possible to bring the level of improvement of the housing stock by 2035, equipped with water supply to 50.5%, sewerage to 55.7%, heating to 93.5%

and hot water supply to 52.7%. Almost 100% improvement level will be achieved in Allaikhovskiy and Verkhnekolymskiy districts.

Diversification of fuel resources.

Raising the level of engineering arrangement of settlements by.

Optimization of heat supply schemes for settlements.

Stimulating the introduction and use of environmentally friendly and (or) energy-saving technologies, technologies focused on the reduction and recycling of waste.

Construction of local water intakes with water treatment facilities.

Reorganization (ordering) of property, financial and contractual relations in the housing and communal sector, with the involvement of private business and the influx of private investment in the modernization and expansion of the housing and communal complex through the formation of a transparent and predictable system of regulation and state support in the field of housing and communal services.

Creation of a qualitatively new system of production and consumption waste management, which will ensure the prevention and reduction of waste generation, minimize the amount of landfilled waste, create incentives for innovation in the field of waste management and ensure the responsible attitude of the population and business to the problem of waste management.

"Diversification of energy supply". The growing attention to the development of the Russian Arctic zone at the federal level, the development of transit potential along the NSR, the implementation of the Yamal LNG project, the conclusion of an agreement with the State Corporation Rosatom allow us to discuss the use of hydrocarbon, nuclear and other resources for power supply needs.

The strategy of the State Unitary Enterprise Housing and Public Utilities of the RS (Y) in the AZ of the RS (Y) provides for the transition to local coal deposits: Krasnorechensky (Abysky district) in the Indigirsky basin, Belogorsky (Kobyaysky district) in the Lena basin, Kularsky and Uyandinsky in the Yansky basin.

In the Arctic regions, the vast majority of apartment buildings require major repairs, heat losses in houses are estimated at 20 to 40% of the supplied heat energy, subsidizing the population's expenses for heat energy reaches 92%. When carrying out energy service in MKD, it is possible to reduce heat losses by up to 40%, water consumption by five times. It is necessary to develop a regulatory framework that regulates the mechanism for financing the project at the expense of savings in state budget expenditures obtained as a result of energy service measures.

"Connection of the private sector to sources of heat supply" will be implemented within the framework of program activities developed jointly

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with the administrations of the Moscow Region and the State Unitary Enterprise "Housing and Communal Services of the RS (Y)". It is planned to introduce new modern technologies for the improvement of multi-apartment and individual residential buildings with the aim of maximum, and in a number of areas, complete improvement of all settlements.

"Ecologically safe and comfortable environment in the Arctic settlements". The project is aimed at improving the ecological situation in settlements, at preserving the natural environment and involves:

Construction and reconstruction of sewerage and treatment facilities.

Construction and reconstruction of water intake and water treatment facilities to provide the population with good-quality drinking water.

Construction of points for temporary accumulation of municipal solid waste located directly in the waste treatment area in order to reduce transportation costs. Taking into account the small volumes of production and consumption waste generation in the Arctic regions, it is advisable to use the method of heat treatment of waste in the field.

Creation of new industrial complexes for the storage, processing, disposal and neutralization of especially hazardous waste generated in the Arctic. Waste plasma recycling method; technology of vetrification (or vitrification). Acquisition of a mobile unit (furnace) for the disposal of MSW and MSW.

Reclamation and restoration of land, at the places of disposal of production and consumption waste. Sanitation, degassing and reclamation of waste disposal sites (landfills), the further operation of which is impossible.

Restriction of import to the territory of the Arctic zone of products, containers and packaging, the utilization of which is not economically and technologically ensured. Establishment of requirements for the construction of facilities in the Arctic from materials that are environmentally friendly during disposal (do not emit toxic substances during combustion, do not form the accumulation of scrap metal).

"Improving the Quality of Coal". Arctic regions require high-quality fuel to increase the efficiency of boiler houses, increase the service life and safety of boilers and equipment. It is proposed to consider a mechanism for distributing subsidies not only to the end consumer (SUE "Housing and Communal Services of the Republic of Sakha (Yakutia)"), but also for suppliers - mining and transport enterprises, subject to the release of prepared high-quality fuel at set prices, transportation of coal in big bags.

Expected results:

□ the level of improvement of the housing stock by 2035 will increase:

□ for water supply up to 50.5% (in 2018 - 36.9%);

□ for water disposal (sewerage) up to 55.7% (in 2018 -42.%)

□ for heating up to 93.5% (in 2018 - 80.9%);

□ for hot water supply up to 52.7% (in 2018 - 35.4%);

□ coverage of the housing stock and social facilities with metering devices - 100% by 2025;

□ reduction in standard fuel consumption by 20% by 2025;

□ reduction of heat consumption - by 25% by 2025;

□ the share of the population living in the Arctic zone of the Republic of Sakha (Yakutia) provided with high-quality drinking water from the centralized water supply system by 2024 compared to 2017 will increase from 34.6% to 63.3%.

The introduction of modern information and communication technologies and tools in the Arctic regions of the Republic of Sakha (Yakutia) is a key condition for the success of the development of the Arctic territories, a qualitative improvement in the standard of living of the population.

The basic option for the development of the telecommunications infrastructure of the Arctic regions provides for the implementation of projects for the construction of FOCL, which will reach 85% of the population of the Republic of Sakha (Yakutia) with high-speed Internet by 2024 and up to 97% of the population by 2035.

The scaling of the project to provide stable and free data transmission in the local area network within the regions will limit the cost of expensive satellite communications.

The construction of FOCL along the Udachny – Olenyok – Kharyalakh – Zhilinda – Saskylakh route, implemented by PJSC Rostelecom, will provide the residents of the Anabar basin with modern communication channels, help develop advanced digital technologies and implement the Smart Village project. The implementation of plans for the construction of FOCL along the route "Khandyga Batagay" will provide residents of the Verkhoyansk region with high-speed Internet in the Yansky basin.

Coverage of the Indigirka and Kolyma basins with high-speed Internet provides for the construction of a fiber-optic communication line along the route "Khandyga - Ust-Nera - Khonuu - Zyryanka - Srednekolymsk - Chersky" with the prospect of running to Bilibino, Chukotka Autonomous Okrug. As a result of the implementation of this project, about 2,700 km of a communication line with a range of 20,000 people will be laid.

Providing high-speed access to the Internet along these routes is aimed at developing telemedicine, creating and modernizing video recording systems for traffic violations, video surveillance and emergency alerts, as well as information systems in the field of medicine and housing and communal services.

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The innovative development option involves the modernization of the existing telecommunications infrastructure, which makes it possible to provide access to the Internet with a bandwidth of up to 100 Mbps and the modernization of cellular base stations to the 4G standard.

The implementation of the federal project to lay a submarine fiber-optic communication line along the Northern Sea Route and further along the channels of the Arctic rivers will make it possible to remove the problem of the "digital divide", to provide the settlements of the Arctic regions with affordable and high-quality Internet communications.

High-speed access to the Internet will make it possible to combine various branches of science, economy, and management into a single information system, including those for solving environmental problems.

An increase in the bandwidth of communication channels will create conditions for the introduction of smart city technologies, reducing budget expenditures on energy (Smart Energy) and increase the level of security, and telemedicine will also develop in the long term.

In the field of education, it is planned to provide all educational organizations with access to the Internet by 2024: at a speed of at least 100 Mb / s in Verkhoyansk and Srednekolym'sk, at a speed of at least 50 Mb / s in rural areas and urban-type settlements.

Separate areas of development of communications in the Arctic regions will be implemented as part of the implementation of the Strategic Decree of the Head of the Republic of Sakha (Yakutia) dated 06.11.2018 No. 149 "On the innovative and digital development of the Republic of Sakha (Yakutia)".

Development of wireless telephony and the Internet:

- Development of satellite communication networks.

- Construction of FOCL and SFOCL.

- Development of mobile communication networks. Phased creation of cellular communication networks of the 4G+ generation and future generations.

- Formation of the information space:

- Carrying out educational activities aimed at improving the computer literacy of citizens.

- Organization of informing the population about the benefits of obtaining state and municipal services in electronic form through the use of the Unified portal of state and municipal services gosuslugi.ru and the regional portal of state and municipal services of the Republic of Sakha (Yakutia) e-yakutia.ru.

- Implementation of information systems and platforms aimed at improving the comfort of citizens and improving the efficiency of business and management.

- Construction of the FOCL "Udachny-Olenyok-Kharyyalakh Zhilinda-Saskylakh".

- Construction of FOCL "Khandyga-Batagai", FOCL "KhonuZyryanka-Srednekolym'sk-Chersky" (innovative version).

- Construction of a federal FOCL (innovative version).

- Construction of points for collective access to the Internet with a bandwidth of up to 100 Mbps using Wi-Fi technology.

- "United Bulun" will provide stable and free data transmission in the local network within the ulus and thereby limit the cost of expensive satellite communications.

- The transition of the mobile communication network to the 4G standard. Remote medical care and telemedicine.

- Organization of a multi-level system of telemedicine consultations, including a service of delayed telemedicine consultations and a service of telemedicine requests in real time.

- The implementation of the project will improve the ability to serve patients through the Internet sites of polyclinics (especially representatives of the nomadic indigenous peoples of the Arctic).

- Expected results:

- providing access to the Internet (at a speed of at least 10 Mbps) to 100% of the population of the Arctic zone of the Republic of Sakha (Yakutia) by 2025;

- ensuring the provision of 100% priority state and municipal services in electronic form by 2035;

- introduction of 100% intradepartmental and interdepartmental interaction of state and municipal bodies and budgetary institutions, carried out in electronic form by 2035.

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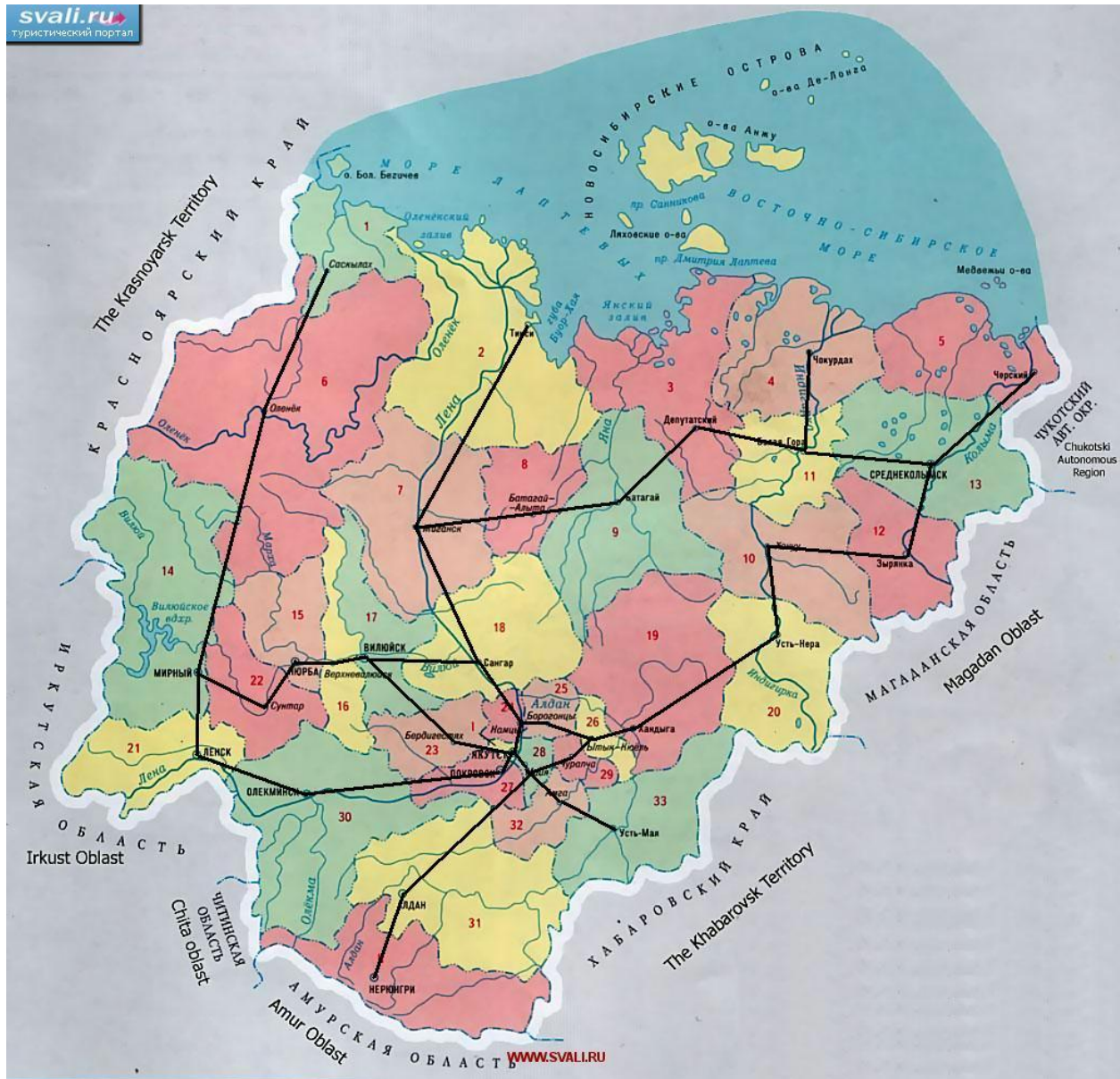


Figure 11. Map of roads in the Republic of Sakha (Yakutia)

The development of the transport infrastructure of the Arctic regions will be aimed at ensuring the availability of transport services for the population, creating conditions for the dynamic growth of all sectors of the economy, eliminating territorial isolation and strengthening economic ties between municipalities, and involving new territories in the economic circulation. An efficient transport system will provide opportunities for economic entities to freely enter the regional market, contribute to the growth of entrepreneurial and business activity, which directly affect the quality of life and the level of social activity of the population (Figure 11). Priority directions:

- Development of navigation on the Arctic rivers, including the modernization of the fleet, the

- reconstruction of Arctic ports, the creation of infrastructure for the organization of passenger transportation, the implementation of dredging works on the main Arctic river routes;

- development of an effective system of aviation services for the Arctic regions, including small aircraft, reconstruction and modernization of the airport network, renewal of the aircraft fleet;

- increasing the level of safety of transportation by motor transport, including by extending the validity of winter roads of regional significance;

- creation of a new transport subsystem of the Arctic zone of the Republic of Sakha (Yakutia) using modern vehicles adapted for use in arctic conditions (all-terrain vehicles, snowmobiles,

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ekranoplanes, hovercraft, floating amphibians with wheeled or tracked chassis, hovercraft platforms, seaplanes - amphibians, hovercraft).

□ development of organizational and financial mechanisms for the break-even operation of transport organizations in the Arctic zone: the creation of favorable legislative and financial conditions for the activities of Russian enterprises and foreign investment in them. Solving this problem will be one of the possible ways to increase the efficiency of projects and possibly reduce the cost of transportation.

Development of dry shipping on the rivers of the Republic of Sakha:

□ Dredging works on the main Arctic rivers (Anabar, Lena, Yana, Indigirka, Kolyma). An important strategic goal is to bring the parameters and categories of inland waterways of the Republic of Sakha (Yakutia) to values that provide sufficient capacity for river navigation. The fulfillment of these tasks implies an increase in funding from the federal budget.

□ Development of passenger traffic on socially significant lines, including high-speed ones. To carry out passenger transportation by water transport on socially significant routes, the formation of coastal infrastructure and the passenger fleet is required.

Reconstruction of the port infrastructure of Tiksi Seaport JSC, Zelenomyssk River Port LLC.

Construction and reconstruction of cargo berths, including in Anabarsky (Yuryung-Khaya, Saskyly), Ust-Yansky (Ust-Kuyga), Allaikhovsky (Chokurdakh), Srednekolymy (Srednekolymy) and Verkhnekolymy (Zyryanka) districts.

Construction (reconstruction) of river passenger stations, berths, development of infrastructure for passenger service. Construction of river passenger stations planned in Zhigansky (Zhigansk), Verkhoyansky (Batagay), Srednekolymy (Srednekolymy) and Bulunsky (Tiksi) districts.

The construction of passenger berths is required in Ust-Yansky (Ust-Kuyga, Cossack), Verkhoyansky (Saida), Allaikhov (Chokurdakh), Abysky (Belaya Gora, Kuberganya), Momsky (Khonuu), Nizhnekolymy (Chersky, Kolymskoye), Verkhnekolymy (Zyryanka), Bulunsky (Naiba, Bulls Cape, Taymylyr) areas.

Acquisition of vessels for the organization of passenger transportation, organization of service centers.

On the northern rivers, which are characterized by small and irregular passenger traffic, the best solution would be to use a small fleet with good running and speed characteristics, with a small draft for the convenience of disembarking passengers on an unequipped shore. For optimal organization of transportation, it is necessary to use several types of vessels:

□ purchase of boats with a small passenger capacity of up to 12 people, for servicing lines up to 400 km long (16 boats for 10 districts);

□ acquisition of hovercraft with a small passenger capacity (10 ships for 8 districts);

□ purchase of high-speed passenger ships for the organization of passenger transportation in areas with maritime navigation for the needs of Bulunsky and Nizhnekolymy regions, with a wave height of up to 2 - 3 meters (4 ships for 2 regions);

□ creation of service centers for servicing passenger ships (in Bulunsky, Ust-Yansky, Abysky, Srednekolymy districts).

The creation of specialized centers for the maintenance and repair of the passenger fleet on the rivers of the republic will significantly reduce the cost of repairing the fleet outside the republic.

Development of an effective aviation service system:

□ Implementation of programs to subsidize socially significant air transportation.

□ Development of the airport network and landing sites. The priority measure for the development of air transport is the modernization of the airport network, which provides for the reconstruction of runways and the construction of service and passenger buildings. To ensure the safety of passenger traffic in remote settlements, landing sites will be reconstructed.

□ Air fleet renewal. The event provides for the renewal of the fleet of aircraft and helicopters to replace the obsolete vessels in operation.

□ Development of small private aviation in order to meet the needs for air transportation and ensure its availability.

One of the priorities of the state policy will be the development of small private aviation in the Far North, which will require a comprehensive solution of legal, technical, organizational and financial issues. It is necessary to provide a legal framework for the effective operation of small aviation and create favorable conditions for investment. In the future, small aviation should become widespread, which will increase the transport accessibility of the population in local areas.

□ Development of new types of air equipment (airships, drones).

Reconstruction of airports FKP "Airports of the North".

Reconstruction and maintenance of helicopter pads (44 air pads in 13 districts).

Renovation of the fleet of small aircraft (replacement of An-2 with LMS).

Renewal of the helicopter fleet (acquisition of Ansat helicopters, replacement of Mi-8 with Mi-8 MTV).

The development of aeronautic transport. Creation of a fleet of airships and ground

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infrastructure. The scale of work and the high cost of building highways will not allow for the accelerated formation of year-round transport links with the Arctic regions of the Republic of Sakha (Yakutia). In the short and long term, the construction of year-round roads will take place gradually, based on the priorities of the economic development of the Arctic.

- Gradual transition to the normative level of financing of road maintenance works;
- Construction of road repair points;
- Phased transition of regional winter roads to an extended period of operation;
- Construction of inter-settlement rural roads;
- Improvement of settlement roads.

“Increasing safety on winter roads” involves the implementation of the “Safe Arctic” R&D direction with the implementation of measures to justify the installation of heating points, identify the most dangerous sections of winter roads, organize reliable communications, develop autonomous land beacons, test all-terrain vehicles on winter roads, etc.

Creation of a new transport subsystem of the Arctic zone of the Republic of Sakha (Yakutia):

All-terrain vehicles

- Acquisition of cross-country vehicles for the implementation of cargo and passenger transportation;

□ Creation of service centers for all-terrain vehicles;

□ Development and implementation of modern all-terrain vehicles adapted for use in arctic conditions. Introduction of innovative modes of transport

The development of promising innovative modes of transport is a priority for the Arctic zone of the Republic of Sakha (Yakutia). The introduction of innovative areas requires the development of a regulatory legal framework, the approval of documents for operation for the safety of transportation, including passenger transportation.

□ Passenger traffic by air - 316 thousand passengers (an increase of 1.9 times compared to 2018);

□ the number of passengers transported by road - 1.3 million people (an increase of 7 times by 2025);

□ the number of passengers transported by water transport - 21.6 thousand people (an increase of 5.3 times by 2025).

Improvement of the current Northern Delivery scheme is planned in the following areas:

□ formation and development of modern transport infrastructure, modernization of vehicles for the delivery of goods;

□ optimization of logistics processes, building optimal transport and logistics schemes that

ensure uninterrupted supply of fuel and energy resources and high-quality food products within the framework of the current and forecasted levels of consumption and effective demand;

□ carrying out systemic measures aimed at creating a centralized planning system for northern delivery to ensure the coordinated delivery of goods and products based on pre-forecast needs of the population;

□ improvement of the regulatory framework at the federal and regional levels;

□ repurchase of locally produced goods as the main source of household income.

The implementation of the measures will ensure the growth of tax revenues to the budgets of all levels, create conditions for the development of market relations and healthy competition in the trade sector, and provide residents with quality food.

Taking into account the territorial features of the delivery of goods, as well as the effective demand of the population, with the use of state support mechanisms, the wholesale link will be developed, as well as various retail formats that meet the needs of all participants in the process.

An increase in the turnover of retail trade and public catering will be facilitated by the growth in the level of well-being of the population, the creation of favorable conditions for the development of trade, including ensuring the availability of financial resources, the development of basic infrastructure and infrastructure services.

When addressing issues of food security, the main attention should be paid to meeting the needs of all social groups of the population, regardless of income level.

Improving the legal framework governing the implementation of the "northern delivery".

Improving the transport and logistics schemes for delivery, taking into account the modernization of the northern delivery infrastructure, including the infrastructure of deposition points, as well as using new types of equipment.

Replacement of part of imported fuel and energy resources with local energy sources and development of alternative energy.

Improving the system of providing the population of hard-to-reach and remote settlements with socially significant essential goods.

Creation of an effective commodity distribution infrastructure to fully provide the population with high-quality and safe goods.

"Delivery by the Northern Sea Route" involves the use of new transport routes (Northern Sea Route, the Yakutsk transport and logistics hub in Nizhny Bestyakh) to reduce the cost of cargo delivery. Oil products destined for the Arctic zone of the republic are redirected to the Northern Sea Route and will be delivered through the entrance transshipment sea

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routes Arkhangelsk, Murmansk, Vladivostok. Further, the delivery of general cargo is carried out by water transport and a winter road.

"Modernization of deposit points". Construction and modernization of existing tank farms, reconstruction and modernization of the tank farm of tank farms located in the Arctic zone of the Republic of Sakha (Yakutia), construction of new tank farms and oil storage facilities, if necessary.

"Effective coordination". Development and implementation of an information system for managing logistics processes to track the delivery of goods, the formation of the optimal load of all types of transport and delivery routes.

"Trade in the Arctic". The development of an organizational and legal mechanism for increasing the socio-economic efficiency of the functioning of trade, creating conditions for a sustainable and predictable development of the consumer market, will contribute to a more flexible provision of the NWPT in the Arctic regions, up to the bid transfer of authority to ensure the NWPT to municipal authorities. The main stage of the project is the creation of a network of wholesale and retail stores with premises for storing vegetables. The creation of a digital platform focused on supporting the production and marketing activities of small and medium-sized businesses will contribute to development of Internet commerce, mobile commerce, holding fairs.

Expected results:

Increase in the volume of imports of socially important food products up to 1.5 times;

□ retail trade turnover per capita - at least 390 thousand rubles.

rubles (by 2.6 times by 2025), turnover of paid services per capita - at least 37 thousand rubles (by 1.8 times by 2025)

□ provision of the population with an area of retail facilities of at least sq. meters per 1,000 people (125% by 2025);

□ satisfaction of consumer requirements for the quality and safety of products for life and the population is at least 70%.

The negative trends of global climate change have a serious impact on the natural complexes of the Republic of Sakha (Yakutia).

Climate change in the Arctic is about 2 times faster than in other parts of the planet. Over the past decades, the temperature increase in some parts of the Arctic has reached 4°C. This has already led to a change in the characteristics of permafrost and its degradation in many areas, the rapid melting of Arctic ice, and an increase in the risk of destruction of permafrost shores. With a stable frequency, catastrophic floods occur in the basins of the Arctic rivers Kolyma, Indigirka, Alazeya.

The Arctic regions, due to the inaccessibility and autonomy of the life support of settlements, are at high

risk of emergencies with a direct threat to the life of the population, especially in winter.

Development of a regulatory framework and improvement of the emergency response system.

Forecasting and prevention of natural and man-made emergencies in the Arctic zone of the Republic of Sakha (Yakutia).

Construction of engineering protection and bank protection facilities.

Construction of fire stations to house the divisions of the fire service of the Republic of Sakha (Yakutia).

Development and application of new technologies for search and rescue and emergency rescue operations, introduction of adapted rescue technologies.

Improving the safety of traditional industries.

Improving safety on winter roads.

Prevention, literacy and education of the population for safe life in extreme climatic conditions.

"Safe Arctic", implemented by the Rescue Service of the RS (Yakutia) together with scientific institutions of the RS (Yakutia), is aimed at predicting, preventing and promptly responding to emergencies in the extreme conditions of the North through the development and implementation of modern technologies in relevant areas. The implementation of the project will prevent and reduce the negative consequences of emergencies, ensure economic efficiency by replacing traditional search and rescue technologies with new technical solutions.

"Coast protection works" involves the implementation of preventive measures to protect against the collapse of the river bank. Indigirka near the pier of the tank farm with. Khonuu Momsky district, to strengthen the coastal strip of the river. Kolyma in the area of MO "Pokhodsky nasleg", capital construction of engineering structures in the village. Bykov Mys Bulunsky district, construction of the II stage of bank protection of the village of Zyryanka, Verkhnekolymsky district, construction of a protective structure in the city of Srednekolymsk, engineering protection in the city of Verkhoyansk.

The share of agriculture in the gross municipal product of the AZ of the RS (Y) is about 3.1% (RS (Y) - 1.8%). For the AZ of the RS(Y), the industry is important for ensuring the local population with agricultural products of their own production, preserving both the traditional way of life of the indigenous population and the cultural identity of the indigenous peoples.

In the Arctic uluses and places of traditional nature management and management of the indigenous peoples of the North, traditional industries are the basis of agricultural production. In most areas, the rural population has strong traditions and labor skills for the development of reindeer herding, hunting and fishing, and in such uluses as Abyisky, Verkhoyansk and Srednekolymsky - for the

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marketing of beef, horse and reindeer breeding products in the Arctic, stimulate livestock increase.

Achieving sustainable growth of agricultural sectors based on the modernization of production.

Creation of a vertically integrated system of procurement centers with modern slaughterhouses in the Arctic regions according to international standards;

Preservation and development of northern (domestic) reindeer breeding:

□ Introduction of modern reindeer grazing technologies: formation of rational herd sizes, taking into account reindeer capacity and pasture turnover. Modernization of the material and technical base of reindeer breeding:

construction of corrals, fences, purchase of all-terrain and snowmobile equipment, provision of goods and materials.

□ Increasing the marketability of reindeer breeding products, including the conduct of scientific research to assess the current state of reindeer pastures, the transition to industrial reindeer breeding.

□ Ensuring comprehensive protection in reindeer husbandry: introducing electronic certification of reindeer livestock, guarding the herd and monitoring grazing in order to minimize animal losses from predators and avoid grazing in contaminated areas, systemic corralization and veterinary support.

□ Development of entrepreneurial initiative while maintaining the traditional way of life of the peoples of the North, taking into account international experience, the introduction of innovative technologies in the Arctic. Providing grants for start-up entrepreneurs in the traditional industries of the North.

Preservation of the resource base and increase in commercial fisheries:

□ Conducting scientific and resource studies of river and lake basins to assess the state of fish stocks and carry out work on the artificial reproduction of aquatic biological resources.

□ Increasing the catch of low-value fish species and involving in the economic development of remote lake areas of the basin of the Yana, Indigirka, Kolyma rivers.

□ Carrying out activities for the artificial reproduction of aquatic biological resources in order to restore fish stocks of the main commercial fish species.

□ Development of fishing infrastructure by stimulating the renewal of the material and technical base of fishing, which allows the integrated use of artificial and natural sources of cold for storing caught fish.

Creating conditions for the development of animal husbandry:

□ Stimulating the intensification of agricultural production based on the Agricultural Management System, including the restoration of the system of selection and breeding work to create highly productive herds, stimulating the restoration and expansion of the network of collective farms, communities, as well as peasant farms with a beef herd of more than 15-20 heads.

□ Creation of a solid forage base.

□ Organization of artificial insemination of cows and provision of balanced feeding of livestock and horses based on the districts' own forage base.

□ Construction of small-sized cowsheds and horse farms and their mechanization using small-sized technical means and having improved characteristics.

"Modernization of the structure of the agro-industrial complex of the Arctic". Creation of a vertically integrated system for the procurement of local products with branches in each municipality, which, through state support, will create favorable economic conditions for the profitable marketing of beef, horse breeding and reindeer breeding products in the Arctic by the population, stimulate an increase in livestock.

"Modernization of reindeer breeding and fisheries" involves the continuation of the implementation of subprograms for the competitive distribution of state budget funds of the Republic of Sakha (Yakutia) for the acquisition of objects for the modernization of industries: fishing bases, slaughterhouses, refrigeration equipment, all-terrain vehicles, etc. with an increase in the share of co-financing from the initiator of the application.

"Stud farms of the Arctic". Support for stud farms that provide purebred breeding and development of unique breeds and types of herd horses in the Verkhoyansk and Srednekolymsk regions;

"Resources of the future fish industry". Provides for the implementation of measures for the artificial reproduction of whitefish: the creation of broodstock; identification of reproduction areas (basins of small rivers and lakes, places of winter feeding: the lower reaches of the Lena, Yana, Indigirka and Kolyma rivers, adjacent or located on the territory of protected areas) and ensuring their special protection.

Expected results under the innovation scenario:

□ Ensuring the growth of agricultural production by 1.3 times by 2035;

□ Increasing the annual volume of fish catch up to 6000 tons and the volume of deep processing of fish up to 2000 tons by 2025;

□ Growth of the number of deer by 1.5 times by 2035;

□ Growth in the number of horses by 1.5 times by 2035;

□ Increase in the number of Yakut cows up to 1000 heads;

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products, dietary supplements and drugs. The implementation of this direction will make it possible to form the regulatory and legal framework for northern domestic reindeer husbandry in the Republic of Sakha (Yakutia), to systematize and improve the system of state management of the industry, to develop and implement measures aimed at solving the main tasks and directions of development, to coordinate the actions of federal and regional executive bodies at the republican level. authorities, scientific institutions and business entities,

Renewable natural biological resources of the Arctic are characterized by increased biological activity due to extreme growth/habitat conditions. These include species of herbaceous, shrubby and woody plants, lichens growing in the tundra and forest tundra, as well as organs and tissues of domestic and wild animals living in the Arctic (reindeer, Yakut horse, Arctic seal, sable, etc.).

Deep processing of these types of environmentally friendly, reproducible natural biological raw materials and products of reindeer breeding, horse breeding of the Yakut horse, hunting and fishing (including waste generated during the processing of carcasses of domestic and wild animals, fish) using modern physical and chemical biotechnologies will make it possible to obtain bioactive products of medical, food, cosmetic and technical purposes with high consumer and financial value. Thus, to significantly increase the profitability of life-supporting sectors of nature management of the indigenous population of the Arctic, the quality of human life in the Arctic; will create new high-tech jobs, which will lead to an increase in the attractiveness of life and work in the Arctic region.

To implement this breakthrough project, Yakutia has all the components, including the author's innovative biotechnologies for processing natural northern biological raw materials of both plant and animal origin, human resources, created biological products that have all the permits of the Russian Federation and the European Union for their production and sale (Epsorin, "Yagel"), as well as patented biological products from other types of biological raw materials (meat-fat tissue and endocrine organs of the Yakut horse and reindeer, adipose tissue of the Arctic seal; wood of Dahurian larch and birch splayed, etc.):

Creation of infrastructure for receiving and storing products of traditional industries of the North on the basis of trade and logistics centers;

Development of a system for harvesting antlers, furs and processing products of reindeer breeding and hunting, including the creation of conditions for the development of projects for export-oriented antler and fur products;

Development and implementation of new technologies of the international standard for

processing meat products, as well as animal and leather-fur raw materials;

Promotion for export of local brands, unique types of meat processing products of the Kolyma and Yan types of horses, Yakut native cattle;

Deep processing of renewable natural plant and animal resources of the Arctic using innovative biotechnologies to obtain final products with high cost and consumer value.

"Factory" Adoption of a set of measures that contribute to the creation of bases for processing and storing products of traditional industries, trade and purchasing bases, points for receiving products as part of the implementation of the Trade and Logistics Center project.

"International ISO Standard" Stimulation of deep non-waste processing of reindeer products, organizing the collection of endocrine enzyme raw materials in reindeer herds: allocation of subsidies to certified enterprises for the purchase of slaughterhouses.

"Arctic Innovative Biotechnologies" The initiator of the project is the Institute of Biological Problems of the Permafrost of the Siberian Branch of the Russian Academy of Sciences. The production of a line of biological products from reindeer antlers and the main reindeer food - reindeer moss, for medical, food and cosmetic purposes, has been organized in the experimental bioshop of the IPC SB RAS. Products are patented, deliveries are made to the regions of Russia and the EU countries. The collection of raw materials is carried out directly in the reindeer farms.

New biological preparations have been created from the fat of the Arctic seal, the collagen fibers of the Yakut horse and reindeer, the betulin complex from the bark of the Arctic birch and reindeer moss, and reindeer testicles. The plans include deep biotechnological processing of sable bile and fur production waste from the skins of the Yakut horse and reindeer, as well as the creation of a biological product from the internal fat of the Yakut horse with a proven pronounced radioprotective effect.

"Warmth of the Arctic" Implementation of a project for the production of fur and deer skin products using the "wet blue" technology, initiated by Sakhabult JSC. The main task is to involve reindeer and fur farms in the process of production of high quality leather raw materials with export potential. "It's all about the antlers." Reimbursement of part of the costs to farms exporting antlers and broken horns, as well as products of their processing.

Expected results:

□ a new quality of the economy of renewable biological resources with a multiply expanded product line and high margins of production;

□ the withdrawal of the traditional nature management of the indigenous peoples of the North and the northern Yakuts from the subsidized regime, the transfer to the regime of economic independence and sustainable development;

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□ creation of new high-tech jobs and increasing the attractiveness of work for young people in the field of traditional nature management in the Arctic;

□ increase in the number of small and medium-sized businesses in the agro-industrial complex and food production by 30% by 2035;

□ development of an innovative model of traditional management, which can be implemented in other regions of the North and the Arctic of the Russian Federation.

The direction for the development of tourism in the Arctic regions and the possibility of increasing the tourist flow are associated with the formation of tours that combine elements of ecological, extreme, ethnological, scientific, sports, hunting and fishing tourism.

The analysis of routes and ranking of territories according to the level of tourism potential determines that reference points will be located in areas with high tourism potential: Bulunsky, Zhigansky, Momsky, Verkhoyansky, Nizhnekolymsky, EvenoBytantaysky districts.

In the Bulunsky district, measures have begun to create a tourist-combined cluster "Russian North of the Arctic", after the implementation of the project, cultural, historical, event, ecological, cruise, gastronomic, recreational, extreme and other types of tourism will be developed.

The Arctic cruise "Yakutsk-Tiksi-Yakutsk" is a hallmark of the region and is in demand among foreign tourists. For the development of the cruise, it is necessary to carry out activities to improve the parking lots of motor ships in the Arctic regions: the village of Zhigansk, the village of Siktyakh, the village of Kyusyur, the Neelova pier, the village of Tiksi, the renewal of the cruise fleet, the construction of ethnic villages, which are proposed to be implemented as part of an enlarged tourist investment project "Russian Arctic". The project also involves the renewal of the infrastructure and fixed assets of exemplary hunting and fishing farms in the Zhigansky and Bulunsky districts, which are planning to develop in the tourism sector.

As part of the development of ethnological tourism, it is planned to create a model of the territory with the official status of "a cluster of traditional economic activities of the indigenous peoples of the North" in the central part of the Zhigansky district. The model territory provides for the creation of a developed profitable economy, which will be based on the integrated use of local natural and historical and cultural resources, sustainable development methods, the production of environmentally friendly products and the provision of services in the field of tourism, recreation and health improvement. Within the Model Territory, various types and zones of economic activity can be formed.

In the Verkhoyansk region, the brand "Verkhoyansk - the Pole of Cold" will be developed; Tuostakh "Hunters for mammoths". The tourist complex "TuostakhKihilekh" was recognized as the best tourist site of the Republic of Sakha (Yakutia). The spiritual and ecological route Tuostakh-Kihilekh is a laureate of the All-Russian competition "Tourist Industry Leaders", awarded a gold medal and a gold statuette of the interregional competition "The Best Goods and Services of the Far East - GEMMA", a laureate and winner of many republican competitions and exhibitions.

Momsky district is distinguished by high ecological potential and diversity of landscapes. Main tourist routes:

1) "s. Khonuu - s. Sasyr - Arga-Tirakhtyakh - Marble Mountain - Victory Peak - r. Mom - r. Eemyu - Balagan-Taas volcano - Ulakhan-Taryn - with. Khonuu (rafting down the Moma river – the main route)";

2) "s. Khonuu - s. Sasyr - r. Mom - r. Emyu. - UlakhanTaryn - p. Khonuu";

3) "s. Khonuu - s. Sasyr - Eselyakh resource reserve - with. Sasyr";

4) "s. Sasyr - ice Tiryakhteh-Taryn; 5. p. Ust-Nera - p. Sasyr - s. Khonuu (big Chersky crossing).

The coastal position of the Nizhnekolymsky region, the presence of the Zeleny Mys port, the proximity of the Bear Islands - the habitat of polar bears, with the development of the Northern Sea Route as a national transport route in the Arctic, can contribute to the rapid development of polar cruises, ecological, ethnographic tourism.

In the Eveno-Bytantai region, it is planned to implement a comprehensive tourist project "Yurt of Peace".

Development of tourist infrastructure (including on the route of the Arctic cruise "Yakutsk-Tiksi-Yakutsk", in the village of Sasyr - Momsky district)

Stimulation of organized forms of hunting and fishing farms, creating the infrastructure of hunting and tourism, as well as ensuring an increase in the number of hunting and aquatic biological resources.

Development of domestic tourism. State support for youth "local history" and sports tours, organization of public events.

Projects:

Project 1. "Russian North of the Arctic"

Project 2. Development and participation in the implementation of the enlarged tourist investment project "Russian Arctic" Project 3. "Fishing and hunting tourism".

Project 4. "Indigenous Minority Model Territories".

Expected results:

□ The number of jobs (including seasonal ones) created in the Arctic regions in the Tourism industry, pers.

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In terms of reserves of mineral resources, the deposits of the Eastern Arctic are of federal significance, and in some cases of global significance. Here are the largest deposits of gold, tin, copper, rare earth metals, the development of which is hampered by the lack of the necessary transport and energy infrastructure.

The economy of the Arctic zone of the Russian Federation as a whole is focused on the Arctic Ocean, on the study, development and exploitation of the richest natural resource base, taking into account the backbone role of the Northern Sea Route in the socio-economic development of the Arctic regions and territories.

The industrial and transit vectors of the new model of development of the Arctic zone of the Republic of Sakha (Yakutia) are associated with the development of promising deposits of mineral resources on the mainland and the continental shelf of the Laptev Sea and the East Siberian Sea and the creation of multimodal transport hubs based on the Arctic shipping of modern modification.

The specifics of the Arctic economy is such that large projects implemented in a complex way have more chances for commercial success. However, their long payback period requires the adoption of preferential measures and special, targeted economic incentives. The most important condition for the sustainable development of the Arctic zone is to create an institutional framework for the implementation of the Arctic policy with the participation of the state, business, science, civil society structures (non-profit organizations, etc.), indigenous peoples on the basis of mutual responsibility and the introduction of civil law foundations in relations between the state and nature users.

The implementation of the Strategy involves the development of mechanisms for the coordination and adoption of legal acts regulating the relationship of the indigenous peoples of the North with business entities operating in the territories of traditional nature management, including the procedure for transferring individual sites for industrial use on the terms of compensation agreements.

Measures aimed at increasing the degree of "localization" of the effects of the development of the mineral resource complex of the Arctic zone of the Republic of Sakha (Yakutia) should include the following:

□ formation and support of value added chains: from geological exploration to obtaining raw materials processing products on the territory of the Republic of Sakha (Yakutia).

□ creation of favorable conditions for the implementation of large projects - assistance in the construction of anchor infrastructure in the Republic of Sakha (Yakutia).

□ expanding the degree of participation of local enterprises, organizations and educational institutions in solving production and technical problems and issues of companies in the mineral resource complex.

□ strengthening of cooperation ties in the process of implementing projects for the development of deposits and the creation of industrial and technological infrastructure, the joint creation of an anchor infrastructure on the principles of PPP.

□ increased attention to aspects of corporate social responsibility of companies - their participation in the socio-economic development of the Arctic Zone of the Republic of Sakha (Yakutia), providing assistance and support to local producers of goods and services.

The main share of the revenue part of the implementation of the Strategy will be provided by the basic highly profitable industries, primarily the extraction of hydrocarbons, non-ferrous and precious metals. Taking into account the high potential of the mineral resource base, geological and geophysical knowledge, it is necessary to resume work on the geological study and development of various types of minerals in the Arctic zone of the Republic of Sakha (Yakutia).

The territory of Arctic Yakutia is promising for the discovery of deposits of diamonds, rare metals, oil and gas, coal in the Anabarsky, Oleneksky and Bulunsky uluses. The development of this territory is based on the study of the Tomtor rare metal deposit, the Pronchishchevsky and West Anabar subsoil areas, promising for the discovery of oil and gas, the Taimylyr coal deposit and bogheads and the Laptev Sea shelf. The development of the Ust-Yansky mining and industrial cluster, which includes the territories of Ust-Yansky, the northern part of the Verkhoyansky and Eveno-Bytantaysky uluses, is associated with the development of deposits of ore gold Kyuchus, tin Deputatskoye, Churpunya, Odinoky, Kester, brook. Tirekhtyakh, placers of gold of the Kularsky ore-placer cluster, gold of rare earth Central-Upper and Central-Lower. The territory is promising for discovering deposits of platinum, copper,

Analysis of the state of the resource base, taking into account the current and projected state of oil and gas production, allows us to draw the following conclusions:

in the Arctic zone of the Republic of Sakha (Yakutia), prerequisites have been prepared for the creation of a raw material base for the accelerated development of the gas and oil industry in the east of Russia;

the region has large reserves for further increasing the resource base, and a significant amount of exploration work at promising sites will significantly increase the reliability of large investment export-oriented projects; the available forecast oil and gas resources are sufficient for long-

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term satisfaction of the internal needs of the region, sustainable supply through the Northern Sea Route of the regions of the Russian Federation, as well as for long-term supply of large volumes of hydrocarbon raw materials for export to the Asia-Pacific countries.

Reproduction of the mineral resource base of mined and involved in the development of reserves of mineral raw materials to meet the current and future needs of the economy.

Increasing the regional knowledge of the territory of the Arctic zone of the Republic of Sakha (Yakutia)

Involvement in circulation of previously discovered, explored, but not developed deposits, including those with residual reserves.

Development of the Program for regional geological and geographical research (geophysical work and parametric drilling) of the Arctic zone of the Republic of Sakha (Yakutia) in order to attract financial resources from the federal budget of the Russian Federation for regional work.

Development of a program for licensing subsoil plots for oil and gas in the Arctic zone of the Republic of Sakha (Yakutia) in order to attract investors for geological exploration and industrial development of subsoil plots. Major investment projects in the Eastern Arctic, the implementation of which is associated with the development of the Northern Sea Route and the strengthening of interregional ties, are:

- prospective geological study and industrial development of the West Anabar licensed subsoil area on the border of the Anabar national (Dolgan-Evenk) region of the Republic of Sakha (Yakutia) and the Taimyr Dolgano-Nenets region of the Krasnoyarsk Territory;

- development of the Tomtorskoye deposit on the border of the Olenek national Evenki and Anabar Dolgano-Evenki national regions;

- development of tin deposits in the Ust-Yansky region;

- development of the Zyryansky coal mine in the Verkhnekolymy region;

- development of the Baimskaya ore zone in the Chukotka Autonomous Okrug on the border with the Kolyma group of uluses of the Republic of Sakha (Yakutia).

On the territory of the Arctic zone of the Republic of Sakha (Yakutia) (Oleneksky, Anabarsky, Bulunsky districts), diamond mining is also carried out by PJSC ALROSA and Almazy Anabara JSC. Large investment projects for the extraction of gold and silver are projects for the development of the Kyuchus and Prognoz deposits in the Verkhoyansk region.

The development of the Tomtorskoye deposit (Buranny site) in the Oleneksky district of Vostok Engineering LLC will ensure by 2025 the extraction of ore of rare earth metals and niobium, its primary

processing and transportation for further processing of 160 thousand tons of ore per year (in terms of dry weight). The volume of investments will be more than 8 billion rubles.

Due to the remoteness from the existing transport infrastructure and the climatic features of the region, large-scale cargo transportation is possible only in winter. Annual transportation of 160 thousand tons of ore is expected by road along the planned winter road 620 km long to the Khatanga Commercial Sea Port, where intermediate storage is carried out before the start of navigation. Then transportation by barges for a distance of 300 km for reloading to sea vessels in the Khatanga Bay. Further transportation along the Northern Sea Route for 3200 km, to the port of Arkhangelsk.

Energy infrastructure: The projected diesel power plant (DPP) will be the only source of electricity at the enterprise. DPP will consist of 3 diesel generator units. The power of each diesel generator unit is 1000 kW. The source of heat supply is a coal-fired boiler house with a capacity of 10.0 MW.

Alternatively, it is proposed to implement a project for the gasification of settlements and thermal power facilities of the Anabar and Oleneksky uluses with cheaper fuel produced on the basis of natural gas resources of the southern side of the Lena-Anabar trough with confirmed oil and gas potential. The project will fully meet the needs of Vostok Engineering LLC in electricity. Necessary measures of state support:

- Subsidizing for reimbursement of part of the cost of paying interest on loans;

- Provision of subsidies for financial support or reimbursement of costs for the creation of infrastructure facilities.

Licensing of one of the last large unallocated gold deposits Kyuchus with reserves and resources of about 200 tons of gold will ensure the extraction of 4.5 tons of gold per year.

Energy infrastructure: The agreement with the State Corporation Rosatom provides for the construction of a nuclear power plant with an electric capacity of 50 MW in the village. Ust-Kuyga.

Transport infrastructure: There is no year-round road, a 50 km winter road will be equipped to the port village of Ust-Kuyga. In the long term, on the principles of PPP, it is planned to build the Yana highway (Teply Klyuch - Topolinoye - Batagay - Nizhneyansk).

Development of the Prognoz silver deposit in the Verkhoyansk region. Prognoz is the largest undeveloped primary silver deposit in Russia. The facility's capacity is estimated at 20 million oz/year. The development period will be 5-8 years with a further transition to underground work.

Energy infrastructure: Construction of a thermal power plant in the village of Sangar, Kobayaysky ulus,

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and further a 250 km power line along the Sangary-Endybal route and further to the Prognoz field.

Transport infrastructure: There is no year-round road, it is necessary to cut a winter road to the Yana regional road in the section between the village of Batagay - the village of Topolinoe.

Development of the placer tin deposit on the creek. Tirekhtyakh in the Ust-Yansky district. The implementation of the project will allow resuming the mining and production of tin concentrate in the Republic of Sakha (Yakutia) by 2025 in the amount of up to 1 thousand tons of tin in concentrate, with a further increase in production capacity up to 4.5 thousand tons of tin in concentrate per year with further transportation to the Novosibirsk Tin Combine. The volume of investments will be more than 5 billion rubles.

Transport infrastructure: There is no all-the-year-round road, it is necessary to cut a 80 km long winter road to the Yana regional road in the section between the village of Deputatsky - the village of Ust-Kuyga. Mining equipment, processing equipment, transport, goods and materials, etc. can be brought to the field in two ways: by road transport along the winter road; for navigation from the village of Osetrovo to the river port of the village of Ust-Kuyga, where it is stored before the start of the winter road and transported by road to the site along the winter road.

Energy infrastructure: Implementation of the plans of the State Corporation Rosatom for the construction of a nuclear power plant with an electric capacity of 50 MW in the village. Ust-Kuyga will help resolve the issue of energy supply. Previously, power was supplied from a diesel power plant installed in the village. Mammoth along the power transmission line-35 kV with a length of 30 km. An increase in the productivity of Zyryansky Coal Mine JSC up to 1 million tons of coal per year is possible due to:

□ ensuring guaranteed long-term supplies of coal for the Chaunskaya CHPP of OAO Chukotenergo and other consumers of the Chukotka Autonomous Okrug and the Magadan Region;

□ development of capacities of the Zyryansk production complex on the basis of the Zyryansk mini-CHP;

□ coal exports to Asia-Pacific countries.

The project provides for the construction of own enrichment facilities of Zyryansky Coal Mine JSC, the volume of capital costs (investments) for the project as a whole will be: estimated 4-5 billion rubles.

Transport infrastructure: Delivery is carried out in summer along the Kolyma River, and in winter - by winter road to the village of Zyryanka. Under the current conditions, the maritime transport services market in the Eastern Arctic is not very competitive. The bottleneck of the scheme is its high cost due to the need (in the current situation) for the delivery of coal

by river-sea vessels (displacement 1500 - 3700 tons) from the port of Zeleny Mys to the port of Pevek with unloading, storage and subsequent loading onto sea vessels.

The solution to the problem is the creation of conditions for the possibility of loading sea vessels with a displacement of 10-20 thousand tons in the port of Zeleny Mys or at the mouth of the Kolyma. It is necessary to modernize the port infrastructure of Zeleny Mys and dredging the river in the section from Zeleny Mys to the mouth.

Energy infrastructure: The sources of energy supply are diesel stations (DPP) operating exclusively on imported fuel. It is necessary to build a mini-CHP in the village of Zyryanka.

Industrial development of fields in the West Anabarsky license area with a forecast annual oil and gas production of 12 million tons and 10 billion cubic meters. m³, respectively, will ensure multiple economic growth of the Republic of Sakha (Yakutia) and accelerated socio-economic development of the Arctic regions. The volume of investments in the project is estimated at 370 billion rubles. Transport infrastructure: It is proposed to consider the construction of the Anabar seaport. The implementation of investment projects involves the construction of transport infrastructure, primarily the construction of the Anabar, Yana, Verkhoyanye and Sebyan highways as strategic roads in the Arctic:

1) of the Anabar highway (1167th km of the Vilyuy - Mirny - Udachny - Olenyok - Saskylakh - Yuryung Khaya highway) (the route runs through the Verkhne-Munskoye field and the Tomtor field), initiators: PJSC ALROSA, Vostok Engineering LLC, etc.; on the principles of PPP;

2) highway "Yana" (Teply Klyuch - Topolinoe - Batagai - Nizhneyansk), initiators: large industrial enterprises of the Yana basin;

3) highway "Verkhoyanye" (Batagay - Verkhoyansk - Batagay-Alyta);

4) Sebyan highway (Batamai - Segan-Kyuel - SebyanKyuel - Suordaakh - Dulgalaakh - 166th km of the Verkhoyanye highway), initiator: Prognoz JSC based on PPP principles.

5) Construction of nuclear power plants of low power. One of the options for a fundamental solution to the problem of reliable and cost-effective autonomous power supply to settlements and industrial facilities in the Arctic regions of Sakha (Yakutia) is the use of low-capacity nuclear thermal power plants located near energy consumers.

In 2009, the Government of the Republic of Sakha (Yakutia) and the State Corporation Rosatom signed a Cooperation Agreement, according to which the construction of floating low-power nuclear power plants (LNPPs) is planned in the village. Yuryung-Khaya and the village. Tiksi in the northwestern part of the republic and in the village. Ust-Kuiga (Ust-

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Yansky ulus) and the village. Chersky (Nizhnekolymsky ulus).

In 2019, the Government of the Republic of Sakha (Yakutia) and State Corporation Rosatom signed an Agreement providing for the construction of a 50 MW SNPP in Ust-Kuyga, which will provide reliable electricity and heat supply to the population (10 MW) and industrial facilities (40 MW).) - the Kyuchus gold deposit and the Deputatsky GOK.

Completion of the construction of a mini-CHP in the village of Zyryanka.

The feasibility of completing the construction of the facility - reliable electricity and heat supply to the village of Zyryanka and nearby settlements of the Verkhnekolymsky district, expansion of the coal sales market of the Zyryansky coal mine.

To commission a mini-CHP, it is necessary to build objects of the second stage - off-site engineering networks and structures, including cooling systems for a mini-CHP, power supply facilities in the village of Zyryanka, main heat and water supply networks, an ash and slag landfill.

Socio-economic effect of putting the object into operation: market expansion coal sales Zyryansky coal mine, located 60 km from the settlement of Zyryanka, for 26 thousand tons annually; optimization and improvement of the reliability of electricity and heat supply p.

Zyryanka and nearby settlements; reduction in the cost of diesel fuel delivery due to a decrease in the consumption of expensive diesel fuel imported from outside the republic by 4,000 tons per year.

Supply of electricity and gasification of the Anabar cluster. The implementation of large investment projects in the Western regions of the Arctic Yakutia requires the provision of industrial enterprises with electricity. The production facilities of OAO Almazy Anabara and OOO VostokEngineering (the developer of the Tomtor deposit of rare earth elements) are provided with the delivery of expensive diesel fuel. The forecast of fuel consumption for electricity generation and the needs of heavy equipment for industrial enterprises is estimated at 50-60 thousand tons per year.

It is proposed to implement a socially oriented highly efficient project for gasification of settlements and thermal power facilities of the Anabar and Olenek uluses with cheaper fuel produced on the basis of natural gas resources of the southern side of the Lena-Anabar trough with confirmed oil and gas potential.

The investment project for the production of electricity and liquefied gases based on natural gas resources of the southern side of the Leno-Anabar trough to meet the needs of the population of the Anabar and Olenek uluses, as well as the production facilities of Almazy Anabar OJSC, Vostok Engineering LLC, is aimed at creating conditions for the sustainable growth of the economy of the Arctic territories, which improves the living conditions of the

population, improves the environmental situation and reduces the costs of the budget of the Republic of Sakha (Yakutia) for the northern delivery of fuels and lubricants (POL).

The task of reviving the Northern Sea Route implies the need to develop transport infrastructure and stimulate the growth of cargo traffic. Currently, the intensity of navigation differs significantly in the Eastern and Western sectors of the Arctic - more than 90% of all flights fall on its Western part. As a result, the port infrastructure of the Murmansk and Arkhangelsk regions, the Republic of Karelia, the Yamalo-Nenets Autonomous Okrug and the Krasnoyarsk Territory receives a significant advantage. In turn, the port economy of the Republic of Sakha (Yakutia) and the Chukotka Autonomous Okrug is experiencing serious difficulties due to the lack of sufficient financial resources to depreciate fixed assets and increase production capacity.

The imbalance in the development of transport infrastructure is supported by different levels of geological exploration and development of mineral deposits. Thus, the development of the Eastern sector

The Arctic, in terms of meeting the task of reviving the Northern Sea Route, should include both an increase in cargo traffic through the development of new deposits, and the development of the coastal infrastructure of the Northern Sea Route.

The formation of a marine macro complex - a fundamentally new direction for the development of the economy of the Republic of Sakha (Yakutia) involves the implementation of offshore projects, the intensive development of the Northern Sea Route with the creation of appropriate infrastructure on the coast of the Eastern Arctic with the participation of large Russian and international companies with state support. The development of the infrastructure of the Northern Sea Route, limited transport accessibility and no alternative to inland water transport for the entire Arctic part of the territory of Yakutia, which has a colossal natural resource potential, determine the need to update and build a new fleet for the Republic of Sakha (Yakutia).

In order to ensure the uninterrupted provision of cargo transportation by inland water transport in the Lena Basin and the Arctic zone of the Republic of Sakha (Yakutia) (including Northern Delivery), the state program of the Russian Federation "Socio-economic development of the Arctic zone of the Russian Federation" provides for the implementation of a project for the reconstruction and modernization of the Zhataysky ship repair shipyard. A comprehensive investment project provides for the implementation of:

1 stage - construction of a high-tech shipbuilding complex with a production capacity of up to 10 river vessels per year (block of hull production, reconstruction of open slipways, outfitting embankment, gasification station for process gases,

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work on connection to engineering networks) - Zhatai shipyard. The cost of the 1st stage of implementation is 5,750.7 million rubles. As a result of the implementation of the 1st stage, it will be possible to build river-class vessels of various types and purposes per year with the implementation of a client-oriented approach in cooperation with Russian machine-building and shipbuilding enterprises. Phased approach to the creation of a 100% Russian-made sudo kit;

2 stage - reconstruction of the facilities of the Zhatai Shipyard and expansion of production facilities for the modernization, repair, inter-navigation maintenance and disposal of ships (shipyard workshop block, auxiliary production block, cargo berth, reconstruction of the transverse comb slipway, air separation and gasification station for process gases).

Based on the results of the implementation of the 2nd stage, it will be possible to carry out: modernization of 6 ships per year, inter-navigational repair and maintenance of the fleet (432.3 thousand standard hours/year); recycling of at least 2 decommissioned ships per year.

Project participants: Ministry of Industry and Trade of Russia, Government of the Republic

Sakha (Yakutia), JSC Development Corporation of the Republic of Sakha (Yakutia), JSC Lena United River Shipping Company, JSC Zhatai Shipyard.

In order to ensure the competitiveness of the new enterprise in 2019, it is planned to include the territory of the Zhatay shipyard in the TASED "Industrial Park" Kangalassy".

In the context of the task of involving the resources of the Eastern sector of the Arctic into circulation, the Kolyma basin occupies a special position. In the south, it borders on the Yano-Kolyma geological and economic region. The Kolyma River and its port infrastructure provide access to an important energy resource - coal from the Zyryansk coal basin. Through the river and air ports of the village of Chersky, located in the Nizhnekolymsky ulus, raw materials and resources are delivered to the deposits of the Baim ore zone. Through the Zelenomyssk river port in the settlement of Chersky, the supply of the Arctic uluses of the Kolyma group and the Bilibinsky district of the Chukotka Autonomous District is also provided.

Features of the location, resource base and transport system of the Kolyma basin allow it to

become a logistics and energy platform for the development of resources in the Eastern sector of the Arctic. An important role in the system of port hydraulic structures in the republic belongs to the Zelenomyssk river port. In the short time of Arctic navigation, life-supporting cargoes for the Upper, Middle, Lower Kolyma and Chukotka are delivered through transshipment at the Zeleny Mys river port. Port "Green Cape" operates seasonally: sea navigation begins in early July and ends in early October. The duration of maritime navigation averages 85 days, river navigation - more than 100 days. In winter, with the opening of the winter road between Zeleniy Mys and the city of Bilibino, the port is engaged in the shipment of client cargo,

Currently, the transshipment process in the port is carried out by means of mechanization that have worked out their standard period, and their further operation after 2-3 years will be impossible due to the complete wear and tear of the (physical) material part.

With the support of federal funding, it is planned to carry out:

Dredging works on the Kolyma River (up to 2.5 m of guaranteed depth);

Increasing the capacity of OOO Zelenomyssk River Port to process 500,000 tons of coal;

Increasing the storage capacity of OJSC Kolyma Shipping Company;

Construction of additional capacities of Zelenomyssk River Port LLC in the village of Mikhalkino;

Construction of a river port near the settlement of Zyryanka to process at least 1 million tons of coal.

The development of the sea economic complex also implies the development of the road infrastructure adjacent to the ports in order to build logistics chains that are optimal both in terms of speed and cost of cargo delivery. To strengthen the economic connectivity of the regions of the Eastern Arctic, to develop a highway of interregional significance (Republic of Sakha (Yakutia) - Chukotka Autonomous Okrug - Magadan Region), it is necessary to continue the construction of the Zeleny Mys road section - the border of the Chukotka Autonomous Okrug (68 km) for the delivery of goods from the port of Zeleny Mys as part of the development of the Baimskaya ore zone (Figure 12).

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Seaport "Tiksi"**Figure 12. Port of Tiksi**

One of the main stages in the construction of the marine infrastructure framework of the Arctic zone of the Republic of Sakha (Yakutia) is the reconstruction of the seaport of Tiksi - the base port of the Eastern section of the Northern Sea Route. The port activities of Tiksi are designed to fulfill the strategic functions of the state to ensure the geopolitical aspects of the presence in the Arctic zone.

The main geopolitical purpose of the seaport of Tiksi is to strengthen and build up the economic and transport potential of the Republic of Sakha (Yakutia), which will increase the country's defense capability and the competitiveness of the republic's port industry. The development of the port will create a central transport hub in the Arctic zone of the Republic of Sakha (Yakutia) to serve export-import traffic along the Lena River and the Northern Sea Route.

Favorable conditions will be created for the industrial development of offshore reserves of hydrocarbons and bioresources.

In accordance with the Comprehensive Project for the Development of the Northern Sea Route, approved by the Chairman of the Government of the Russian Federation on 05.06.2015, it is planned to build the infrastructure for basing ships of the Navy in Tiksi. The project ensures the implementation of the goals and objectives set by the Decree of the President of the Russian Federation "On approval of the

foundations of the state policy of the Russian Federation in the field of naval activities for the period up to 2030" dated July 20, 2017 No. 327, in terms of creating in remote areas of the Arctic and Far Eastern regions of the Russian Federation, dual-use infrastructure facilities in order to ensure the basing of civilian ships, ships and vessels of the Navy and federal security service agencies. The implementation of the project will also contribute to the fulfillment of the task of increasing the capacity of the seaports of the Russian Federation within the framework of the national project (program) for the implementation of the Comprehensive Plan for the Modernization and Expansion of the Main Infrastructure until 2025 of the Decree of the President of the Russian Federation of May 7, 2018 No. 204 "On National Goals and strategic objectives of the development of the Russian Federation for the period up to 2025". The basis of the economic base for the reconstruction of the port is:

- outpacing rates of economic growth in the Arctic regions, exceeding the average rates of economic growth in Russia;
- the presence of significant explored reserves of minerals, including hydrocarbons;
- the presence of natural prerequisites for economic growth and the development of transit flows through the territory of the Republic of Sakha (Yakutia).

Impact Factor:

ISRA (India) = 6.317
ISI (Dubai, UAE) = 1.582
GIF (Australia) = 0.564
JIF = 1.500

SIS (USA) = 0.912
ПИИИ (Russia) = 3.939
ESJI (KZ) = 8.771
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ICV (Poland) = 6.630
PIF (India) = 1.940
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predetermines the creation of the Federal Research and Education Center with the implementation of niche areas related to the unique features of the region: the development of technologies for use in the Arctic,

The creation of the REC will strengthen interregional cooperation between scientific institutions, vocational education organizations and large industrial companies in the North-East of Russia: the Republic of Sakha (Yakutia), the Chukotka Autonomous Okrug, the Magadan Region and the Kamchatka Territory.

The main areas of activity of the REC are environmental management in the Arctic and Subarctic, improving the quality of life and the development of convergent technologies. The first direction takes into account the spheres of ecology, nature management, technosphere safety and new materials, the second - health, energy-efficient construction, the architecture of northern cities, as well as energy, roads, transport and the development of linguistic diversity, the third direction includes the development of nano and biotechnologies, as well as information and cognitive technologies.

Scientific, scientific, technical and innovative activities of the Scientific and Educational Center "Sever" will become an integral part of the activities of enterprises, respectively, various forms of cooperation in the production of knowledge will be developed, including prospecting, exploration of minerals, and the creation of new industrial technologies.

In accordance with the Climate Doctrine of the Russian Federation, participation in the initiatives of the international community in solving issues related to climate change and related problems is one of the main tasks of climate policy. The Arctic territories have great potential for non-traditional renewable energy sources, primarily hydro resources of small rivers, wind, and geothermal heat. For the development and operation of renewable energy sources, the village of Tiksi is proposed to be designated as a testing ground (technopark) of the REC in the field of alternative energy sources, energy saving, incl. to study the joint operation of wind turbines, solar power plants and tidal power plants (TPP) for heat and power supply to remote consumers in the Far North.

In order to implement the strategic objectives of the development of the Eastern Arctic, it is planned to implement multilateral agreements, interdepartmental research programs using various formats of research on the Arctic topics, including testing of materials, elements of technology and the stability of living organisms, summer and winter schools, scientific expeditions.

Implementation of cooperation agreements with state and non-state funds for the support of scientific, scientific, technical, and innovative activities.

Development of technological platforms and testing grounds - communication tools for the implementation of scientific, technical and innovative projects with the participation of Russian and foreign enterprises, manufacturers of equipment and technologies, investors.

Promoting the expansion of mutually beneficial international scientific cooperation, including on climate, biosphere, hydrosphere, atmosphere issues with the International Arctic Research Committee (IASC), the University of the Arctic (UARctic) and other organizations.

Carrying out systematic work with the scientific community, the Siberian Branch of the Russian Academy of Sciences, state scientific foundations to promote the scientific achievements of the REC "North" in the world scientific space and on extrabudgetary funding of scientific research.

Development and consolidation of research as part of the development of scientific and technological platforms of expert communication platforms:

"State - Science and Education - Enterprises".
Science Center in Tiksi

In the village Tiksi (Bulunsky district) it is planned to create an International Center for Scientific Research of the Arctic on the basis of the resources of the Academy of Sciences of the Republic of Sakha (Yakutia) and the Yakut Scientific Center of the Siberian Branch of the Russian Academy of Sciences for a comprehensive study of the natural environment in the Eastern sector of the Russian Arctic, in order to collect and analyze data on natural processes, resource potential and socio-economic trends in the region to determine the strategy for its optimal development in the following areas: shelf resources, global warming, the Northern Sea Route, atmosphere and hydrosphere, energy, humanitarian research. Tundra research station "Chokurdakh"

The main goal of the international project with the participation of the Institute for Biological Problems of the Permafrost of the Siberian Branch of the Russian Academy of Sciences, the universities of Wageningen, Amsterdam (Netherlands) and Zurich (Switzerland) is to study the fundamental issues of climate change, the balance of greenhouse gases, energy and plant diversity of tundra ecosystems on the territory of the Republic of Sakha (Yakutia).
Implementation period - 2018 - 2025

The World Mammoth Center is a national research and museum complex of federal significance. It involves the creation of a modern infrastructure for the storage and study of unique paleontological finds. The main activities involve the construction of a research center for the mammoth fauna and the Mammoth Museum.

The intensification of international cooperation, taking into account the ever-increasing global interest in the Arctic, will be strengthened on the basis of the

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| | | | | | |
|------------|------------------------------|------------------------------|-----------------------------|----------------------------|------------------------|
| Innovative | RUB 717,082.57 million | RUB 162,050.09 million | RUB 27,014.74 million | RUB 2,313.68 million | RUB 525,504.09 million |
|------------|------------------------------|------------------------------|-----------------------------|----------------------------|------------------------|

The strategy provides for the co-financing of a number of projects and activities from the federal and regional budgets as part of the implementation of priority national projects, federal and regional (state) targeted programs, as well as from extra-budgetary sources using public-private partnership mechanisms.

Conclusion

The socio-economic efficiency of the implementation of the Strategy for the Arctic Zone of the Republic of Sakha (Yakutia) is assessed by the degree to which the established target indicators are achieved by 2035.

Including:

- maintaining the level of natural growth and reducing the migration outflow of the population;
- raising the standard of living of the population of the Arctic regions by 1.8 times;
- reduction in the level of general unemployment to 8.3%;
- population mobility will increase 3.4 times;
- reduction in the share of dilapidated and dilapidated housing stock by 5.3 times;
- decrease in the incidence of the population - by 27% compared to 2017;
- increase in the gross municipal product by 4.8 times;

- growth in the volume of industrial production by 7 times, agricultural products - by 1.3 times in monetary terms compared to the level of 2018;

- attracting more than 490.7 billion rubles of investments to the economy of the Arctic region;

- annual cargo traffic will reach 2.3 million tons;

- growth of tax revenues of municipal budgets of the Arctic zone of the Republic of Sakha (Yakutia) by 2.9 p. by 2035;

- increase in the turnover of small enterprises by 3.1 times compared to 2018;

- growth in the number of students studying in institutions of professional education of the Republic of Sakha (Yakutia) of the Russian Arctic - 1.4 times compared to 2018

7 The system of strategic directions is linked to 7 long-term strategic goals and is generally aimed at creating conditions for the integrated development of human potential and securing the population in the republic through providing basic needs in education, healthcare, infrastructure, a favorable environment, jobs, including highly qualified, concomitant development of services and institutions (Table 1).

Table 1. Priority areas and strategic goals of the Strategy

| Strategic Direction | Strategic goal |
|---|---|
| Infrastructure for life | Improvement of transport, engineering, housing and communal infrastructure as a necessary condition for the development of the economy and the social sphere |
| Development of the economy and entrepreneurship | creating new jobs, increasing investment attractiveness, pursuing a cluster policy, developing traditional industries and services, creating conditions for the development of new industrial clusters |
| Development of tourism and hospitality industry | preservation of the cultural and historical heritage of the Arctic regions: Yamal - Nenets Autonomous Okrug, Krasnoyarsk Territory, Republic of Sakha (Yakutia), Chukotka Autonomous Okrug, Komi Republic, creation of a modern hospitality industry in the Arctic regions: Yamal - Nenets Autonomous Okrug, Krasnoyarsk Territory, Republic of Sakha (Yakutia), Chukotka Autonomous Okrug, Komi Republic. |
| Sustainable spatial development | expansion of international cooperation, implementation of a balanced spatial policy aimed at strengthening the economies of municipalities in the regions of the Russian Arctic: the Murmansk region, the Republic of Karelia, the Arkhangelsk region, the Nenets Autonomous Okrug, the creation of a comfortable urban environment, the introduction of new technologies |
| Enhancing environmental sustainability and safety | implementation of the value system of sustainable development, green economy, ensuring the reproduction of a healthy population, as well as the growth of life expectancy and quality by solving environmental problems to pass on to future generations for subsequent multiplication of the opportunities that the region currently has |

| | | | |
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