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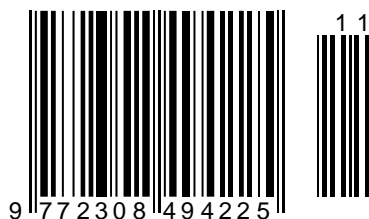
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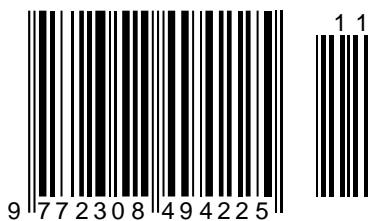
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Article



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PRIORITIES AND GOALS OF LONG-TERM SOCIO-ECONOMIC DEVELOPMENT OF THE ARKHANGELSK REGION AS A REGION OF THE RUSSIAN ARCTIC. Message 2

Abstract: in the article, the authors explored the main directions for the implementation of this Strategy for socio-economic development in the Arkhangelsk region, namely:

increasing the competitiveness of the seaport of Arkhangelsk, including the modernization of existing sea terminals, dredging, the creation of a new deep-water area, production and logistics complexes and access infrastructure, the introduction of coordination systems and digital management of the transport hub;

development of transport infrastructure (railroads, waterways and motor roads) providing a connection between the seaport of Arkhangelsk and the territories of the North-West of Russia, the Urals and Siberia, including the construction of railway sections Karpogory - Vendinga and Mikun - Solikamsk;

development of the international airport of Arkhangelsk;

development of the woodworking industry and the pulp and paper industry, including the formation of a modern full-cycle timber processing complex, as well as the introduction of biofuel production technologies from timber processing waste;

development of a cultural, educational, ethnographic and ecological tourism cluster in the Arctic territories and sea cruise tourism in the Solovetsky Islands.

The development of the territory of the Arkhangelsk region, taking into account the prospects for the development of the Arctic zone and the Northern Sea Route, a competitive regional economy of the international level will be created, which will require significant investments, primarily in infrastructure. Thus, the competitiveness potential of the Arkhangelsk region largely depends on federal plans for the development of its territories.

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.

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Introduction

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Creation of a unified scientific and innovative space on the territory of the Arkhangelsk region for the implementation of complex advanced R&D and their further integration into the production and socio-economic life of the Arkhangelsk region.

Instability of the process of development of science and innovation. In the Arkhangelsk region, there is a trend towards an annual increase in the number of researchers and internal costs for research

and development, while reducing the share of advanced technologies developed. The Arkhangelsk region ranks 49th ("Medium innovators") in the rating of innovative regions of Russia, developed by the Association of Innovative Regions of Russia.

Imbalance between the growth rate of the number of researchers and the staff involved in scientific research. Over the period 2018-2021, the number of research personnel decreased by 6 percent, with an overall increase in the number of researchers by 7 percent (Figure 1).



Picture 1. Number of research personnel, people

The growth in the number of scientific publications of the leading scientific organizations of the Arkhangelsk region: the Federal State Autonomous Educational Institution of Higher Education "Northern (Arctic) Federal University named after M.V. Lomonosov (hereinafter - NArFU), the Federal State Budgetary Educational Institution of Higher Education "Northern State Medical University" of the Ministry of Health of the Russian Federation and the Federal State Budgetary Institution of Science Federal Research Center for Comprehensive Study of the Arctic named after Academician N.P. Laverov of the Russian Academy of Sciences. So, for the period from 2012 to 2016, the number of scientific publications in journals indexed in the Web of Science or Scopus databases, and in

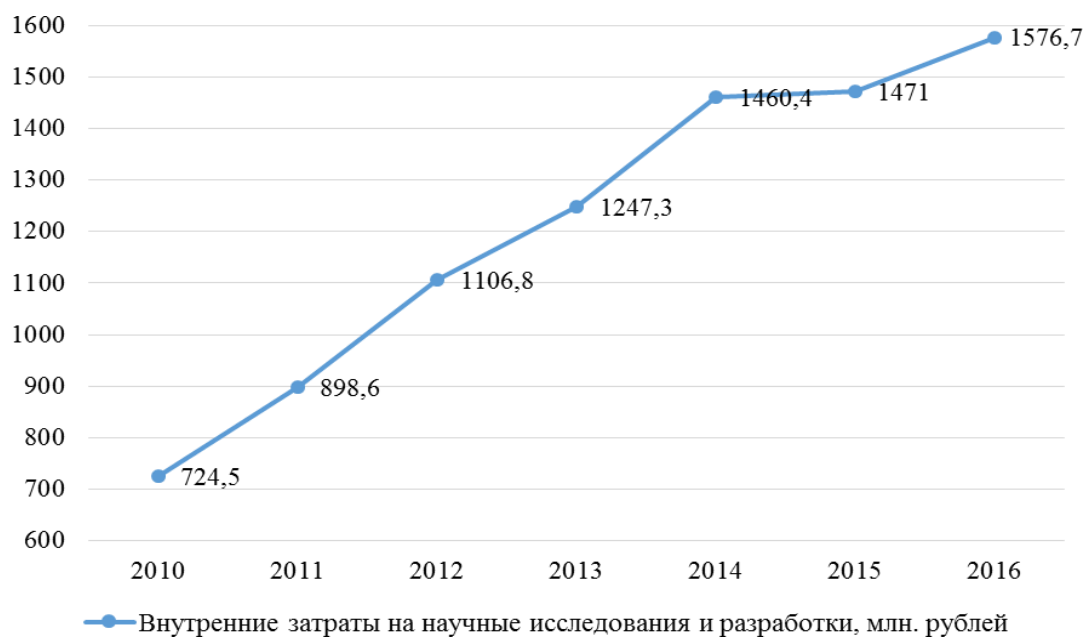
journals indexed in the Russian Science Citation Index,

Rising research and development costs. During the period from 2016 to 2020, the amount of funds allocated to support research and development increased by 469.9 million rubles.

Predominance in spending on internal research and development of technical (57.6 percent) and natural (22.6 percent) sciences. Formation of favorable conditions for the development of innovative and industrial clusters based on the scientific and technological competencies of the Arkhangelsk region, the existing innovation infrastructure and developed sectors of the economy (Figure 2).

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Picture 2. Domestic spending on research and development

Reducing the innovative activity of organizations in the Arkhangelsk region. According to data for 2021, the level of innovative activity of organizations is approximately 2 times lower than the average for the Russian Federation. There is also a trend towards a general decline in innovation activity in the Arkhangelsk region.

Preservation of high innovative potential of research and development personnel. For the period from 2018 to 2021, organizations of the Arkhangelsk region filed a total of 293 patent applications for inventions (180 patents issued) and 183 patent applications for utility models (138 patents issued).

By 2035, a full-fledged research and development market will be formed in the Arkhangelsk region. It will involve all higher education institutions, small innovative companies, large manufacturers, independent developers and government agencies. Demand for developments will be presented by manufacturers from different countries of the world, in a number of markets the inventions of the Arkhangelsk region will take a stable position. First-year students of higher educational institutions will be involved in innovative processes, and an innovative environment will be formed. R&D will begin to play a significant role in the economy of the Arkhangelsk region. Indicators of a high level of innovation activity are the presence of large scientific centers and the forcing of innovation infrastructure. The project provides for the creation of high-tech laboratories,

Creation of high-tech laboratories, testing and research centers that implement their activities in cooperation with public and private enterprises.

Support for technological development and research activities of the NARFU technopark.

Integration of research and development into the activities of functioning cluster formations and the economy of the Arkhangelsk region.

There will be an expansion of research, scientific, practical and innovative infrastructure of the Arkhangelsk region.

Specialized high-tech laboratories and testing centers will be put into operation.

There will be an increase in the number of modern advanced developments in the Arkhangelsk region.

The level of technical equipment of scientific centers will increase.

The scientific, technical and innovative base of the Arkhangelsk region will expand.

Refusal to implement the project may lead to continued instability in the development of innovation activity in the Arkhangelsk region and cause a decrease in innovation potential and the rate of development of science.

Main part

The competitiveness of innovations and individual sectors of the economy is directly related to the level of development of SMEs. The implementation of the project is aimed at developing the innovative potential of the Arkhangelsk region by creating small and medium-sized innovative enterprises, supporting small and medium-sized businesses, as well as stabilizing the transfer of innovations to all spheres of life in the Arkhangelsk region.

Creation of small and medium innovative enterprises, including on the basis of the results of scientific developments of higher educational institutions and scientific organizations.

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Support for the activities of small and medium-sized businesses in the field of research and development, as well as the inclusion of the results of activities in the research base of the Arkhangelsk region.

Ensuring the transfer of technologies and innovations developed and implemented in the Arkhangelsk region by expanding cooperation between business and research centers and transferring these developments to the economy.

Activation of innovative activity of the enterprises of the Arkhangelsk region.

Innovative business will become an integral part of the economy of the Arkhangelsk region, ensuring the transfer of technology and innovation from higher education institutions and research centers to consumers.

The share of SMEs in the market of theoretical and practical research and development will increase.

The level of innovative activity of SMEs will increase.

A model of technology and innovation transfer will be formed.

Refusal to implement the project may lead to a slowdown in the pace of innovative development of the Arkhangelsk region due to the lack of opportunities for technology transfer and a decrease in the innovative activity of SMEs. The development of innovative activities of scientific centers and higher educational institutions located on the territory of the Arkhangelsk region, due to the economic and geographical position, is focused on the Arctic specifics and key industry and scientific innovations. The project is aimed at creating a world-class scientific and educational center in the Arkhangelsk region based on the integration of higher educational institutions and scientific organizations and their cooperation with organizations operating in the real sector of the economy.

Integration of scientific and innovative activities of key scientific centers of the Arkhangelsk region.

Formation of models and mechanisms of scientific and innovative cooperation between leading higher educational institutions of the Arkhangelsk region.

Formation of inter-university centers and working groups, whose activities are aimed at research and development focused on the Arctic specifics.

Support for the transition to digital, intelligent manufacturing technologies, robotic systems, new materials and design methods, the creation of systems for processing large amounts of data, machine learning and artificial intelligence.

Preparation of the basis for the formation of a world-class scientific and educational center (hereinafter referred to as the REC), focused on research and development on activities in the Arctic zone of the Russian Federation.

Organization of the REC of the Arkhangelsk region "Adaptive materials and technologies in the integrated development of the Arctic".

The foundations for the formation of a subarctic scientific zone will be created through the implementation of models of integrated scientific and innovative cooperation between higher educational institutions and the REC of the Arkhangelsk region.

Interuniversity research cooperation will be activated.

Agreements will be signed on cooperation in research and innovation between the leading scientific centers of the Arkhangelsk region.

A model of the organizational structure of the REC will be created on the basis of a consortium of leading scientific organizations of the Arkhangelsk region.

Refusal to implement the project may become an obstacle to the removal of barriers in the implementation of a single purposeful research and innovation activity of the Arkhangelsk region due to the preservation of several unrelated leading research centers conducting research and development on activities in the Arctic zone of the Russian Federation.

Together with the integration of scientific and innovative activities of the key scientific centers of the Arkhangelsk region, it is necessary to increase the general level of specialized industry developments that meet the needs of the development of the economy and society. The implementation of the project will ensure the mutual integration of scientific and innovative activities and will create a qualitatively new level of scientific activity in the Arkhangelsk region.

Development of innovative activities of scientific centers and higher educational institutions located on the territory of the Arkhangelsk region, focused on solving the issues of development of the regions of the Arctic zone of the Russian Federation, and key industry and scientific innovations.

Support for innovative and scientific projects implemented by higher educational institutions located on the territory of the Arkhangelsk region.

Implementation of the goals and objectives of the priority project "Universities as centers of space for creating innovations".

Coordination of innovative developments, taking into account the prospects for the development of priority sectors of the economy.

Regional programs will be developed to support innovative research and development aimed at developing the Arctic zone of the Russian Federation and key sectors of the economy.

Modern research centers will be formed on the basis of higher educational institutions.

The innovative activity of higher educational institutions will increase.

Refusal to implement the project may cause a decrease in the innovative and research potential of

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higher educational institutions and weaken the existing innovation infrastructure in the Arkhangelsk region.

In recent years, there has been an increase in the number of young scientists in the Arkhangelsk region, but the number of innovative developments with the participation of young scientists is not increasing. The fundamental element of the project is the support of young scientists. The project includes the creation of regional competitive programs aimed at conducting research and development by young scientists, the formation of innovative business and the implementation of the goals of federal programs to support scientific research and develop human resources (including the federal target program "Scientific and scientific and pedagogical personnel of innovative Russia").

Creation of regional competitive programs aimed at financial and expert support of R&D of young scientists of the Arkhangelsk region.

Development of innovative business in the Arkhangelsk region.

Implementation of the goals of federal programs to support scientific research and develop human resources (including the federal target program "Scientific and scientific-pedagogical personnel of innovative Russia").

Support for applied scientific research (including those carried out by young scientists) in priority areas of science and technology.

The qualitative indicators of scientific and innovative activity in the territory of the Arkhangelsk region, the share of research and R&D carried out by young scientists will increase.

The innovative potential of the Arkhangelsk region will increase.

The development of the youth scientific personnel reserve of the Arkhangelsk region will be ensured.

Regional programs will be implemented to support applied and theoretical research and R&D, as well as programs to support young scientists.

Refusal to implement the project will entail a decrease in the scientific and innovative mobility of young scientists and specialists, which will lead to a decrease in the innovative potential of the Arkhangelsk region due to the outflow of scientific personnel.

Organization of an efficient and balanced labor market that responds to challenges in a changing environment.

There is an imbalance in the labor market in terms of the professional and qualification composition and the territorial basis. There is a stable shortage of personnel (up to 20 percent) in the healthcare sector for specialists at all levels (doctors and paramedical personnel). A stable shortage of personnel (up to 10 percent) is also noted in the labor markets of skilled workers, especially in the areas of

metalworking and mechanical engineering, construction and installation works.

High unemployment. In 2020, the indicator was 6.4 percent (according to the International Labor Organization (hereinafter referred to as the ILO)), which is 0.9 percentage points higher than the national average. In addition, the Arkhangelsk region has a low employment rate. In 2019, the employment rate was 62.5 percent (average for Russia is 65.5 percent).

Significant human resources. In the Arkhangelsk region, there is an insufficient use of human resources. About 40 percent of women of working age are not employed in the economy of the Arkhangelsk region. More than 52 percent of the unemployed in the Arkhangelsk region are people aged 20 to 39 (the most active part of the population). In addition, the proportion of the rural population in the total number of unemployed exceeds the average figures for the Russian Federation and the Northwestern Federal District (36 percent of the total number of unemployed in the Arkhangelsk region against 34 percent in the Russian Federation and 24.4 percent in the Northwestern Federal District).

Mismatch between supply and demand in the labor market. The Arkhangelsk region has the highest unemployment rate among graduates of 2018-2021 from skilled worker training programs - more than 30 percent, which is 3 times higher than in the Russian Federation as a whole. At the same time, there is a demand for unskilled labor, especially in the housing and communal services sector. The unemployment rate among graduates of mid-level specialist training programs corresponds to the all-Russian indicator.

Negative demographic and migration trends. The number of labor force is decreasing every year (in the period from 2018 to 2021 - by 63 thousand people).

By 2035, a balanced labor market will be formed in the Arkhangelsk region: the Arkhangelsk region will be provided with human resources, taking into account the development of promising sectors of the economy, a comfortable environment will be created for the purpose of continuous education and updating of professional competencies for a person of any profession and a resident of any area of the Arkhangelsk region. Flexible employment conditions will be created for socially unprotected categories of citizens. External investment will provide opportunities and reshape the labor market with a shift in emphasis on the demand for a labor force with high competencies in the field of engineering and environmental technologies.

Automation and optimization will lead to the release of jobs. Specialists will have to be able to adapt to changing conditions, the set of necessary skills required by specialists will change. The key aspect will be the continuous improvement of the qualifications of specialists.

The projects are aimed at ensuring the readiness

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of the labor market for current and future challenges, as well as the most efficient use of labor resources in the Arkhangelsk region.

The project is aimed at reducing unemployment and providing employment for the population of the Arkhangelsk region.

Development of a system of training and retraining of unemployed citizens in connection with employers' requests for professions most in demand in the regional labor market.

Implementation of a set of measures aimed at improving the interaction of state structures with employers through the stimulation of personnel development programs, increasing labor productivity, developing targeted training and advanced training of employees, as well as implementing training and retraining programs for employees at risk of losing their jobs.

Creation of a single open online platform that allows for a full cycle of information, career guidance and employment activities based on a personalized approach to solving the problem of employment and retraining for all residents of the Arkhangelsk region at any age.

Carrying out regular monitoring of the labor market and employment of graduates of professional educational organizations.

Implementation of activities aimed at involving the business community of the Arkhangelsk region in the formation of a forecast of the need for personnel based on the optimal mathematical model for calculating the forecast.

Implementation of programs to promote employment of the population, aimed at stimulating the balance of demand and supply of labor in the labor market.

Creation of favorable conditions for the introduction of the National Qualifications System in key sectors of the economy of the Arkhangelsk region.

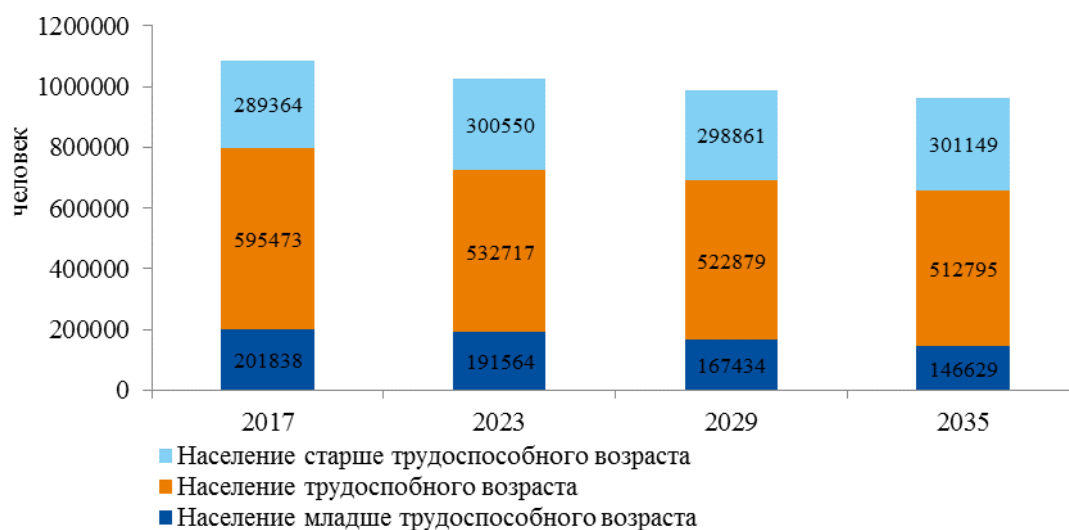
The unemployment rate (according to the ILO) will be minimized.

The number of permanent jobs organized in the field of small business by citizens registered with the employment service will increase.

Reduce tension in the labor market.

The share of the unemployed who have been looking for work for 12 or more months in the total number of unemployed citizens will decrease to 1 percent.

The share of employed citizens in the total number of citizens who applied for assistance in finding a suitable job to the employment service will increase to 80 percent (Figure 3).



Picture 3. Forecast of the able-bodied population of the Arkhangelsk region, people

The abandonment of the project increases the risks of maintaining a structurally unbalanced labor market in the long term, while the high level of the unemployed population will contribute to the deterioration of the social situation in the Arkhangelsk region, and the organizations of the Arkhangelsk region will continue to experience a shortage of personnel. Employment of socially vulnerable groups of the population is an important criterion for a favorable social climate. The aim of the project is to provide socially vulnerable groups of citizens with

employment opportunities in the labor market.

Development of a system of vocational training and retraining of citizens from among socially vulnerable groups of the population through the expansion of the practice of using distance learning and retraining.

Implementation of a set of measures aimed at improving the mechanism for quoting jobs.

Improving the system of accompanying young people with disabilities when they receive professional education and assistance in subsequent

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employment.

Development of the institution of the social contract.

Implementation of a set of measures aimed at social rehabilitation and adaptation of persons released from places of deprivation of liberty, as well as persons without a fixed place of residence, with subsequent employment.

Development of intersectoral and interdepartmental cooperation in order to expand employment opportunities for citizens belonging to socially vulnerable groups of the population, including the development of interaction between employment agencies and socially oriented non-profit organizations.

The share of working disabled people in the total number of disabled people of working age will increase to 55 percent.

The regular increase in the number of equipped workplaces for the employment of unemployed disabled people will be 50 units annually.

The share of employed citizens of pre-retirement age in the total number of citizens of this category who applied to the employment service will increase to 70 percent.

The proportion of young people with disabilities who have found a job after 3 months after completing vocational training will increase to 50 percent.

The abandonment of the project will lead to the persistence of barriers in the labor market in the long term, preventing the employment of socially vulnerable groups of the population. The project is aimed at improving working conditions by stimulating the development and implementation of programs for the prevention of occupational injuries and occupational diseases of workers in accordance with the concept of "zero injuries".

Development and implementation in organizations located on the territory of the Arkhangelsk region, programs for the prevention of industrial injuries and occupational diseases of workers.

Carrying out educational, information and consulting activities aimed at improving the competencies of specialists in the field of labor protection and entrepreneurs in the field of prevention of industrial injuries and occupational diseases of workers.

Provision of organizational and methodological support to SMEs on the organization of labor protection services and the implementation of the "zero injury" program (target group - small and medium-sized enterprises where accidents with serious consequences and deaths have been recorded).

Holding a regional competition for the best organization of work on the prevention of occupational injuries and occupational diseases of workers in order to stimulate the implementation of "zero injury" programs in organizations located in the

Arkhangelsk region.

A threefold reduction in the number of victims of accidents at work with loss of ability to work for 1 working day or more to 100 people will be ensured.

The number of workers with occupational diseases diagnosed for the first time will be reduced to 40 people.

Refusal of the project will not allow the implementation of modern measures to preserve the life and health of workers in the course of work in organizations located in the Arkhangelsk region, which will significantly reduce the possibility of increasing labor productivity and reduce the effectiveness of projects and programs aimed at reducing mortality in the working age, age, improved health and increased life expectancy.

The goal of the project is to provide conditions for successful labor adaptation and disclosure of the labor potential of young citizens in the interests of the socio-economic development of the Arkhangelsk region.

Implementation of a set of measures aimed at attracting young people from other constituent entities of the Russian Federation and foreign countries to receive education with mandatory subsequent employment by profession in the Arkhangelsk region.

Organization of a mentoring institute for young professionals in modern formats specific to the field of employment.

Modernization of the educational and material base of educational organizations of secondary vocational education in order to create on their basis specialized centers of competence, centers for conducting a demonstration exam and centers for the collective use of educational, laboratory and production equipment, electronic educational resources, advanced professional training centers.

Development of a network form for the implementation of SVE educational programs in order to form a partnership system between organizations, educational organizations implementing programs of general and vocational education.

Stimulation and assistance in the organization of in-company training for working professions at industrial enterprises located on the territory of the Arkhangelsk region.

The share of graduates employed in organizations located on the territory of the Arkhangelsk region, according to their profession within one year after graduation, will be at least 70 percent of the total number of graduates of educational organizations implementing higher education programs, and at least 85 percent of the total number of graduates educational organizations implementing SVE programs.

The share of unemployed aged 20 to 39 will drop to 10 percent of the total number of officially registered unemployed in the Arkhangelsk region.

The number of highly qualified employees will

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be at least one third of the total number of qualified employees at enterprises and organizations located in the Arkhangelsk region.

If the project is abandoned, the problem of a shortage of young personnel in the economy of the Arkhangelsk region will worsen in the long term. In addition, the likelihood of increasing youth unemployment will increase.

The project is aimed at popularizing working and engineering professions among citizens, primarily young people, forming a positive public opinion regarding working specialties, including through a set of organizational, marketing, advertising and PR events.

Carrying out a set of organizational, marketing, advertising and PR activities aimed at creating a positive image of working and engineering professions among children and youth.

Organization and promotion of professional skills competitions at the regional, sectoral, departmental, corporate and local levels, expansion of cooperation with all-Russian industry associations of employers in order to hold federal level professional

skills competitions in the Arkhangelsk region.

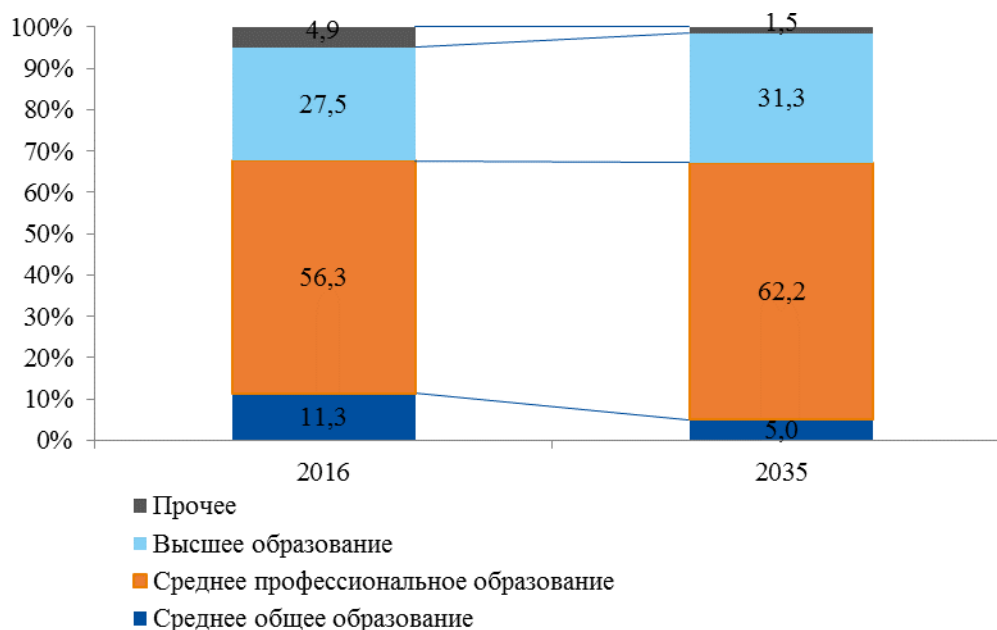
Expansion of interaction with employers of the Arkhangelsk region on the implementation of corporate career guidance programs in educational organizations that implement programs of general and vocational education at various levels.

Identification and systematization of modern requirements for the profession, analysis of its role and place in an innovative economy.

By 2035, the share of graduates of educational institutions implementing the program of additional professional education (hereinafter referred to as AVE) will be reduced to 3 percent of the total number of unemployed citizens.

By 2035, the proportion of graduates of general education organizations who entered educational organizations to study under SVE programs will increase to 50 percent.

By 2035, the level of satisfaction of employers with the quality of graduates of educational institutions of secondary vocational education will be at least 95 percent.



Picture 4. Forecast of the structure of the population employed in the economy of the Arkhangelsk region, by level of education

In case of refusal to implement the project, already in the medium term, there will be an increase in the shortage of personnel for workers and engineering and technical professions due to an increase in the gap between the number of graduates of educational organizations implementing the FVE program and the growing need of organizations for highly qualified personnel to fill vacant high-performance jobs (Figure 3).

The aim of the project is to reduce employment in the informal sector of the economy of the Arkhangelsk region.

Implementation of measures aimed at reducing the administrative burden on businesses and reducing the costs of business entities in meeting the requirements of control and supervisory authorities, in order to stimulate the legal conduct of business.

Development of measures to promote the development of various forms of flexible employment, including self-employment, stimulating the use of various types of labor contracts.

Facilitating the development of interaction between control and supervisory authorities with the administrations of municipalities of the Arkhangelsk

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region in order to increase the effectiveness of work to comply with labor laws and reduce informal employment.

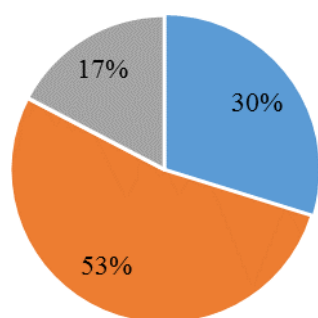
Development of public monitoring of labor relations in order to improve the system for identifying facts of informal employment.

Carrying out information and explanatory work aimed at stimulating individuals and legal entities to legal labor activity, increasing legal literacy in the field of labor relations and preventing violations of labor rights of citizens.

The implementation of the project will make it possible to achieve a significant reduction in informal employment, form a system of public monitoring of labor relations and improve the legal literacy of the population in the field of labor relations.

Refusal to implement the project will not allow developing a set of legal, economic and institutional conditions that ensure the legalization of labor relations, as well as the development of forms of flexible employment and self-employment of the population. Thus, a mechanism will not be formed that provides for a decrease in employment in the informal labor market, which will negatively affect the level of social and economic protection of workers. Creation of favorable conditions for the development of SMEs in the Arkhangelsk region. A high proportion of SMEs

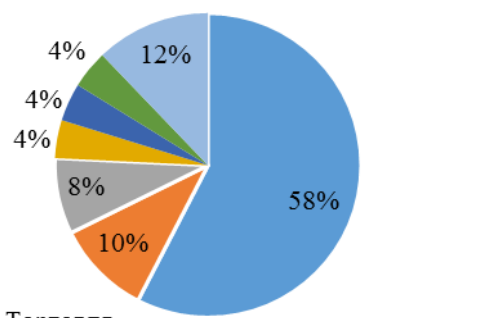
in the Arkhangelsk region operating in the wholesale and retail sector. The largest share in the SME sector in the Arkhangelsk region is made up of SMEs operating in the wholesale and retail trade sector, which form 57 percent of the turnover of organizations - SMEs (2018), while SMEs in the high-tech sector (industrial production, scientific and technical activities) form only 10 percent of the turnover of SME organizations (2018). In terms of categories of SMEs, the largest share of the sector's turnover is formed by small enterprises (53 percent), the smallest - by medium-sized enterprises (17 percent). The highest turnover growth rates for the period 2018-2021 were demonstrated by micro-enterprises: their turnover increased by 3.05 times by 2018 (from 21.8 to 66.8 billion rubles) (Figures 5-6). The highest turnover growth rates for the period 2018-2021 were demonstrated by micro-enterprises: their turnover increased by 3.05 times by 2018 (from 21.8 to 66.8 billion rubles) (Figures 5-6). The highest turnover growth rates for the period 2018-2021 were demonstrated by micro-enterprises: their turnover increased by 3.05 times by 2018 (from 21.8 to 66.8 billion rubles) (Figures 5-6).



- Микропредприятия
- Малые предприятия
- Средние предприятия

Picture. 5 Turnover of organizations by category of SMEs in 2021

Presence of a steady downward trend in the number of SMEs. Thus, in 2018, the growth rate in the number of SMEs in the Arkhangelsk region was ahead of the national average (20.1 percent) and amounted to 25.5 percent compared to the previous year. In the period 2018-2021, against the backdrop of maintaining moderate average Russian growth rates in the number of SMEs, an annual reduction in SMEs was recorded in the Arkhangelsk region. The rate of reduction in the number of SMEs in 2018 amounted



- Торговля
- Строительство
- Обрабатывающие производства
- Операции с недвижимым имуществом
- Транспорт
- Сельское, лесное хозяйство, рыболовство
- Прочие виды деятельности (<2%)

Picture. 6 Turnover of organizations - SMEs by type of activity in 2021

to 5 percent of the previous year.

Development of an innovative infrastructure to support SMEs by increasing the amount of attracted subsidies.

Insufficient awareness of entrepreneurs and citizens planning to start their own business about the types and conditions for obtaining state support.

Underdevelopment of cooperation between big business and SMEs. The lack of cooperative ties between small businesses among themselves, as well

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as with large organizations, limits the access of SMEs to new markets and hinders their technological development.

A high level of differentiation of the municipalities of the Arkhangelsk region in terms of the level of development of SMEs. The low activity of SMEs in certain municipalities of the Arkhangelsk region limits their economic growth and reduces the quality of life of the population living in these territories.

The SME sector in the Arkhangelsk region should become one of the factors for increasing the competitiveness of the economy of the Arkhangelsk region in the national market, as well as make a significant contribution to ensuring high standards of the quality of life of the population and a consistently high level of employment. SMEs will be involved in the economy of the Arkhangelsk region by enhancing their participation in the development of the manufacturing sector of the economy and innovation, the development of new market niches, the development of cooperation with large businesses and research institutes. By 2035, the share of small and medium-sized businesses in GRP will grow to 40 percent, the share of SMEs in municipal purchases will double (30 percent), which will contribute to an increase in the number of people employed in the SME sector.

Improving the competitiveness of SMEs in the Arkhangelsk region. Promoting business activities and increasing the attractiveness of the SME sector for employment. Development of business support infrastructure.

The project is aimed at creating favorable conditions that ensure the development of new market niches and new markets for SMEs to sell their products, providing SMEs with access to state and municipal procurement, as well as large business procurement. The implementation of the project will contribute to the development of competition in the regional and municipal markets for goods, works and services.

In the long term, the development of SMEs in the Arkhangelsk region will be concentrated around the following points of attraction (markets): the market for logging and timber processing, as well as markets adjacent to it; the market for engineering goods and related markets; the market of science-intensive and high-tech goods and services, goods of deep processing of raw materials; transport services market; construction and repair services market; market of fish production and fish products; market for agricultural products; market of social services; market of consumer goods and services; market of medical services; market of tourist services; the market for creative industries, including the market for handicrafts; market for housing and communal services.

Implementation of system-wide and industry-

wide measures aimed at developing competition and removing administrative barriers that impede the development of new market niches by SMEs in the regional and municipal markets for goods, works and services: the social services market, the housing and communal services market, the transport services market, the public catering market and other markets.

Assistance in improving the quality of products and services of small and medium-sized enterprises, ensuring their compliance with technical regulations and standards.

Providing access for SMEs to procurement for the needs of state authorities of the Arkhangelsk region, local governments and certain types of legal entities.

Implementation of financial and other support measures for SMEs in order to stimulate their development as potential suppliers (performers, contractors) in the course of procurement for the needs of state authorities of the Arkhangelsk region, local governments, and certain types of legal entities.

Stimulation of cooperation of SMEs in certain markets for goods, works and services: cooperation with large enterprises in the field of industrial production and high-tech services, agricultural cooperation, networking and collaborations of SMEs and cultural organizations.

Improving support for the export activities of SMEs, the formation of a project support system based on the "one window" principle.

Development of a multi-format infrastructure for trade, public catering and consumer services, including fair, mobile and non-stationary trade, non-network small trading businesses, mobile formats of consumer services, non-network public catering enterprises.

Favorable conditions will be created for SMEs of the Arkhangelsk region to develop new markets for their products and develop competition in the regional and municipal markets for goods, works and services.

By 2035, a stable positive increase in the number of SMEs operating in the Arkhangelsk region will be ensured.

The abandonment of the project will lead to the preservation of existing barriers that prevent small and medium-sized businesses from developing new market niches and expanding the sectoral structure of the SME sector, which will limit the ability of SMEs to increase their contribution to the economy of the Arkhangelsk region and neutralize the positive effects from the implementation of state support measures for SMEs. The project is aimed at creating and implementing a service model for supporting SMEs, which provides a flexible format for interaction between entrepreneurs, state authorities of the Arkhangelsk region and local governments, financial and credit institutions, and development institutions. The project provides for measures aimed at improving the efficiency of the functioning of the regional

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system of SME support infrastructure organizations, bringing it to a new level of quality, in order to increase the ability of the regional SME support system to have a stimulating effect on increasing the number of SMEs and their contribution to the

economy of the Arkhangelsk region. Support measures under development include stimulating the export of SMEs (Figure 7).



Picture. 7. Service model for providing support to SMEs

Organization of the provision of complex services to individual entrepreneurs and citizens planning to start a business activity based on the principle of business situations, namely, interconnected state, municipal, non-state services and support measures, the provision of which is organized in service centers on the principle of "one stop shop", in order to promote the applicant in solving a specific business situation.

Creation of new elements of the regional system of support for SMEs, necessary for the comprehensive support of SMEs within the framework of the state support program for SMEs, implemented by the Ministry of Economic Development of the Russian Federation.

Carrying out an inventory, standardization and regulation of services provided by SME support infrastructure organizations.

Formation of a unified system for monitoring the provision of all types of support to SMEs.

Creation and maintenance of the functioning of a single body for managing organizations of the SME support infrastructure.

Modernization of the support system for exporters - small and medium-sized businesses.

Access of SMEs to export support, including with the involvement of chambers of commerce and industry.

Development and implementation of comprehensive measures to support export-oriented SMEs.

Development and implementation of programs to support SMEs in order to accelerate their development in single-industry towns.

Organizations of the SME support infrastructure, development institutions, services and information systems for entrepreneurs will be united into a single information and service infrastructure for the development of SMEs, on the basis of which an environment will be formed that is comfortable in terms of compliance with mandatory requirements

and is as open as possible for citizens who have their own business or planning to create it.

A universal interface will be created for the interaction of individual entrepreneurs with state authorities of the Arkhangelsk region and local governments, SME support infrastructure organizations and development institutions, through which the provision of comprehensive services will be organized based on the principle of business situations, namely state and municipal services, services and support measures, services of commercial and non-profit organizations related to the organization, conduct and development of business.

The list of services provided by infrastructure organizations to support SMEs will be expanded both free of charge and on a paid basis. By 2025, the share of SMEs and self-employed citizens covered by support under the federal project "Acceleration of small and medium-sized businesses" will be 10 percent. By 2025, the number of SMEs exported with the support of centers (agencies) for coordinating support for export-oriented SMEs will amount to cumulatively 135 units. 100 percent of the services provided by SME support infrastructure organizations will be provided on a one-stop basis in multifunctional centers for the provision of state and municipal services, as well as service centers based on credit organizations.

The abandonment of the project will reduce the opportunities for developing new formats and services for interaction between SMEs and the state authorities of the Arkhangelsk region and local governments, which in the medium term will lead to a decrease in the efficiency of the functioning of the regional SME support system. One of the fundamental factors for the sustainable development of SMEs is the high level of involvement of various groups of citizens in entrepreneurial activities. The project is aimed at unlocking the entrepreneurial potential and stimulating the business activity of the population, developing the skills and culture of doing business

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among citizens. Organization and implementation of an advertising and information campaign in order to popularize doing business in the Arkhangelsk region, implementation of state support measures for SMEs and the formation of a positive attitude towards entrepreneurship as a field of activity. Carrying out an information campaign aimed at involving young people in entrepreneurial activities. Carrying out educational and educational activities and implementing special programs to develop an entrepreneurial culture among the youth.

Conducting regional business forums, entrepreneurial lounges aimed at developing and supporting entrepreneurship. Carrying out work on the formation of a positive perception of entrepreneurship in the system of state and municipal service as an activity that has a positive impact on all spheres of society. The implementation of the project will increase the interest of the population of the Arkhangelsk region in entrepreneurial activity - the share of citizens planning to open their own business over the next 3 years will be at least 12.5 percent. Favorable conditions will be created for the development of an entrepreneurial culture and a positive image of entrepreneurial activity, which will form the basis for the sustainable development of entrepreneurship in the Arkhangelsk region in the long term.

Refusal of the project entails the risk of exacerbating existing problems that limit the development of entrepreneurship, namely: low level of involvement of the population in entrepreneurial activity, underdevelopment of entrepreneurial culture, lack of a positive attitude in society towards entrepreneurial activity as a successful life strategy, low awareness of business about the support measures being implemented .

The project is aimed at expanding educational support for SMEs and creating conditions that ensure the formation and development of citizens' skills and competencies in the field of SME development and business management.

Ensuring the connection of all objects of the SME support infrastructure in the Arkhangelsk region, the introduction of coaching and mentoring tools in the field of doing business with the participation of the business community, scientific organizations, higher educational institutions, organizations of the SME support infrastructure.

Organization and holding of events within the framework of educational programs for certain target groups: pensioners, housewives, residents of rural settlements, retired military personnel, the unemployed, people with disabilities.

Implementation of business acceleration programs for individual entrepreneurs aimed at improving qualifications and obtaining new business skills in order to stimulate the development of SMEs.

Development of entrepreneurial competencies

and entrepreneurial thinking among young people, including the introduction in educational organizations implementing programs of secondary, general, secondary vocational and higher education, practice-oriented courses and programs, expanding the network of centers for youth innovative creativity.

An effective system of training qualified personnel for the SME sector will be created, integrated into a unified all-Russian system of training and consulting for SMEs.

By 2035, the share of the average number of employees employed by SMEs will be at least 15 percent of the total employed population.

If the project is abandoned, it will not be possible to increase the level of citizens' competence in the field of doing business through the introduction of modern methods and technologies of educational support for entrepreneurship development. Given the current low involvement of citizens in entrepreneurial activities, the SME sector will face a shortage of qualified and motivated personnel in the medium term. In addition, the abandonment of the project will entail a decrease in the effectiveness of the implemented measures to support SMEs.

Ensuring the socio-economic development of rural areas of the Arkhangelsk region. Organization of the structure of rural areas and the formation of points of growth, allowing to improve the well-being of the population living in rural settlements of the Arkhangelsk region, and increase the contribution of rural settlements of the Arkhangelsk region to the GRP.

Decline in the rural population of the Arkhangelsk region. From 1990 to 2017, the number of people living in rural settlements of the Arkhangelsk region decreased by almost 2 times. In more than half of rural settlements, the population does not exceed 10 people. In addition to the negative natural population growth, the decline in the number of people living in rural settlements of the Arkhangelsk region is significantly affected by migration outflow: every year about 5 thousand people leave the villages and villages of the Arkhangelsk region. Reducing the number of jobs and employment opportunities in rural settlements of the Arkhangelsk region as a factor in migration outflow. Unemployment is the main factor in the migration outflow of the population from rural areas. Unlike cities, rural settlements do not have a wide range of activities for employment. The territories located in the northern and northeastern parts of the Arkhangelsk region are characterized by the maximum rate of migration outflow of the population living in rural areas. Low level of living comfort in rural settlements. Rural settlements of the Arkhangelsk region do not have a developed engineering and social infrastructure to meet the needs of the population. There is a decrease in the availability of social services, caused by the enlargement of social service organizations in

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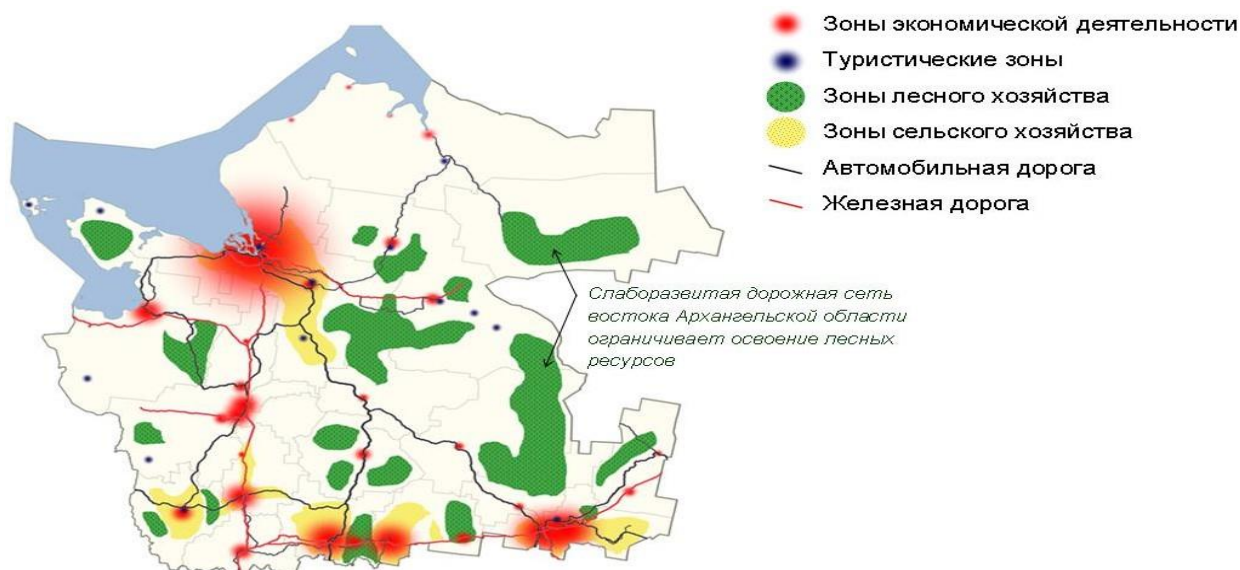
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the territory of the municipalities of the Arkhangelsk region, depreciation of material resources and a shortage of specialists. The share of the social and housing stock provided with engineering communications in rural settlements does not exceed 19 percent. To achieve only minimum social standards in medium and large rural settlements of the Arkhangelsk region, more than 15 billion rubles are required at a time.

Low involvement of the population living in rural settlements of the Arkhangelsk region in public life. A feature of the Arkhangelsk region is the

development of territorial public self-government, however, at present, residents of rural settlements do not sufficiently use this mechanism for the implementation of projects. High recreational potential of rural settlements. Rural settlements of the Arkhangelsk region are rich in cultural heritage monuments. Settlements with high historical and cultural value and attractive landscapes have been preserved. However, the tourism potential of the sights of the Arkhangelsk region is not sufficiently realized due to the lack of appropriate infrastructure.



Picture 8. Allocation of zones of economic specialization of the Arkhangelsk region

By 2035, a large-scale modernization of rural settlements in the Arkhangelsk region will take place. In many rural settlements of the Arkhangelsk region, powerful tourist, agro-industrial, timber and service centers will appear, around which entire rural clusters will be formed. The village will be provided with digital, transport and energy infrastructure, in connection with which, due to the absence of restrictions, communication between urban and rural settlements of the Arkhangelsk region will be significantly accelerated. In rural settlements of the Arkhangelsk region, life will become much more comfortable, and traditional values will become much closer and more accessible to the townspeople (Figure 8).

The development of rural settlements in the Arkhangelsk region is carried out by increasing the level of employment of the population, the implementation of social services and infrastructural equipment of the territory. To do this, it is necessary to develop traditional sectors of the economy, entrepreneurial initiatives of the population and tourism activities, and to optimize the provision of services, create support settlements, relocate residents from sparsely populated areas and develop remote

services. The mechanism for implementing the proposals and projects of local residents is the creation of rural communities.

The development of rural settlements in the Arkhangelsk region is aimed at creating comfortable living conditions for the population and doing business. For the purpose of strategic planning in the context of project strategizing, a number of projects are proposed that contribute to the implementation of a given direction of development. Support for traditional sectors of the economy and the development of small businesses Activities in the field of agriculture, fisheries and forestry are traditional for residents of rural settlements of the Arkhangelsk region. Support for traditional types of economic activity in the Arkhangelsk region, as well as entrepreneurial initiatives of the population is a basic condition for the development of rural settlements in the Arkhangelsk region.

Determination of zones of primary specialization of activities (agriculture, fisheries and forestry). Assistance to the population in organizing and supporting business activities, including the creation of cooperatives. Creation of conditions for supporting entrepreneurial initiatives of the population living in

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rural settlements of the Arkhangelsk region. Assistance in the formation of markets for products. By 2035, the index of agricultural production in farms of all categories will exceed 105.5 percent.

By 2035, the share of peasant (farm) enterprises and individual entrepreneurs in the production of agricultural products will be at least 20 percent. By 2035, the growth rate of revenue from the sale of goods, products, works, services of agricultural consumer cooperatives (in comparable prices) will exceed 112 percent compared to the previous year. By 2035, the employment rate of the rural population will be at least 65.5 percent. The competitiveness of products of the Arkhangelsk region will increase. Refusal to support traditional sectors of the economy and small businesses in rural settlements of the Arkhangelsk region will exacerbate the negative socio-economic situation in them, namely unemployment, falling incomes and migration outflow of the population.

The development of rural areas requires access of the population to infrastructure and social benefits.

Creation of strongholds (points of growth) that act as centers of economic, socio-cultural and commercial services for a group of rural settlements in the Arkhangelsk region on the basis of the most developed settlements.

Equipping rural settlements of the Arkhangelsk region with a system of engineering and transport communications.

Increasing the level of equipment with broadband access to the Internet throughout the Arkhangelsk region, including hard-to-reach rural settlements.

Increasing the availability and quality of social institutions (modernization of fixed assets and replenishing the shortage of specialists).

Organization of a remote system for the provision of social services for hard-to-reach settlements.

Arrangement of modular rapidly erected structures for cultural institutions in the settlements of the Arkhangelsk region.

The anchor settlements will become points of growth in rural areas.

Residents of rural areas will have access to high-quality social services, including residents of hard-to-reach settlements.

A qualitative improvement in the infrastructure of rural areas will be achieved.

The share of the total area of residential premises in rural settlements, equipped with all types of amenities, will be 45 percent.

The share of educational institutions in rural areas with water supply, central heating, and sewerage will be 95 percent.

Refusal to implement the project will contribute to the preservation of unfavorable living conditions in rural areas, which will lead to an increase in the

migration outflow of the population.

A self-organized community more effectively influences the processes of development of the territory. Thanks to consolidation, the population living in rural settlements of the Arkhangelsk region is able to achieve the set goals for the development of the settlement.

Assistance in the organization and support of the activities of territorial public self-government.

Support for the creation and activities of other organizations representing the interests of the population living in rural settlements of the Arkhangelsk region.

Growth of involvement of the population living in rural settlements of the Arkhangelsk region in social activities.

Increase in the number of implemented projects initiated by rural communities.

The rejection of the project will contribute to the development of pessimistic views among the population living in rural settlements of the Arkhangelsk region, due to the impossibility of influencing the development of settlements, which may cause distrust in the state authorities of the Arkhangelsk region.

Thanks to the preservation of cultural landscapes, cultural heritage and natural complexes, some rural settlements are able to perform a recreational function.

Formation of a list of potential tourist destinations located near CHOs and natural heritage sites in rural areas.

Formation of a list of rural settlements with high historical and cultural value. Assistance in the organization of tourism infrastructure in the proposed destinations.

Increasing the transport accessibility of OKN. Organization of information activities to attract tourists. Assistance to the population in the organization of tourism enterprises (private museums, guest houses and other forms). Branding of territories promising for tourism development.

By 2035, the share of the population living in rural settlements of the Arkhangelsk region employed in the tourism sector will be more than 5 percent. The volume of incomes of the population and budget revenues in rural areas will increase. The agglomeration effect from the creation of tourism infrastructure will contribute to the development of the consumer market.

The image of the Arkhangelsk region among the population and the business community will be improved.

Refusal to develop a promising area of economic activity will not only limit the development of rural areas due to the lack of growth drivers, but will also deprive the economy of the Arkhangelsk region of potential budget revenues and investments.

In some rural settlements of the Arkhangelsk

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region, a difficult socio-economic situation is developing. In order to improve living conditions, residents are provided with the possibility of resettlement.

Definition of a list of sparsely populated, hard-to-reach settlements, whose residents have limited access to employment and social services (hereinafter referred to as the list).

Informing residents of the settlements included in the list about the possibility of participating in the project.

Development of mechanisms that encourage the population to move to settlements with more favorable socio-economic conditions.

By 2035, the share of the population living in rural settlements with a difficult socio-economic situation will be reduced by 3 times.

There will be an optimization of budget expenditures for the maintenance of hard-to-reach settlements. The resettlement of citizens in the support settlements will ensure the development of rural areas.

Refusal to implement the project contributes to the risk of increasing budget costs to support settlements where the population is unable to meet the needs in the provision of social services, the consumer market, quality housing stock and employment.

Development of priority and promising sectors of the economy of the Arkhangelsk region through the implementation of major investment projects.

The priority sectors of the economy of the Arkhangelsk region are: shipbuilding;
timber industry complex;
fishing complex;
agro-industrial complex; mining;
fuel and energy complex;
chemical industry.

Promising sectors of the economy of the Arkhangelsk region are: transport and logistics complex;

digital economy;
biotechnological productions.

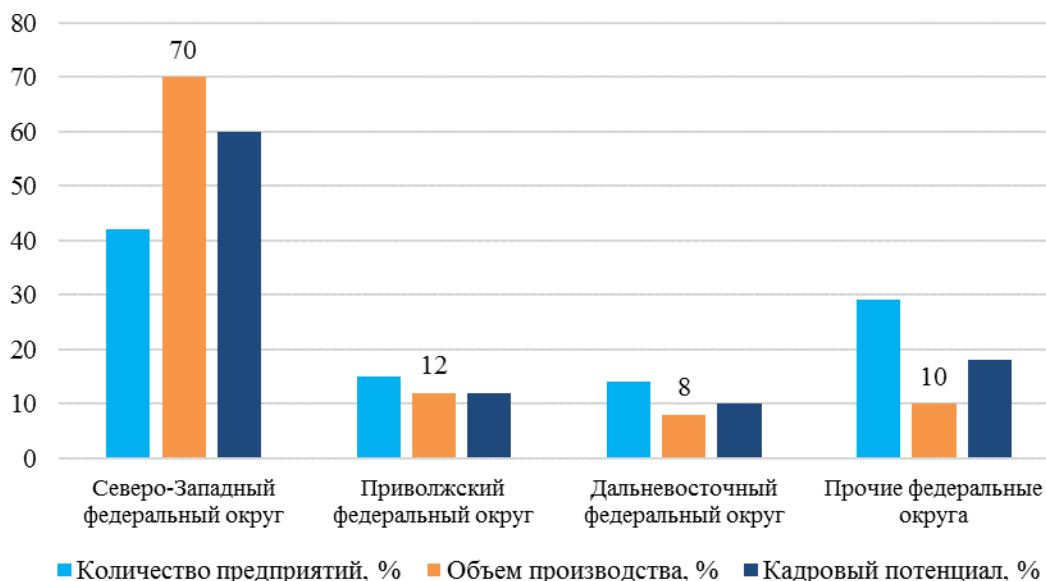
Ensuring the socio-economic development of rural areas of the Arkhangelsk region. The organization of the structure of rural areas and the formation of growth points will improve the well-being of the population living in rural settlements of the Arkhangelsk region and increase the contribution

of rural areas to the regional GRP.

Stable situation in the sphere of the state defense order. Shipbuilding organizations are provided with orders for several years in advance. However, the level of diversification of the shipbuilding industry is low. The real level of the state defense order at the shipbuilding enterprises of the Arkhangelsk region in 2018 amounted to almost 98 percent. On the other hand, organizations in this industry have experience in interacting with civilian customers. A number of orders for organizations in the oil industry were completed: during the construction of the Prirazlomnaya offshore ice-resistant fixed platform, JSC PO Sevmash successfully cooperated with the Dutch company Damen Shipyards. Zvezdochka Ship Repair Center JSC is the only Russian shipyard that has mastered the full cycle of building self-elevating floating drilling rigs. In the period up to 2018, the enterprise, together with JSC PO Sevmash, manufactured the Arctic jack-up floating drilling rig. The activities of Zvezdochka Ship Repair Center JSC also include the production of propellers and the development of steering columns. The main opportunities in the development of civil shipbuilding are associated with the construction of specialized innovative ships, in which the Russian Federation can claim world leadership. The market for specialized ships in the global shipbuilding industry is over \$10 billion and will grow rapidly in line with the demand for the development of ocean resources (Figure 9). The main opportunities in the development of civil shipbuilding are associated with the construction of specialized innovative ships, in which the Russian Federation can claim world leadership. The market for specialized ships in the global shipbuilding industry is over \$10 billion and will grow rapidly in line with the demand for the development of ocean resources (Figure 9). The main opportunities in the development of civil shipbuilding are associated with the construction of specialized innovative ships, in which the Russian Federation can claim world leadership. The market for specialized ships in the global shipbuilding industry is over \$10 billion and will grow rapidly in line with the demand for the development of ocean resources (Figure 9).

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Picture. 9. Geographical location of shipbuilding enterprises in the Russian Federation

Development of navigation in the water area of the Northern Sea Route. The Northern Sea Route is becoming a key transport artery for the grandiose project of the open joint-stock company Yamal LNG. In addition, the Northern Sea Route makes it possible to reduce the costs of seafood exporters from the Far East region of the Russian Federation working with European partners. Recently, there has been a need to equip transshipment bases in the Arctic, especially in winter.

Formation of new market niches for high-tech products. The modern market of high-tech products is characterized by very high dynamics. The life cycle of products has been reduced in some cases to 2-3 years. On the other hand, new market niches are constantly emerging that can be occupied if the scientific and technological potential of not only the Arkhangelsk region, but also other subjects of the Russian Federation is effectively used.

The development of industry is a necessary condition for the development of the economy of the Arkhangelsk region as a whole. Some sectors will become a stabilizing factor for development in a changing macroeconomic environment, while the other part will be a driver of growth in the living standards of the population of the Arkhangelsk region. These industries, through the implementation of major investment projects, will become a point of attraction for qualified personnel, including from other regions of the Russian Federation. It is in these sectors that jobs will be created for young people and the most significant revenues to the regional budget will be formed. Construction of the deep-water area of the seaport of Arkhangelsk. Construction of the railway "Belkomur" (White Sea - Komi - Ural). The project will make it possible to use the favorable geographical position of the Arkhangelsk region in relation to the

Northern Sea Route and directly connect the enterprises of the Northwestern Federal District with the regions of the Urals and Siberia. The joint implementation of the Belkomur and Deep Water Area of the Seaport of Arkhangelsk projects, taking into account the capabilities of the Northern Sea Route, will create a significant transit potential in the Arkhangelsk Region both in domestic and international cargo transportation.

The implementation of the project is connected with the attraction of significant investments both from the federal budget and from the funds of state corporations. Refusal to implement the project will contribute to the risk of the Arkhangelsk region losing one of the main drivers of economic growth.

The implementation of the projects listed below will ensure the accelerated development of the production and innovation infrastructure of the Arkhangelsk Region, which will become one of its key competitive advantages. The industrial policy of the Arkhangelsk region is based on the cluster model. Currently, there are 3 clusters in the Arkhangelsk region:

- shipbuilding;
- timber industry;
- social.

The Arctic fishing cluster is in the process of formation.

Development of the cluster management system. Development within cluster projects. Development of inter-cluster projects. Expansion of inter-regional cluster interaction. Opportunities for intersectoral interaction will expand. Synchronization of the development of the Arkhangelsk region and business will be ensured. The efficiency of the implementation of large investment projects in the Arkhangelsk region will increase. Effective cooperation between regions

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in the development of industry clusters will be ensured. When a project is abandoned, the efficiency of managing large investment projects, the executors of which are various enterprises of the same industry or enterprises of various industries, decreases.

The key to the effective functioning of the shipbuilding cluster of the Arkhangelsk region is the realization of the competitive advantages of all the main participants in the cluster, which can be achieved through the activation of intra-cluster interaction and the implementation of joint projects. The project is aimed at increasing the competitiveness and economic potential of the shipbuilding cluster by providing conditions for mutually beneficial interaction between enterprises - members of the cluster, scientific and educational organizations, state authorities of the Arkhangelsk region and local governments.

Development and implementation of models of long-term cooperation between industrial enterprises, educational organizations and research organizations for the training, advanced training and retraining of personnel, as well as joint research and development work in the field of shipbuilding and related industries.

Development and implementation of programs for the technical and technological re-equipment of the production capacities of shipbuilding industry organizations, taking into account the possibilities of attracting funding within the framework of using the mechanism of federal and regional state programs.

Provision of financial and organizational support measures to cluster members engaged in innovative activities, as well as the production of import-substituting and high-tech products.

Facilitating the involvement in the activities of the cluster of organizations representing the interests of "anchor" customers - direct consumers of the final products of the cluster: fuel and energy companies, large shipping companies, enterprises that provide shipping in the Arctic.

Providing comprehensive support to SMEs (financial, property, information, marketing and other support) as part of the implementation of measures aimed at "growing" SMEs to potential suppliers (executors, contractors) of the largest customers (for example, JSC "PA" Sevmash "according to with the Decree of the Government of the Russian Federation dated November 6, 2015 No. 2258-r) and other enterprises participating in the cluster.

Creation of a system for collecting and disseminating information (scientific, technical, personnel, production, financial and other information) for cluster members.

An increase in the level of competitiveness of the shipbuilding industry in the Arkhangelsk region will be ensured by coordinating the development plans of cluster members, strengthening cooperation ties between cluster members and developing business-science-state ties.

The abandonment of the project will lead to a decrease in the growth rate of labor productivity, innovation activity and the level of competitiveness of organizations in both the shipbuilding industry of the Arkhangelsk region and related industries, which in the long term will lead to increased risks of the formation of a stable negative dynamics of the GRP of the Arkhangelsk region.

In the Arkhangelsk region, there is a timber industry cluster that unites timber processing, logging and timber enterprises of the Arkhangelsk region, as well as mechanical engineering organizations, organizations of the transport and logistics complex, research and educational organizations that meet the needs of the timber industry. Further development of the timber industry cluster is aimed at increasing the competitiveness of the timber industry complex of the Arkhangelsk region by increasing production volumes through efficient wood processing.

Implementation of activities aimed at supporting the development of the innovation infrastructure of the cluster, including through the existing support tools within the framework of state programs for the development of SMEs at the federal and regional levels.

Facilitating the development of long-term cooperation programs for cluster members and research organizations that ensure the implementation of research and development and the introduction of modern science-intensive technologies at all stages of value added creation: forestry, production of timber processing products, processing of logging waste.

Implementation of a set of measures aimed at attracting cluster members to participate in the activities of federal and regional development institutions.

Implementation of a set of measures aimed at facilitating the promotion of cluster products in foreign markets, including through the development of cooperation between cluster members with the Russian Export Center Joint-Stock Company and the Export Support Center of the Arkhangelsk Region.

Implementation of methodological, organizational, expert and analytical support for the activities of the cluster, aimed at developing internal cooperative ties, increasing the self-organization of cluster members and a promising increase in their investment activity in order to develop the cluster.

Ensuring cooperation between cluster members and educational organizations of the Arkhangelsk region in order to build a multi-stage system of training and retraining of personnel for the timber industry complex of the Arkhangelsk region.

Effective cluster development will be ensured within the framework of the timber industry complex of the Arkhangelsk region, which will increase its competitiveness in the Russian and international markets.

The rejection of the project will lead to a

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decrease in the growth rate of labor productivity, innovation activity and the level of competitiveness of timber industry enterprises, which in the long term will lead to increased risks of the formation of a stable negative GRP dynamics in the Arkhangelsk region. The development of industries in the Arkhangelsk region will be accompanied by the development of information infrastructure. The goal of the project is to ensure accelerated digitalization of the industrial and transport and logistics complexes of the Arkhangelsk region through the creation of a data center and regional, industry and corporate databases. Creation of a regional data center. Creation of local and regional databases for various purposes.

Implementation of digital technologies in the management of industrial enterprises of the Arkhangelsk region. A data center will be created that provides services for hosting the client's own server and network equipment, data center and data processing using the software as a service (SaaS) model. Regional, sectoral and corporate databases for various purposes will be created, which will increase the efficiency of management at industrial enterprises of the Arkhangelsk region, and will also contribute to the intensification of intersectoral cooperative ties. Corporate management systems will also improve the efficiency of the management system at industrial enterprises of the Arkhangelsk region with an increase in the speed of business processes by 30-50 percent.

If the project is abandoned, the effectiveness of the management system at industrial enterprises of the Arkhangelsk region and the industrial development of the Arkhangelsk region as a whole will decrease.

The modernized production and innovation infrastructure will create the necessary basis for the development of a number of high-tech industries that will increase the competitiveness of the Arkhangelsk region, both in the Russian and international markets.

The shipbuilding industry has serious potential for the development of OEM production of electronic equipment for unmanned vehicles, telemedicine, 3D printing and robotics. When attracting the developments of scientific and educational organizations of the constituent entities of the Russian Federation and adapting them to the technological conditions of shipbuilding organizations of the Arkhangelsk region, it will be possible to diversify production with an increase in revenue of shipbuilding cluster organizations by 20-30 percent. In order to provide favorable infrastructure conditions for the development of OEM production in the Arkhangelsk region, a project will be implemented to create a high-tech technopark (hereinafter referred to as the Technopark). The Technopark is a territory where OEM production of new generation electronic equipment is located.

Implementation of measures aimed at the formation of the infrastructure and technological base of the Technopark. Ensuring the development of the

social and educational environment of the Technopark: organization of scientific and practical conferences, competitions, scientific research, educational courses and the creation of business education programs. Facilitating the development of interaction between the Technopark and the external environment: higher educational institutions, research organizations, development institutions, investors and business angels, service companies, anchor residents, industrial enterprises.

Assistance in attracting direct, including venture, investments to finance the organization of new industries.

Assistance in the commercialization of technologies, implementation of comprehensive support for the implementation of investment projects for the organization of production based on these technologies.

Diversification of the production of shipbuilding enterprises will be ensured: the share of sold civilian products (electronic equipment for unmanned vehicles, telemedicine, 3D printing and robotics) will be at least 20-30 percent.

The rejection of the project will not allow creating the necessary infrastructure for the development of high-tech organizations, which will significantly limit the possibilities for innovative development of the economy of the Arkhangelsk region in the long term.

The Arkhangelsk region has unique opportunities for the development of fish breeding and subsequent fish processing organizations, as well as the cultivation of algae, scallops and other aquaculture objects. The project is aimed at creating favorable conditions for the implementation of investment projects in the field of commercial aquaculture in the Arkhangelsk region.

Implementation of a set of measures aimed at ensuring the transport accessibility of water bodies suitable for growing aquaculture objects. Carrying out work on fish breeding and biological substantiation of water bodies and determining the boundaries of fish breeding areas.

Development of cooperation between organizations operating in the field of fisheries and aquaculture with industry unions (associations).

Due to the growth of aquaculture production, the volume of production of the fishing complex of the Arkhangelsk region will be increased by 20 percent.

Additional incentives for the economic and social development of rural settlements in the Arkhangelsk region will be created.

The abandonment of the project will not allow diversifying the fishing industry and satisfying the growing consumer demand for fish and fish products. In addition, opportunities to form a new source of income for the population will be missed. The production of biopolymers (the production of plastics and synthetic resins in primary forms) is a

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dynamically developing segment of industrial biotechnology in the world. The range of applications of biopolymers is constantly expanding and includes both the production of packaging materials and the food industry, as well as the production of medical devices and metallurgy. The project is aimed at ensuring the development of biopolymer production in the Arkhangelsk region.

Inclusion of biopolymer production in the list of priority investment areas.

Providing investors implementing investment projects for organizing the production of biopolymers with financial and non-financial forms of state support provided for by the legislation of the Russian Federation and the legislation of the Arkhangelsk region. Providing comprehensive support for investment projects for organizing the production of biopolymers, including organizing work on the selection of an investment site or land, providing consulting and organizational support to investors, assistance in attracting labor resources, marketing support for the project and other activities.

By 2035, at least one investment project to organize the production of biopolymers will be implemented in the Arkhangelsk region.

Refusal to implement the project will reduce the possibility of creating highly productive jobs and will lead to a slowdown in the growth of innovative activity in the economy of the Arkhangelsk region.

On the territory of the Arkhangelsk region there are enterprises with rich experience in the production of paints and varnishes (hereinafter - LKM). The main market trend in the field of coatings is the expansion of the product line: coatings with additional functionality (frost-resistant paints and coatings, antiseptic paints, biocidal coatings), as well as coatings for special purposes (anti-corrosion, wear-resistant and others, corresponding to the concept of paint technology). The project is aimed at attracting specialists in the field of developing new coatings in order to ensure the effective use of the emerging market opportunities for the enterprises of the Arkhangelsk region to expand the production of coatings.

Development of long-term plans for the personnel needs of the chemical industry with the involvement of representatives of organizations in this industry, including the identification of key areas for attracting personnel.

Conducting highly specialized reviews of the labor market and wages of workers in the chemical industry.

Providing information, organizational and methodological support to chemical industry organizations in the implementation of measures aimed at attracting workers from other regions of the Russian Federation.

Providing employers with financial support to attract labor resources from other regions of the

Russian Federation.

Implementation of a set of measures aimed at stimulating and supporting the introduction of a knowledge management system in chemical industry organizations, which includes formal and informal employee training programs in the areas of training most relevant to the company, as well as programs to cultivate the value of knowledge.

Assistance to organizations of the chemical industry in the development, implementation and development of housing corporate programs, ensuring the consistency of these programs with regional and federal housing programs.

The level of competitiveness of the organizations of the paint and varnish industry of the Arkhangelsk region will be increased by expanding the production of a range of products that are in demand by modern consumers. The predicted growth in the production of chemical products in the Arkhangelsk region will be at least 50 percent.

The abandonment of the project will not allow eliminating the technological backlog of chemical industry organizations in the Arkhangelsk region, which will lead to a decrease in the competitiveness of such organizations in the market and a decrease in their contribution to the development of the economy of the Arkhangelsk region.

The timber industry complex of the Arkhangelsk region (hereinafter referred to as the timber industry complex) needs to be restructured to produce high value-added products. In this regard, there is an urgent need for the development of modern science-intensive technologies by forestry enterprises, including biorefining technologies. Implementation of state support measures for forest industry organizations aimed at promoting the expansion of biofuel production - wood pellets.

Providing comprehensive support for investment projects for the organization of new industries on the territory of timber processing enterprises: food and coal fibers, monomers and polymers for various purposes, medicines and biologically active additives.

Promotion of products of timber industry enterprises in the regional, Russian and foreign markets.

Expansion of existing biofuel (pellet) production facilities will be ensured with the production of a wide range of products (food and carbon fibers, monomers and polymers for various purposes, medicines and other types of products).

The abandonment of the project will significantly reduce the opportunities for diversification of production and innovative development of the timber industry, which in general will lead to a decrease in its competitiveness both in the Russian and in the world markets for timber processing products.

New opportunities for the development of the timber industry complex are the production of modern

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materials for the construction of low-rise and multi-storey residential buildings, which reduces the cost of construction. The project involves the renovation of sawmills with the organization of the production of panel-frame house kits for low-rise construction and structural elements of multi-storey buildings. Assistance in the creation of production sites for the production of elements of low-rise and multi-storey residential buildings on the territory of timber processing enterprises.

Preparation of projects for the construction of low-rise and multi-storey residential buildings from wooden structures. Budget support for the resettlement program from emergency housing in the Arkhangelsk region for the development of the market of wooden housing construction. Assistance in entering the market of other subjects of the Russian Federation using a franchise.

The production of import-substituting products that are in demand on the Russian market will be ensured by the organizations of the timber processing complex, which will bring the construction industry of the Arkhangelsk region to a new level. Additional opportunities will be created to renew the housing stock and meet the needs of the population in improving housing conditions. Refusal to implement the project will become an obstacle to the development of the direction of wooden housing construction with an increase in the volume of production of the timber industry and the construction industry. In addition, the cost and duration of the housing stock renovation process will be increased, which will negatively affect the quality of life of the population of the Arkhangelsk region.

The project provides for the development of non-primary export areas of industry and services, as well as the development and expansion of the potential for international economic cooperation as part of the implementation of the regional project "Export of Services" in the Arkhangelsk Region.

Increasing the international competitiveness of products of the enterprises of the Arkhangelsk region. Expansion of export specialization of the Arkhangelsk region. Diversification of exports, increasing exports of non-commodities.

Development of mechanisms to compensate for part of the costs of transporting exported products, certification of products in foreign markets and export R&D.

By 2025, the share of exports of goods (works, services) will be increased and will amount to at least 20% of the gross regional product. Export-related costs will be reduced by removing excessive administrative barriers. By 2025, the volume of exports of services will be 0.45%. Refusal to implement the project may lead to a reduction in export volumes and the number of companies exporting industrial non-commodity products, as well as the loss of the potential number of exporting

companies. The project is aimed at developing the spiritual and cultural foundations of a solidarity society, stimulating the spiritual and moral development of the individual, fostering patriotism and the formation of civil self-identification of the inhabitants of the Arkhangelsk region. The implementation of the project will create a positive atmosphere in the regional socio-cultural space,

Creation of conditions for strengthening the unity of the multinational people of the Russian Federation on the territory of the Arkhangelsk region.

Assistance in the revival and preservation of cultural and historical traditions of the population of the Arkhangelsk region.

Popularization in society of the unifying idea of patriotism based on the preservation of the historical, cultural and architectural appearance of the Arkhangelsk region.

Popularization of family values, strengthening the institution of the family and family relations.

Assistance in raising the prestige of social activities, stimulating the formation of responsibility among citizens for their future and the future of their children.

Formation of spiritual and moral values and civic culture of youth, stimulation of social cohesion of youth, development of cooperation and solidarity among the youth, including through the activation of social activities of youth organizations.

Formation of a positive attitude of the population to the concept and key principles of a solidarity society.

The cultural and moral foundations of social solidarity will be formed, ensuring its consolidation in the public consciousness as a positive model of social relations.

A reduction in social tension and an increase in the level of self-organization of citizens will be ensured, while at least 50 percent of the population of the Arkhangelsk region (percentage of the respondents) will positively assess the changes taking place.

Conditions will be created for the development of a sense of solidarity between different groups of the population, and the involvement of citizens in public life will be increased.

If the project is abandoned, the consolidation of society around the idea of social solidarity will be difficult; it will not be possible to eliminate the existing socio-cultural barriers that impede the development of social activity and increase the mutual responsibility of citizens and authorities in matters of the development of society.

The project is aimed at developing interaction between society and government, increasing the effectiveness of civic participation, developing mechanisms for the implementation of regional policy based on the principles of social protection, support and responsibility as the basis for achieving public

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consent.

Development of forms and principles of social security, support and responsibility as the basis for achieving public consent.

Creation of conditions for the consolidation of civil society institutions, support for partnership and cooperation of the main subjects of civil participation.

Development of a public dialogue between the authorities and citizens in order to strengthen mutual trust: building channels of public interaction, providing social support, organizing feedback.

Stimulating the integration of the business community into the practices of social partnership and cooperation, supporting projects for the development of social dialogue between business, labor collectives, trade unions and state authorities of the Arkhangelsk region on labor relations.

The culture of solidarity and the experience of collective action, as well as the culture of representation, partnership and cooperation, will be increased among the population of the Arkhangelsk region.

The rejection of the project will not allow for an increase in the culture of solidarity and experience of collective action among the population of the Arkhangelsk region and, therefore, will hinder the increase in the level of civic consciousness and the involvement of the population in public life.

The project is aimed at increasing the level of responsiveness of power - its ability as an institutional system to respond to the impact of the social environment and the demands of society. The project provides for the implementation of measures aimed at increasing the openness, accessibility and transparency of the activities of state authorities of the Arkhangelsk region and local governments, increasing the possibility of public participation in public administration, the formation and development of social capital of municipalities of the Arkhangelsk region.

Development of partnership between the state and civil society on the basis of improving the system of rendering state and municipal services.

Assistance in the formation of tools for e-democracy and citizen participation in the management of the Arkhangelsk region.

Formation of mechanisms for the use of initiative budgeting.

Support for socially significant initiatives of the population and positive examples of territorial public self-government.

Development of inter-municipal cooperation.

The institutional conditions for civic participation will be improved, namely, the structure of formal, legal and organizational opportunities for the manifestation of initiatives of citizens and their associations to change the conditions of public life, as well as the development of dialogue relations between the population and the state, will be transformed.

Increased openness, accessibility and transparency of the activities of state authorities of the Arkhangelsk region and local governments will be ensured, as well as opportunities for involving citizens in the process of making and implementing decisions in the areas of public administration and local self-government will be expanded.

By 2035, at least 70 percent of the population of the Arkhangelsk region will positively evaluate the activities of public authorities - state authorities of the Arkhangelsk region and local governments.

The rejection of the project will not allow for the growth of mutual trust between citizens and state authorities of the Arkhangelsk region, and increase the effectiveness of civic participation. In addition, the lack of opportunities for self-realization of citizens in public and political life, in particular, the opportunity to participate in solving common affairs, reduces the attractiveness of the Arkhangelsk region for residents and is one of the significant factors stimulating the migration outflow of the most socially active part of the population.

Providing conditions for the formation of a generation that takes an active part in the development of the Arkhangelsk region. Civil initiative, without which it is impossible to resolve issues important to the population, is a significant incentive for regional development.

Migration outflow of youth of the Arkhangelsk region. Young people make up a significant part in the structure of the migration outflow of the population of the Arkhangelsk region. Every 5th representative of the younger generation (mostly residents of the largest cities of the Arkhangelsk region - Kotlas, Arkhangelsk, Mirny) wants to leave the Arkhangelsk region.

Problems of youth employment. The younger generation of the Arkhangelsk region is faced with a lack of demand in the labor market. Insufficient wages for young professionals limit their financial opportunities.

Poor access to cultural activities. An important problem is the lack of involvement of young people in cultural events. This limits its inclusion in the socio-cultural space. The lack of an alternative to cultural leisure may encourage the choice of destructive pastimes.

Low involvement of young people in public life. The younger generation of the Arkhangelsk region is characterized by a low level of participation in the activities of public organizations and volunteering. A significant part of the youth is not ready to take the initiative in creating any socially significant projects, but expresses their readiness to participate in their implementation.

The youth policy of the Arkhangelsk region is aimed at forming a generation that has the conditions for self-realization and is actively involved in public life. Efforts aimed at implementing a youth policy pay

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off with the formation of young residents of the Arkhangelsk region as self-sufficient and enterprising members of society, making a significant contribution to the economic, social and cultural development of the Arkhangelsk region.

The youth policy is based on the creation of conditions for the social, cultural and spiritual development of the younger generation, as well as mechanisms that encourage young people to lead an active social life.

The youth policy of the Arkhangelsk region should promote the involvement of young people in public life.

Communication with like-minded people allows the younger generation to establish social ties and jointly implement ideas. The presence of youth communities is an important component for the formation of civic responsibility of the younger generation.

Creation of youth organizations and development of projects of high social significance and contributing to the socio-economic development of the Arkhangelsk region, as well as informing young people about such organizations and projects.

Support for initiatives of youth communities aimed at solving social issues and developing the Arkhangelsk region.

The importance of social capital among the younger generation will increase.

By 2022, the share of young people actively participating in the public life of the Arkhangelsk region will be 14 percent.

The number of implemented initiatives proposed by youth communities will increase.

A generation of leaders of social movements will be formed, involved in a dialogue with representatives of the state authorities of the Arkhangelsk region and aimed at a constructive solution of issues.

The rejection of the project will limit the growth of social activity of young people. The Arkhangelsk region will lose an additional source of development due to the lack of an enterprising and socially responsible generation.

The choice of a professional path is one of the most important steps in the formation of a person. To help the younger generation, a project is being implemented that allows them to learn about the possibilities of professional self-realization in the Arkhangelsk region and undergo an internship at the factory in a specialty of interest.

Informing students about the recruitment for participation in excursions and internships.

Conducting study tours for high school students in organizations located on the territory of the Arkhangelsk region.

Development of internship programs for graduates and students of the last year of professional educational organizations at enterprises located on the territory of the Arkhangelsk region.

Selection of students who successfully completed the internship in the reserve list for subsequent employment after receiving a specialty.

Employment of successfully trained graduates of professional educational organizations.

Schoolchildren will have an idea of employment prospects in the Arkhangelsk region for choosing a vocational training program. The unemployment rate among young specialists will decrease.

By 2035, the migration outflow of young people will be reduced by 2 times due to the impossibility of finding a job.

Refusal to implement the project will increase the migration outflow of young professionals; organizations located in the Arkhangelsk region may face a shortage of personnel.

For the spiritual development of the young generation of the Arkhangelsk region, it is necessary to implement a project to provide youth with affordable cultural leisure, which organizes the pastime of young people, protecting them from destructive practices.

Creation of leisure centers on the basis of houses of culture or other objects of cultural and leisure type.

Construction of modular structures for the organization of leisure centers in settlements where such leisure centers do not exist.

Organization of the activities of circles and sections with the provision of students of educational organizations with the opportunity to visit them.

Involvement of specialists for the activities of leisure centers.

The role of cultural leisure in the life of young people will increase.

The younger generation will be included in the socio-cultural space of the Arkhangelsk region.

The proportion of young people who spend their leisure time in a destructive way will decrease.

The rejection of the project will contribute to a decrease in the cultural level of the young generation of the Arkhangelsk region and will increase the risks of the spread of socially dangerous behavior of young people.

Volunteer activity is not only socially useful work, but also forms a worldview based on personal responsibility for the future of the Arkhangelsk region.

Creation of a unified volunteer center in the Arkhangelsk region. Information and educational activities among young people. Organization of volunteer work to solve a wide range of issues of various scales - from local to regional.

By 2035, the proportion of young people participating in volunteer work will double. There will be an increase in the number of projects and works implemented by volunteers. Refusal to implement the project will hinder the formation of the younger generation, who consider it their duty to personally participate in the development of the

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Arkhangelsk region and are ready to act for the benefit of the inhabitants of the Arkhangelsk region.

Ensure the safety of the inhabitants of the Arkhangelsk region for their livelihoods and create conditions for peaceful and dynamic socio-economic development.

Reducing the number of registered offenses. In the period 2018-2020, there was a decrease in the number of registered crimes: from 29.58 units per 1,000 population in 2020 to 17.82 units per 1,000 population in 2021.

The most common type of offense is the theft of another's property, committed by theft. This type of crime accounts for 40 percent of all registered crimes.

The problem of juvenile delinquency remains a serious problem. More than one third of all crimes are committed by persons aged 18 to 29.

Reducing the total number of fires. The number of fires from 2018 to 2021 decreased by 36 percent, the number of deaths from fires - by 84 percent. Material damage from fires from 2018 to 2021 amounted to 3.5 billion rubles.

Increase in the subjective level of prevalence of corruption. According to the results of a survey conducted by the state autonomous institution of the Arkhangelsk region "Center for the Study of Public Opinion" in 2021, every 5th resident of the Arkhangelsk region personally encountered corruption in dealing with certain issues. In the large cities of the Arkhangelsk region - Arkhangelsk and Severodvinsk - this figure increased to 24 percent. In 2020, 18 percent of the population of the Arkhangelsk region faced manifestations of corruption, in 2021 this figure was 26 percent.

The Arkhangelsk region will become a safe and comfortable place to live. Thanks to the strengthening of law and order, the preservation of civil peace, the increase in the efficiency of the activities of the public security forces, the active involvement of citizens in the provision of law and order. The Arkhangelsk Region will achieve a high level of protection of human rights and freedoms, and thanks to the increased transparency and openness of the activities of the state authorities of the Arkhangelsk Region, it will be possible to establish an effective and trust-based dialogue between the authorities and the population.

The main tasks in ensuring public safety are the protection of fundamental rights and freedoms of man and citizen, the preservation of civil peace, political and social stability, the protection of the population and territories from natural and man-made emergencies.

Projects within this area are designed to respond to current challenges in the field of public safety and comply with modern trends. The most important aspect is the timely prevention and prevention of crimes and other offenses, as well as emergency situations.

The project implies the creation of the necessary conditions for the voluntary participation of citizens in the protection of public order in order to prevent crimes and other offenses. In addition, due to the active development of information technologies, it is necessary to further develop the institution of voluntary assistance of citizens in identifying and solving crimes on the Internet.

Carrying out an information campaign to attract citizens to the people's squads.

Implementation of targeted briefings with members of the people's squads.

Regular patrols on the streets, squares, parks and other places of mass stay of the population in order to prevent and suppress crimes and other offenses.

Development of mechanisms for social and material incentives for volunteers.

The level of legal culture of citizens will increase.

The subjective assessment of the implemented security measures by citizens will increase.

The crime rate will decrease.

Refusal to implement the project will lead to the need to increase the number of employees of law enforcement agencies to ensure the prevention and prevention of crimes and other offenses, which will entail an increase in the costs of the regional budget.

Thanks to the active involvement of citizens, ensuring freedom of the media and the development of the institution of civil control, constant monitoring of the state of public security will be carried out.

Creation of a single platform for the instant publication of an electronic appeal about a committed offense, automatically sent to the internal affairs bodies, the state fire service, the emergency rescue service and other bodies and services.

Development of mechanisms for monitoring the activities of management companies and utilities.

Mandatory publication of up-to-date materials that relate to the structure and functions of the state authorities of the Arkhangelsk region, as well as their decisions.

The role of civil society will be strengthened. There will be a decrease in social tension.

Refusal of the project may lead to the alienation of power and citizens due to the lack of information about the work of the state apparatus, management companies and utilities. Within the framework of the project, it is planned to ensure free access of the population to information about the work of state authorities of the Arkhangelsk region, as well as the formation of an intolerant attitude towards corrupt behavior.

Conducting training seminars, trainings for lawyers of local governments in order to develop skills for the implementation of anti-corruption expertise of regulatory legal acts and projects in the Arkhangelsk region.

Involvement of experts to conduct an anti-

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corruption analysis of regulatory legal acts and draft regulatory legal acts of the Arkhangelsk region.

Placement of administrative regulations for the provision of public services, municipal services on official websites on the Internet.

Formation of ratings of openness and availability of information about the activities of state authorities of the Arkhangelsk region and local governments.

Development of educational materials in order to form a negative attitude towards corrupt behavior.

Conducting sociological research among residents of the Arkhangelsk region, including individual entrepreneurs, in order to study and assess the level of prevalence of corruption, as well as assess the anti-corruption measures taken.

An intolerant attitude towards corruption will form in society. The proportion of residents of the Arkhangelsk region who condemn citizens who give or take bribes will increase to 80 percent (according to sociological surveys).

The proportion of residents of the Arkhangelsk region who have not had to deal with corrupt behavior in resolving a particular issue will increase to 90 percent (according to sociological surveys).

The average number of participants in competitive procedures will increase to 2.5 when making purchases to meet state and municipal needs.

If the project is abandoned, the risk of abuse of power will remain, which may have a negative impact on the image and economic activity of the Arkhangelsk region.

Prevention of offenses is an important component of the mechanism for combating crimes and administrative offenses. The formation of the legal culture of the population, the early warning of social conflicts, as well as the improvement of the system of comprehensive crime prevention itself are designed to improve the social macroclimate and the crime situation in the Arkhangelsk region.

Distribution of the hardware-software complex "Safe City" throughout the territory of the Arkhangelsk region.

Development of mechanisms for the protection of private property of citizens.

Development of mechanisms to prevent offenses on public roads in the Arkhangelsk region.

Preparation of methodological manuals for minors and recommendations for parents on the prevention of neglect and juvenile delinquency.

Organization of purposeful, systematic preventive work with adolescents, youth and their parents on the problem of drug abuse and other psychoactive substances.

Provision of social, psychological, legal assistance to citizens who have become victims of a crime.

Social rehabilitation of persons released from institutions that carry out punishment in the form of deprivation of liberty, in terms of training and

employment.

By 2035, the number of registered crimes will be reduced to 7,000 per 100,000 inhabitants.

Reducing the number of crimes committed by persons under 30 by 75 percent.

Increasing the level of detection of crimes.

Reducing the share of serious and especially serious crimes.

Reducing the number of crimes committed by persons who do not have a permanent source of income.

Formation of a mechanism for stimulating lawful behavior.

By 2035, the number of people killed in traffic accidents will drop to 3.17 per 100,000 people.

In case of refusal to implement the project, the worsening of the social macroclimate is predicted due to the difficult criminogenic situation.

The project provides for the development of a unified emergency warning system for the population, as well as the adoption of measures to prevent and protect the population and the territory of the Arkhangelsk Region from natural and man-made emergencies, including through the introduction of innovative technologies.

Improving the methods and means of warning about emergency situations.

Improving the efficiency of preventing, detecting and extinguishing forest fires, introducing new means of detecting and extinguishing forest fires, as well as technologies for extinguishing forest fires.

Reconstruction of public warning systems based on the introduction of a new generation of technical means and modern equipment operating in digital communication networks and on television and radio channels.

Improving systems for monitoring and forecasting emergency situations.

Preparation for the protection of the population, material and cultural values on the territory of the Arkhangelsk region from the dangers arising from military conflicts or as a result of these conflicts, as well as in emergency situations of a natural and man-made nature.

The introduction of modern information technologies into the system of training and education of the population - computer training programs, computer games and simulators that improve behavior skills in an emergency.

Expansion of measures for fire-fighting arrangement of forests, settlements, communications, social infrastructure facilities.

Taking preventive measures to prevent violations of fire safety rules.

The number of destructive events (emergencies, fires, accidents at water bodies) will decrease.

The total number of citizens killed and injured in emergencies, fires and water bodies will decrease by 30 percent.

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The share of forest fires eliminated within the first day from the moment of detection in the total number of forest fires will exceed 50 percent.

The proportion of settlements in the Arkhangelsk region located in the zone of standard arrival time of fire departments will increase (more than 80 percent).

Refusal of the project will lead to significant material losses due to the unpreparedness of the existing infrastructure for emergency situations.

In order to prevent disruption of the normal functioning of information and telecommunication systems, as well as to ensure the safety of information resources from unauthorized access, a unified system should be created that will include legal, organizational, technical, and economic ways to ensure information security.

Development of normative legal acts of the Arkhangelsk region, regulating information relations in society.

Development of mechanisms to prevent the leakage of processed information.

The use of cryptographic means of protecting information during its transmission over communication channels.

Development of methodological materials for safe work on the Internet.

Providing organizational, technical, legal, and economic methods for improving security.

Economic incentives for personnel involved in information security.

Reducing the share of registered crimes committed on the Internet.

Improving information literacy of the population.

Refusal of the project can lead to a rapid increase in the number of online crimes, as well as to an increase in damage due to leaks of financial documents, technological, design developments and other data.

Creation of conditions conducive to maintaining the high importance of the family institution in modern society, support for the effective implementation of its social functions.

Positive development of partnerships in the family, both between spouses and with children. In modern society, people seek in the family, first of all, the satisfaction of the emotional needs of the individual, as a result, spouses make more serious psychological demands on each other.

The transition from large families to truncated families. In the Arkhangelsk region, as in the whole country, a truncated family (a family with one child) prevails: the share of families of this type is about 58 percent of the total number of families, while the share of families with 2 children is only

31 percent, families with 3 or more children - 11 percent. Despite the predominance of families with 1 child, in recent years in the Arkhangelsk region there has been an increase in the number of large families -

compared to 2011, the number of large families increased by 54.2 percent.

Reducing the number of marriages and divorces. The number of divorces is decreasing in the Arkhangelsk region. At the same time, due to the growing popularity in modern society of unregistered alternative forms of joint relations, the number of officially registered marriages is decreasing, which exacerbates the problem of stability of family and marriage relations.

Increasing family autonomy. The values of familism (duty, family responsibility) are supplanted by the values of individualism, personal achievement and independence; this trend causes a transition from an extended type of family, consisting of 3 or more generations, to a nuclear type of family, including only parents and their children, and leads to an increase in the number of lonely elderly citizens.

The most important function of the family is the socialization of the individual, the transfer of cultural heritage and the upbringing of a new generation. The connection of generations will ensure the health of a society in which the family is support, care and trust. The variety of forms of family support makes it possible to educate the younger generation, observing traditions and confident in the future, harmonize intergenerational relations, ensure the economic independence of the family and create incentives to increase the number of large families.

Increasing the value of the family lifestyle, preserving spiritual and moral traditions in family relations and family education, assisting in the realization of the educational and cultural and educational potential of the family. Development of social activity and economic independence of the family, creation of conditions for independent decision by it of its social functions. Development of a system of state support for the family, including the improvement of mechanisms for the social protection of families and children in need of special state care.

The project is aimed at improving the system of social protection of families in need of special care from the state, increasing the effectiveness of mechanisms for preventing family problems, child neglect and homelessness.

Creation of favorable conditions for the upbringing of a child in a family, the introduction of "supportive" technologies and forms of work with the family.

Popularization in society of the values of trusting relationships between parents and children, dialogue education as an alternative to education with the use of violence against children.

Stimulating and organizing the consolidation of the efforts and resources of the state, non-profit organizations and public associations, socially responsible businesses, volunteers in solving the problems of children and families with children in difficult life situations.

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Strengthening interdepartmental and intra-industry cooperation in working with children and families in difficult life situations.

Development of a system of primary prevention of family problems and domestic violence.

Implementation and improvement of the effectiveness of state support for foster families. Development of a support system for foster families.

Development of forms of leisure, sports, tourism and additional education, specifically focused on the integration of children at risk and children in a socially dangerous situation.

The implementation of the project will reduce the number of families in difficult life situations and in need of state assistance and support, and will provide favorable conditions for the implementation of life-preserving and socializing functions by the family institution.

The proportion of children in a socially dangerous situation in 2035 will be less than 0.5 percent of the total child population of the Arkhangelsk region.

The share of crimes committed by minors or with their complicity in 2035 will be less than 7 percent of the total number of registered crimes.

Current trends in the decline in family stability, combined with the spread of a variety of types of family behavior, increase the risk of an increase in the number of families in a difficult life situation. Rejection of the project will not allow the implementation of measures to prevent family problems and reduce the number of dysfunctional families in the long term.

The family is the fundamental social institution of modern society, which performs the most important functions to ensure its reproduction and the comprehensive development of the individual. The project is aimed at creating favorable conditions conducive to expanding the social and economic activity of the family, mobilizing the family's internal resources and developing forms of mutual support for families.

Promoting the development of forms of mutual support for families and support for public associations, family clubs and parental communities with a different target orientation (family leisure, education, development of civil initiatives, etc.).

Development and implementation of modern programs and projects of civil and patriotic education; organization of public mass events aimed at ensuring the social activity of the family.

Formation of a positive public opinion about the role of the family in society, traditional family and moral values, the principles of responsible parenthood.

Support for a stable material level of the family: creation of jobs for young professionals, assistance in the development of family business; ensuring equal conditions in the labor market for women and men.

Favorable conditions will be created to enhance the status of the family in society and strengthen the institution of the family.

The total fertility rate by 2035 will be 1.810.

By 2035, the ratio of divorces per 1,000 marriages will be reduced by 15 percent from the level of 2021, to no more than 526 divorces per 1,000 marriages.

The rejection of the project will lead to a decrease in the cumulative effect of all other proposed measures and projects aimed at increasing the level of population consolidation and the development of an active civil society, since the education of a culture of social responsibility and civic engagement will not be ensured at the most important level of social relationships - the family level. The project is aimed at developing state and public support for the family, including during the birth and upbringing of children, improving direct and indirect measures to support families in need of better housing conditions, large families, single parents, families that include unemployed citizens of retirement age living together and disabled people.

Improving approaches to providing financial support to large families, introducing a mechanism for differentiated payments, in which the amount of material assistance is directly proportional to the number of children.

Support for entrepreneurial activities of families with many children and parents raising children with disabilities.

Expanding the participation of non-state socially oriented non-profit organizations in providing services to families and children, introducing and promoting social innovations.

Support for non-governmental organizations operating in the field of providing educational services, childcare and childcare services, including through the implementation of public-private partnership projects.

Expanding the construction of affordable housing that meets the needs of families, while building social infrastructure facilities needed by families with children.

Development of infrastructure for family recreation, tourism and sports, including through the implementation of a public-private partnership mechanism.

Implementation of modern effective models and innovative approaches to working with families and children in need of social assistance, including the development of non-stationary, semi-stationary and remote forms of social services for the population.

Development of forms of non-material support and increased targeting of material support for families with disabled children, as well as families in which both or the only parent is a disabled person of group I or II.

Introduction of modern forms of social services

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for the elderly, including through the development of non-stationary forms of social services and the expansion of alternative forms of care for the elderly.

Increased accessibility and quality of social services, social support measures that meet the needs and strengthen the resources of families of various types will be ensured.

The level of housing provision for families with children and its comfort will be increased: by 2035, the proportion of citizens who have received social services will be 100 percent of the number of citizens in need of social services.

The main risk of refusal to implement the project is that the development of the social support system for the family will not be ensured in accordance with the changing needs of modern society, which will lead to an increase in social tension and a decrease in the quality of life of the population.

The project is aimed at supporting the formation and development of a prosperous young family, increasing the value of a family lifestyle, preserving spiritual and moral traditions in family relations and family education, assisting in the realization of the educational and cultural and educational potential of a young family and improving its quality of life.

Development and implementation of programs and projects aimed at forming among young people a positive attitude towards traditional family values and a responsible attitude towards marriage, reproductive health and behavior.

Providing young families with information support in their formation and life.

Support for the development and functioning of public associations and non-state socially oriented non-profit organizations that carry out activities aimed at supporting young families, as well as activities related to the promotion, preservation and restoration of traditional family values.

Assistance to young families in purchasing housing and improving housing conditions.

Improving the socio-psychological support of a young family.

Development of a system for protecting the reproductive health of young spouses, including through the introduction of social and communication technologies in preventive work with young parents.

The implementation of the project will improve the quality of the functioning of a young family as a component of society, which forms its social and reproductive potential. The proportion of young families provided with housing during 2021-2035 will be at least 90 percent of the total number of young families registered as needing housing at the end of 2020.

The risk of abandoning the implementation of this project is to consolidate the trend of reducing the number of young families in the long term due to a decrease in the values of marriage and family relations and reproductive motivation among young people.

Improving the conditions for the formation and formation of a personality based on the traditions and culture of the ethnic communities of the Arkhangelsk region, which will provide support for a sense of stability in a rapidly developing urban environment.

Growing social tension. The growth of social tension in the territory of the Arkhangelsk region is due to both negative socio-economic trends in general and the deformation of the cultural environment in particular. Historical memory, which combines the past with the present projected into the future, is also largely influenced by modern globalization processes.

The plight of rural culture. Rural culture, historically serving as the custodian of traditional culture, is in decline today.

A significant level of deterioration of cultural infrastructure. The objects of cultural infrastructure of the Arkhangelsk region require additional investments to ensure the expansion of the population's access to cultural values and information.

Growing requirements of modern society to the level of personality development. The need to form a personality with a high educational level, active consumption of services in the field of culture and sustainable cognitive motivation. In modern society, the population is an active participant in cultural processes.

The huge cultural potential of the Arkhangelsk region, the high reputation of the cultural heritage of the Arkhangelsk region in the external environment. On the territory of the Arkhangelsk region there are unique cultural objects, cultural landscapes of world significance (surviving monuments of wooden architecture are the most valuable objects of world architecture).

By 2035, a cultural environment will be formed that contributes to the civil unity of the population in the face of the challenges of the global world. The basis for the formation of personality will be the historical and cultural heritage, ensuring the continuity of generations. In the context of globalization and the spread of mass culture, the preservation of cultural identity will be ensured. A single regional community will help strengthen civil unity and harmonize interethnic relations.

The project is aimed at increasing interest and strengthening respect for the cultural values and traditions of ethnic communities represented in the Arkhangelsk region and overcoming negative national stereotypes of mass consciousness.

Strengthening the unity of Russian society and harmonization of interethnic relations through cultural and humanitarian development.

Transfer from generation to generation of values, norms, traditions and customs traditional for the Arkhangelsk region.

Providing conditions for the development and realization of the cultural and spiritual potential of every inhabitant of the Arkhangelsk region.

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Increasing the proportion of the population participating in activities aimed at harmonizing interethnic relations.

There will be an activation of a positive attitude in society in relation to the cultural values and traditions of the ethnic communities represented in the Arkhangelsk region.

Consolidation of forces will be ensured to strengthen civil unity and harmonize interethnic relations. There will be an increase in the share of the population participating in activities aimed at harmonizing interethnic relations.

The risk of abandoning the project lies in the deterioration of intercultural and interethnic interaction in the single social space of the Arkhangelsk region.

In the course of work on the Strategy, an assessment was made of the development of the main indicators of economic activity in the Arkhangelsk region within the framework of the target development scenario.

The aggravation of global and interregional competition, the transition of the constituent entities of the Russian Federation to an innovative socially oriented type of development presuppose, first of all, the development of human capital. Both in the national and in the regional context, human capital is undoubtedly an important, key internal factor of competition. The transition from an export-raw material to an innovative model of economic growth is associated with the formation of a new social development mechanism based on a balance of entrepreneurial freedom, social justice and national competitiveness. This approach requires the implementation of a complex of interconnected in terms of resources, timing and stages of transformations in the following areas:

human development;

creation of a highly competitive institutional environment that stimulates entrepreneurial activity and attracting capital to the economy;

structural diversification of the economy based on innovative technological development;

consolidation and expansion of global competitive advantages in traditional areas (energy, transport, agrarian sector, processing of natural resources);

expansion and strengthening of foreign economic positions; transition to a new model of spatial development.

In the long term, it is expected to increase the competition of the subjects of the Russian Federation for key development resources, with the concentration of the latter in energy and raw material regions and large agglomerations. A positive impact on the Arkhangelsk region may have climate change and the growing importance of the northern territories associated with the development of exploration and mining. Factors such as the aging of the population

and the growth of migration (outflow of the population) can negatively affect the development of the Arkhangelsk region. In this regard, in order to ensure the competitiveness of the Arkhangelsk region, favorable conditions must be created for the life of the population, in particular for professional personnel.

As favorable conditions for the socio-economic development of the Arkhangelsk region, one should consider the strengthening of the processes of globalization of the world economy, as well as the expected growth of the political and economic significance of the Arctic region in the long term. The processes of globalization of the world economy and the development of foreign economic relations will be accompanied by an increase in foreign policy exchange and an increase in demand for transport services.

According to forecasts, trade between the countries of the Asia-Pacific region and the European Union will become one of the most dynamic markets, while countries that can attract transit Eurasian freight traffic on their transport communications will also benefit. Due to the advantages of its geographical position, the Arkhangelsk region has great potential in the development of transport and economic ties and expansion of cooperation with European and Asian countries. It is expected that in the medium term the Northern Sea Route will become an actively developing transit direction, which will lead to a redistribution between the constituent entities of the Russian Federation, especially between the regions of the Northwestern Federal District, the burden of ensuring international transportation of goods with an increase in the load on such regions as the Arkhangelsk and Murmansk regions.

In connection with the prospective growth in the number of container cargo transportation by sea, it will be necessary to build new port complexes, as well as reconstruct existing container terminals in order to increase their capacity for processing large-capacity containers. In accordance with this, the construction of the Belkomur railway and the modernization of the Arkhangelsk seaport (until 2035) are of particular importance. In the medium term, the implementation of these projects will be accompanied by high country and macroeconomic risks and the resulting high cost of raising capital, high capital costs and implementation time.

An important factor hindering the development of the regional economy could be increased restrictions on attracting foreign investment, reduced opportunities for foreign borrowing for the Russian financial sector, and a tougher position of foreign partners.

In the context of negative macroeconomic trends, the expected structural shifts in the regional economy will be slow. In the medium term, the structure of the economy of the Arkhangelsk region will not undergo significant changes - the basis of the

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market specialization of the Arkhangelsk region will continue to be the branches of the timber processing complex and shipbuilding. Against the backdrop of these industries holding leading positions, it is predicted that favorable conditions will be maintained for the development of chemical industry enterprises (production of rubber and plastic products), metallurgical production and production of finished metal products, special engineering, as well as the mining industry in the economy of the Arkhangelsk region.

The fishing industry, which has been developing in recent years under the influence of crisis phenomena in the national economy, will retain its current positions in the structure of gross value added and employment. Fisheries will be based primarily on ocean fishing. Factors that have a favorable impact on the development of fisheries in the long term will be the predicted growth in demand in the global seafood market, as well as the continuation of the trend towards import substitution in the domestic market. At the same time, the predicted depletion of the bioresources of the World Ocean will hinder the intensive growth of the market, as well as increase global competition for marine bioresources, including between the countries of the Arctic region.

In the long term, the increase in offshore oil and gas production stimulates the demand for transport, service and technical vessels adapted to work in the Arctic. The demand for the implementation of the state defense order by shipbuilding organizations of the Arkhangelsk region will increase, the products of domestic military shipbuilding will remain in demand on the world market. In order to maintain sustainable development trends in the medium and long term, institutional reforms will be carried out in the industry, the deployment of programs to promote technological modernization, including in related industries (metallurgy, mechanical engineering, electronics, etc.), as well as the promotion of products of shipbuilding enterprises to domestic and foreign markets.

The functioning of the timber industry complex in the medium term will be determined by the persistence of the influence of the following factors that limit its development: low growth and removal of wood per unit area of exploited forests, insufficient reforestation efficiency, increased damage to forests and loss of forest resources from fires and diseases due to insufficient efficiency of the protection and protection system forests, the limited scale of the domestic market, the low degree of use of secondary waste paper, the lack of publicly available, reliable information about forest resources, the low level of infrastructural, logistical, scientific and personnel support. In the long term, an increase in domestic and external demand for sawn timber by 2035 is predicted, maintaining the trend towards import substitution of pulp and paper industry products, as well as an

increase in the EU market for fuel pellets (pellets) due to the increase in the cost of natural gas and the expansion of domestic consumption of biofuels. Taking into account the existing factors, the development of the timber industry complex of the Arkhangelsk region will be implemented on the basis of timber industry clusters around the Arkhangelsk Pulp and Paper Mill joint-stock company with the intensification of the use of forest raw materials, including low-quality timber, and the development of woodworking industries with a higher added value.

The increase in mining in the Arctic zone of the Russian Federation stimulates the expansion of projects for the development of primary diamond deposits named after V. Grib and named after M.V. Lomonosov and the Pavlovskoye silver-bearing lead-zinc deposit on the Novaya Zemlya archipelago. In the long term, the emerging trend of reducing the investment of mining companies in exploration will be an unfavorable factor, however, the use of the public-private partnership mechanism will encourage mining companies to conduct exploration in the Arkhangelsk region.

When determining the main scenario conditions, two main indicators should be taken into account: economic development and attraction of human capital.

Since the main losses of human capital are caused by the migration outflow of the educated working-age population, the indicator of the migration inflow of highly skilled labor resources was chosen as the key factor in determining the implementation of the scenario.

The developed model determines the impact of investment growth on the increase in wages as a factor in attracting highly qualified labor resources. The choice of these variables was based on the construction of a correlation matrix to determine the most statistically significant indicators.

The condition for attracting human capital is the average salary, the level of which is higher than in other subjects of the Russian Federation, similar in terms of socio-economic development. The current indicator of the average salary in the Arkhangelsk region is below the average for the NWFD; The Arkhangelsk region is in 6th place among 12 regions of the Northwestern Federal District.

Investment activity will become a key mechanism for the development of the Arkhangelsk region. The intensity of the investment process also depends on the marginal propensity to save and is determined not only by the level of accumulation, but also by shifts in the economic situation, a comprehensive assessment by entrepreneurs of the prospects (horizons) of economic development.

The investment climate will be influenced by the general economic and political situation in the country, the state of foreign trade, the exchange rate of the national currency, new discoveries in the field

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of science, engineering and technology, finding new sources of raw materials and materials, changes in the structure of demand of the population, the size of its income, national traditions, etc.

The formation of a favorable investment climate will be facilitated by the presence of a number of conditions, the main of which are:

a sufficient level of savings for investment, acting as investment resources;

the existence of objects for investment in the form of real and/or financial assets that ensure the preservation and/or increase of invested funds;

the functioning of economic entities capable of making investments;

the presence in the economic system of institutions that ensure the accumulation and

transformation of savings into investments.

The need to achieve a given level of average accrued wages and the level of GRP in the framework of the implementation of the Strategy determines the achievement of the required growth rate of investment in fixed assets. The sources of investments will be federal transfers, foreign investments and attracted funds.

The current investment growth rate, calculated for the period 2018-2021, was 1.02 percent per year. However, over the past 2 years, the average investment growth rate has exceeded 20 percent (the adjusted volume of investments in fixed assets for 2021 amounted to 108.92 billion rubles) (Table 1).

Table 1. Growth rates of investments in fixed assets until 2035, %

2018 (base)	2024 by 2018	2030 by 2025	2035 by 2030	2035 by 2018
100	165.3	177.07	154.7	429.6

To realize the investment potential, the level of debt burden of the regional budget at the level of 50-40 is required.

Another opportunity to increase domestic investment potential is the financial potential of companies.

In the Arkhangelsk region, the following areas of activity have obvious domestic investment potential:

provision of services in the field of culture and sports; provision of health care services; provision of other services;

professional and scientific activity;
real estate activities, hotel and catering activities;

activities in the field of information and communication; mining.

The manufacturing industry, which occupies a

significant share in the production and use of labor resources, has an autonomy coefficient below 20 percent, which indicates low domestic investment opportunities and the need to attract external investors. In the short term, this sector will be the least able to use external financing to support investment activity.

Another source of increasing domestic investment opportunities is public finance. The potential for an increase in mortgage lending may indicate promising opportunities for growth in investment in the construction and related sectors. To determine the financial potential of the population, the PTI indicator was used, which indicates the ratio of the amount of monthly payments on all loans of the borrower to the level of his income.

Table 2. The level of nominal debt burden at the end of the first half of 2020

	Average payment, rubles I-2020	PTI I-2020	Average payment, rubles I-2019	PTI I-2019
Arkhangelsk region	11445	29%	11 419	thirty %
In general for the Russian Federation	12 538	32%	12 278	34%

Normal in the banking classification is the PTI at the level of 30 - 35 percent. The level of the debt burden of the residents of the Arkhangelsk region and the average amount of payment indicate the absence of "indebtedness" and the potential to reorient the population without collateralized short-term loans to

targeted mortgage borrowings (Table 2).

Other aspects that affect the level of investment are indicators of the socio-economic development of the Arkhangelsk region and the growth of the GRP of the Arkhangelsk region for the development of interregional commodity exchange and foreign trade

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turnover.

Based on the analysis of time series and forecasts of foreign trade turnover, the main results of the impact of exports and imports of the Arkhangelsk region on the growth of GRP and investments were obtained:

an increase in exports by one percent will lead to an increase in GRP by 1.19 percent; an increase in imports by 1 percent will lead to an increase in GRP by 0.89 percent;

a 1 percent increase in exports will lead to an increase in investment by 0.92 percent;

a 1 percent increase in imports will lead to an increase in investment by 0.84 percent.

The scenario of socio-economic development of the Arkhangelsk region assumes a low rate of increase in the key rate set by the Central Bank of the Russian Federation, and rather high rates of the physical volume of investments (annual growth will average 106.3 percent).

The current conditions will allow the economy of the Arkhangelsk region to enter the path of growth in average labor productivity, which will lead to an increase in the competitiveness of jobs. The attractiveness of the Arkhangelsk region for the population, especially its young part, will grow, in connection with which, a stable growth vector of the migration balance will be formed and by the beginning of the 3rd stage of the Strategy, the net outflow of the population will stop. However, these rates will not be enough to maintain the population at the current level. The share of exports in the economy will grow, but will not reach a significant level. In addition to those indicated in the target scenario, industries of the digital economy will receive accelerated development. The key source of growth will be the shipbuilding and related industries, the transport and logistics complex and the mining industry.

A comprehensive assessment of the forecast values of the working-age population, the average value of labor force participation for the period from 2018 to 2021 (67.6 percent) and the structure of industries in 2020 for all industries allows us to conclude that the need for personnel has decreased by an average of 12.4 percent relative to the level of 2021. The decrease in the need for personnel in 2035 will fall mainly on manufacturing industries.

By the end of the 1st stage, the share of high-tech industries will increase, including through small businesses.

The key driver of economic growth in the target scenario will be the development of the transport and logistics complex and maintenance of the Northern Sea Route, as well as production focused on exports and deliveries to other regions of the Russian Federation. Traditional manufacturing industries will be focused on increasing labor productivity through technological modernization. An independent driver

of development will be industries in which the development of breakthrough technologies is possible, primarily in the markets of composite materials, bio- and information technologies.

The increase in investments will positively affect both the image of the Arkhangelsk region - a rapidly developing territory with an innovative economy, and the wages and living standards of the population. A higher standard of living of the population, in turn, will attract additional human resources and switch migration to an influx of qualified personnel.

The strategy provides for 3 stages of implementation:

1- th stage - 2021 - 2025 - the formation of conditions for development;

2- th stage - 2025 - 2030 - an increase in the rate of economic growth;

3- th stage - 2031 - 2035 - conservation and sustainable socio-economic development.

The stages of implementation of the Strategy differ in terms of conditions, factors, risks of socio-economic development and priorities of the economic policy of the Arkhangelsk region.

1- the th stage (2021-2025) is based on the implementation and expansion of those competitive advantages that the economy of the Arkhangelsk region currently has. At this stage, when the main prerequisites for achieving the priorities of the Strategy are being laid, it will be necessary to make changes to the system of state programs, taking into account the implementation of key projects. By the end of the 1st stage, significant changes will be achieved in the social sphere and conditions for an economic breakthrough will be formed.

2- Stage 1 (2025-2030) is characterized by a significant increase in competitiveness and the volume of attracted investments. At this stage, most of the targets will be achieved.

Institutional conditions and technological prerequisites for development will be created. Cluster interaction will accelerate, small innovative enterprises will actively begin to appear, projects of interregional and international integration will be launched. The external situation will improve, investment growth rates will increase, which will ensure significant economic growth and development of the social sphere.

At the 3rd stage (2031-2035), all key projects will be implemented, conditions for the global competitiveness of the economy of the Arkhangelsk region will be created. Enterprises of the Arkhangelsk region will actively participate in international markets. The Arkhangelsk region will become the economic, social and cultural center of the Russian North.

The significant consequences of the implementation of the target scenario and the increase in investment include:

deep modernization of the economy, provided by

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the organizational and project efforts of the regional authorities to attract investment and manage development processes, will favorably affect the increase in demand for export products of the Arkhangelsk region;

the implementation of large resource-producing and infrastructure projects against the background of the general growth of the world economy will create additional financial opportunities for the formation of a powerful innovation and technology sector and the development of the social sphere;

in the field of managing social processes and developing human capital, there will be a transition from administrative-departmental targeted programs to modern formats of strategic planning based on public consensus and the participation of government, business and society in solving key problems of regional development;

a regional innovation system will be created, including a scientific, educational and innovation-technological complex based on NArFU, special economic zones, technology parks and business incubators will be identified. An innovative and technological sector of the economy and a sector of the digital economy will be formed, which will attract additional highly qualified labor resources, providing them with a competitive level of wages and providing prospects for professional growth;

a reorientation will be carried out with a supportive social policy towards a strategy of targeted investments in promising groups and the formation of an innovative active environment;

attraction of investors for the implementation of promising projects will be an incentive for the integrated development of regional infrastructure (transport and logistics, energy, utilities, telecommunications, business, social and recreational), which ensures the processes of socio-economic development;

the practice of managing the processes of socio-economic development will be formed, including a system of strategic planning and project management (in partnership "authority - business - society") at the level of the Arkhangelsk region and municipalities of the Arkhangelsk region, which will activate the activities of specially created public development institutions.

In general, as a result of the implementation of the target scenario, it is expected to attract highly qualified labor resources by providing a higher standard of living. Stimulation of innovations will make it possible to realize the current potential of human capital, which will have a positive impact on the economic development of the Arkhangelsk region. New technologies, the digital economy, investments in promising projects will increase the importance of human capital and serve as an incentive to create an appropriate social infrastructure. The economic and civic activity of residents will increase significantly.

Through the modernization of existing industries, the formation of the innovation-technological sector of the economy (including the sphere of the digital economy), jobs will be created for graduates of higher educational institutions of engineering, technical, social and humanitarian specialties. This will lead to equalization of the disproportion in the labor market and the migration influx of active innovation-oriented youth. An increasingly important role will be played by the commercialization of the developments of scientific laboratories and research centers of the Arkhangelsk region. A targeted policy to reduce preventable mortality would result in a reduction in working-age mortality equivalent to a 10 percent increase in the working-age population. Efficient work of health care aimed at prolonging the active period of life and maintaining health, will allow to use the labor potential of older people. The sphere of education will serve as a "social lift" and an institution for professional training and personal development of young people. The scientific and educational complex of the Arkhangelsk region will become the initiator and "core" of emerging new public development institutions - platforms for communication, strategy, design, testing of new economic, social and cultural practices.

Taking into account the changes taking place in the socio-economic situation of the Arkhangelsk region and the Russian Federation as a whole, regular adjustment and updating of the Strategy is necessary.

To achieve strategic goals and improve the efficiency of the implementation of the Strategy, a monitoring system for its implementation is being formed, which involves:

formation of an action plan for each stage of the implementation of the Strategy, taking into account the achievement of the planned indicators of the previous stage;

adjusting the provisions of the Strategy in order to ensure its consistency with the priorities of the socio-economic development of the Russian Federation;

creation of a mechanism for monitoring the implementation of the Strategy, including the formation of a reporting system for executors of activities.

The implementation of the Strategy is carried out by the state authorities of the Arkhangelsk region responsible for the implementation of the action plan, in accordance with the authority in the established field of activity. The state authorities of the Arkhangelsk region determine the list of officials who are personally responsible for the implementation of measures and for reporting on the achievement of targets, problems and risks, as well as on the measures taken in connection with them.

The main criteria for the implementation of the Strategy are the achievement of final results, compliance with the deadlines for the implementation

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of activities, targeted and efficient use of allocated funds, including funds from the regional and federal budgets and extrabudgetary sources of funding.

Based on the results of inspections, proposals are prepared and submitted to the Government of the Arkhangelsk Region on the advisability of continuing the implementation of activities, their financing (their termination) or the application of sanctions to participants in their implementation.

The updating procedure is recommended to be synchronized with the annual message of the Governor of the Arkhangelsk Region to the Arkhangelsk Regional Assembly of Deputies on the socio-economic and socio-political situation in the Arkhangelsk Region. Updating should be carried out on the basis of a revision of the content of the main sections of the Strategy, taking into account changes in internal and external factors.

At the end of each of the 3 stages, it is possible to adjust the Strategy - change the Strategy while maintaining the time period for its implementation, taking into account the prevailing internal and external factors.

It is recommended that the action plan for the implementation of the Strategy be adjusted when the Strategy is adjusted or updated, as well as when there are significant changes in external and internal factors that reduce the effectiveness and efficiency of measures.

The mechanism for monitoring the implementation of the Strategy involves the creation of a single information base of expanded socio-economic and financial indicators, which provides for the aggregation of target indicators for municipalities of the Arkhangelsk region. This will allow promptly receiving reliable information characterizing the implementation of the action plan and evaluating the effectiveness of the implementation of the Strategy (Table 3).

In order to monitor the implementation of the Strategy and identify the need for timely updating, target socio-economic and financial indicators for the development of the Arkhangelsk Region at the end of each stage were determined.

Table 3. Target indicators for the implementation of the Strategy

Target indicator name	base value	Target value by years		
	2018	2025	2030	2035
GRP in basic prices, billion rubles	502.85	754.21	1,177.42	1,774.63
The volume of investments in fixed assets from all sources of financing, billion rubles	111.02	192.13	309.33	486.83
Consolidated budget revenues, billion rubles	81.49	89.66	109.41	131.61
Share of SME products/services in total GRP*, percent	13.64	23.70	32.40	40.00
Number of SMEs, including micro-enterprises (at the end of the year), units	14 260.00	14 913.00	15,453.00	15,902.00
Average number of employees (without external part-timers) SMEs, including micro-enterprises, thousand people	77.00	78.60	81.59	84.17
Real disposable money income of the population, % to the previous year	100.20	102.19	102.78	102.99
Average monthly nominal accrued wages of employees for a full range of organizations, rubles	43,983.79	58,543.95	74,944.65	92 071.00
Population with cash incomes below the subsistence level, percent of the total population	14.30	7.15	5.87	5.01
Agricultural products in farms of all categories, billion rubles	13.05	17.03	24.04	34.94

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The volume of shipped goods of own production, performed works and services on their own by type of economic activity "Manufacturing", billion rubles	177.99	454.83	715.03	1,093.80
Share of products of high-tech and knowledge-intensive sectors of the economy in GRP, percent	21.6	31.0	34.09	36.60
Life expectancy at birth, years	72.20	74.67	76.93	78.71
Total fertility rate, number of children per woman	1.75	1.62	1.69	1.73
Annual housing commissioning, thousand sq. m. meters	352.00	433.47	487.83	533.13
The value of exports of non-commodity non-energy goods, million US dollars	852.00	1,746.00	1,891.00	2 319.00
Permanent population as of January 1, thousand people	111.03	1,054.34	1,026.78	1,011.86
Average annual number of people employed in the economy, thousand people	507.00	499.45	496.36	493.80
Unemployment rate (according to ILO methodology), percent	6.40	6.31	6.26	6.22
The volume of shipped goods of own production, performed works and services	34.49	47.25	61.76	77.26
Target indicator name	base value	Target value by years		
	2017	2024	2030	2035
own resources by type of economic activity Mining, billion rubles				
Amount of work performed by type of economic activity "Construction", billion rubles	54.49	90.29	153.35	241.65
Retail trade turnover, billion rubles	251.68	360.54	593.42	1,000.84
Turnover of public catering, billion rubles	13.80	20.91	32.44	47.71
The volume of paid services provided to the population by enterprises and organizations, billion rubles	68.44	101.37	158.96	246.69
Number of registered crimes, thousand units	20.30	18.35	16.23	14.47
Number (number) of people killed in traffic accidents per 100,000 population	9.30	4.75	3.67	3.17
Export, million US dollars (in actual prices)	2,286.70	2939.00	2907.80	3470.10
The volume of exports of services, billion US dollars	0.00	0.45	0.60	0.79
Export of products (goods) by organizations of the Arkhangelsk region, million rubles	50,261.9	62,195.90	57 172.00	64,836.20
Total consumption of natural gas as motor fuel, thousand m3	36.97	57.19	66.34	71.49

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Energy intensity of GRP under comparable conditions relative to 2007, tce/mln. rub.	36.86	33.49	28.60	23.02
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In the long term, the role of the demographic barrier to growth will increase, which will significantly constrain the possibilities of economic development. Reducing the impact of negative demographic trends is possible through an active migration policy and a significant increase in labor productivity, based in the forecast period on investment growth and an increase in the savings rate.

The current trend has formed an average growth rate for the period 2018-2021 at the level of 3.4 percent. To achieve more significant growth rates, a fundamental change in the economic model is required, an increase in the share of high-tech and innovative industries in the GRP structure to 25-30 percent. Private investment plays a key role in economic development.

Implementation of the Strategy is planned using several sources of funding. In order to exclude a serious increase in the burden on the regional budget, a significant part of the projects is synchronized with existing national projects and state programs. Sources of funding for these projects include:

- federal budget;
- federal fund of obligatory medical insurance;
- the social insurance fund of the Russian Federation;
- budgetary and non-budgetary funds.

For the implementation of large projects in the industrial sector, it is planned to attract external private, including foreign, investments.

In addition, some of the projects that provide for the modernization of public administration mechanisms are supposed to be implemented without funding.

The remaining projects will be implemented with funding from the regional budget; at the same time, a gradual reduction of budgetary funds is envisaged due to the transition to self-sufficiency and attraction of external investors. A significant part of the projects will be implemented through public-private partnership mechanisms, which will also reduce the burden on the regional budget.

For the subsequent implementation of the Strategy, the implementation of a balanced budget policy, the fulfillment of social obligations, it is necessary to lay down mechanisms for its implementation, namely:

- creation of investment-attractive conditions, reduction of administrative and other barriers, expansion of the list of public services and reduction of the terms for their provision, digitalization of the economy, expansion of cooperation, creation and development of clusters;
- involvement of residents of the Arkhangelsk

region in the implementation of the most socially significant projects, expansion of interaction between government, business and society;

- increasing the openness of the activities of regional and municipal authorities, including with the use of information technology;

- development of the institution of public-private partnership.

These mechanisms will allow in the future to maximize the result expected from the implementation of the Strategy. The greatest efficiency will be achieved by combining the project approach with the best program-target management methods.

The growing need to attract additional investments makes it necessary to increase the level of openness of the activities of the state authorities of the Arkhangelsk region and local governments, improve the technological state of the associated infrastructure. In addition, the creation of a favorable investment climate should be duplicated at the municipal level, which confirms the need to form common areas and methods of interaction with investors at all levels of government:

- introduction of a single standard for the formation of the investment environment, providing for the uniformity of approaches to interaction with investors for the executive bodies of state power of the Arkhangelsk region and local governments;

- strengthening of interdepartmental interaction, formation of a communication scheme at the junctions of the areas of responsibility of the executive bodies of state power of the Arkhangelsk region;

- determination of key performance indicators related to the quality of cluster interaction and the contribution of the project to the total annual investment;

- increasing the transparency and openness of the activities of state authorities of the Arkhangelsk region, including the provision of services in electronic form.

Despite the fact that the implementation of the Strategy is based on project decisions, an integrated system of management, financing and control goes beyond the implementation of individual projects. A synergistic effect is expected from the totality of all projects, which ensures the growth of GRP, an increase in the investment attractiveness of the Arkhangelsk region and a corresponding increase in the well-being of its inhabitants.

The implementation of the Strategy implies a change in the approach to the allocation of financial resources: the transition from direct state support to the creation and support of the necessary institutional

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conditions for attracting private investors. The main requirement for the formation of the institutional conditions and mechanisms of the Strategy is their flexibility and orientation towards the development and encouragement of entrepreneurial and innovative initiatives on the part of business.

Of priority importance is cooperation with large businesses that are able to take on the burden of implementing the investment projects of the Strategy, as well as participate in solving socially significant problems. In this case, additional consideration of the interests of business, acting in strategic partnership with regional authorities, and control over the forms and methods of interaction are assumed so that the interests of the population and state interests are not violated. Successful implementation of the Strategy is possible only if the administrations of large cities, local governments and the population are directly involved in this process. The involvement of the population involves both participation in management and control, and in the implementation of individual projects. At the same time, all participants must take responsibility in proportion to their obligations.

When implementing the Strategy, geopolitical challenges and threats must be taken into account. The importance of the issue of sufficient population and development in the Arctic and Arctic territories necessitates the organization of new industries and areas of application of labor.

Efficient public administration provides for the modernization of the system of state and municipal administration, taking into account new requirements and opportunities for the economy. Based on this, a number of tasks are formulated:

creation of a partnership model of interaction between business and government; increasing confidence in the authorities through the creation of a unified

a transparent information environment that minimizes corruption risks in the activities of government bodies and includes the formation of an automated decision support system;

the transition of e-government from the automation of departmental processes to a user orientation - the creation of an effective system for collecting, processing, storing and providing consumers with spatial data that meets the needs of the state, business and citizens for up-to-date and reliable information;

reduction of resource costs due to the transition to remote and electronic interdepartmental interaction, the creation of common databases and an effective system of interaction at the regional and local levels;

creating conditions for the development of electronic justice, the introduction of modern information technologies to automate the process of legal expertise of municipal regulatory legal acts;

creation of conditions for active civil-public control and ensuring the participation of civil society

in assessing the effectiveness of the activities of public authorities;

implementation of a set of measures to improve the efficiency and effectiveness of regional state control (supervision) and municipal control, including in the accounting and registration area;

development and implementation of mechanisms for evaluating the effectiveness and efficiency of the actions of local governments aimed at increasing the investment attractiveness of the municipalities of the Arkhangelsk region;

involvement of the residents of the Arkhangelsk region in the management of the development of the Arkhangelsk region, support by all available administrative resources of decision-making mechanisms by public authorities with the participation of stakeholders;

updating the state programs of the Arkhangelsk region, aimed at improving the efficiency of spending funds and the effectiveness of achieving targets by creating a state program for each goal of the Strategy.

In the Arkhangelsk region, a unique experience in the application of project management has been implemented, namely, a project office has been created in order to organize and ensure the functioning of the strategic planning and management system in the Arkhangelsk region.

According to the results of 2018, one of the best practices of the project office for training civil servants in project management was implemented in the Arkhangelsk region.

The practice of project management will become one of the main mechanisms for the implementation of the Strategy.

Despite the high appreciation of the practice of project management in the Arkhangelsk region, it is recommended to improve the methods of interaction between the participants in the project management system with the public, as well as to spread the practice of project management to the municipal level.

The main objectives of the spatial development of the territory of the Arkhangelsk region are:

development and optimization of the existing settlement structure, including the development of emerging group systems of settlements;

diversification of industrial specialization of single-industry towns through the development of a network of enterprises for the production of products and services;

development of the Arctic territories, territorial engineering and transport infrastructure, leading sectors of the economy of the Arkhangelsk region, rural settlements specializing in the production of agricultural products;

development of the ecological framework and creation of a favorable environment for human life by achieving a balance of economic and environmental interests.

In modern conditions, the possibility of forming

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and implementing an effective regional policy based on an analysis of the structural characteristics of the Arkhangelsk region is of particular importance. The study of the features of the spatial organization of the Arkhangelsk region makes it possible to adequately respond to the consequences of the polarization of the socio-economic space, take into account the characteristics of individual territories in the implementation of regional policy, support the development of "growth poles", strengthen the competitive advantages of individual territories.

The result of the analysis of the socio-economic development of the municipalities of the Arkhangelsk region is the zoning of the Arkhangelsk region. Zoning is a definition of groups of municipalities of the Arkhangelsk region with similar socio-economic conditions and development prospects. Based on the analysis, the municipalities of the Arkhangelsk region can be divided into the following categories:

"poles of growth" (the cities of Arkhangelsk, Severodvinsk, Novodvinsk, Kotlas and Koryazhma). The urban districts of the Arkhangelsk region have the most positive dynamics of demographic indicators, the maximum indicators of economic activity and a developed sectoral structure. Territorially, the municipal formations of the Arkhangelsk region form 2 "growth poles" - the North, including Arkhangelsk, Severodvinsk and Novodvinsk, and the South, including Kotlas and Koryazhma. The most important sectors of the economy of the Arkhangelsk region are concentrated on the territories of these 2 "poles of growth" - forestry, woodworking and pulp and paper; in addition, they are transport hubs, centers of the tertiary sector and food production. Northern

the "growth pole" also includes fisheries and shipbuilding;

territories of influence of the "growth poles" (Vilegodsky, Kotlassky, Krasnoborsky, Lensky, Primorsky and Kholmogorsky municipal districts). These territories are concentrated around the "poles of growth", they are characterized by a less developed economy, outflow and aging of the population, but they play an important role in providing the "poles". Their functions include maintenance of infrastructure, marketing of agricultural products, other works and services. In the future, the influence of the "growth poles" should increase, ensuring the socio-economic development of these territories;

sustainable developing territories (Velsky and Ustyansky municipal districts). They are characterized by not as high demographic and economic indicators as those of the "growth poles"; against the backdrop of a developed structure of the economy, there are no obvious development problems;

developing territories with systemic problems (Kargopolsky, Konoshsky, Nyandoma, Onega and Plesetsky municipal districts). The population of these municipalities is predominantly urban. The socio-

economic indicators of these territories are worse than those of the previous group, but they have a relatively developed economic structure: forestry is developed in the Onega and Plesetsk municipal districts; in the Onega municipal district - woodworking; in Konoshsky and Nyandoma municipal districts - maintenance of railway transport; in the Plesetsk municipal district - bauxite mining; in the Kargopol municipal district - the dairy industry;

poorly developed territories (Verkhnetoemsky, Vinogradovsky, Leshukonsky, Mezensky, Pinezhsky and Shenkursky municipal districts). These municipal districts are predominantly rural settlements of the Arkhangelsk region, which are characterized by the greatest outflow and aging of the population, the smallest scale of economic activity and sectoral diversification of the economy, as well as poor infrastructure in the field of transport and communications and, as a result, the inaccessibility of a number of municipalities. Nevertheless, some of the municipal districts are characterized by specialization in forestry (Vinogradovsky, Pinezhsky and Shenkursky municipal districts), for the Mezensky municipal district - in fisheries.

Municipal formations of the Arkhangelsk region "Novaya Zemlya" and "Mirny" are not categorized due to the lack of a number of indicators for analysis.

In the conditions of polarization of the territory of the Arkhangelsk region, it is necessary to use systemic regulation of its development. The transition from a concentrated economy to a distributed one should be carried out on the basis of determining the most profitable specialization of various territories, as well as their competitive advantages. On the one hand, this will allow concentrating efforts in the "poles of growth", on the other hand, it will create prerequisites for the development of municipalities classified as underdeveloped territories.

The regulation of territorial development requires the implementation of a strategic approach that ensures the preservation and development of competitive advantages in the long term. Under these conditions, the task of regional and municipal authorities is to improve the conditions that determine competitive advantages in the areas of specialization of the territory. Of particular importance is the objective determination of priority areas of development for subsidized territories, since the problem of choosing the most efficient options for using already very limited resources is extremely relevant.

In the context of the polarization of the socio-economic space, in accordance with the identified planned growth rates of the companies' revenues in the selected competitive zones, the following types of regional policy are the most significant:

stimulating regional policy, using the means at its disposal to accelerate regional development, prepare its next phases by directly encouraging new

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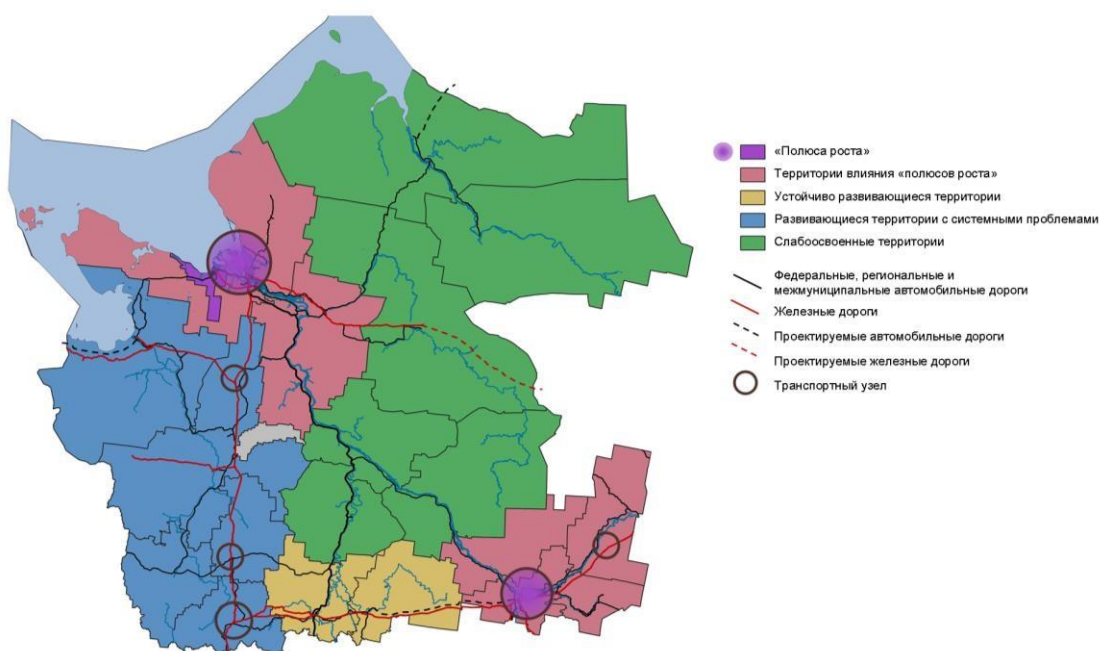
types of activities, economic relations (as well as curtailing old ones) through infrastructural and informational preparation of the territory;

a compensatory regional policy that uses the same means to mitigate the negative consequences, primarily of a social and environmental nature, that are associated with any stage of economic development. Most often, such a policy is one of the forms of income redistribution to reduce the damage from uneven regional development in the form of assistance to municipalities classified as developing territories with systemic problems and underdeveloped territories, their arrangement, which

requires subsidies, benefits, professional retraining of the able-bodied population, etc. P.;

an adaptive regional policy that promotes the adaptation of more mobile and manageable components of regional development to inertial, less manageable and assessed as irremovable. An example is the concentration of housing, industrial and other construction in places that have become attractive to the population, regardless of what type - central or peripheral - they belong to.

A feature of the Arkhangelsk region is the polarization of spatial development.



Picture 10. Socio-economic zoning of the Arkhangelsk region

In the current situation, it is necessary to identify areas with similar conditions and problems, as well as to develop unique mechanisms for the development of the territory. The use of individual approaches for the development of the zones of the Arkhangelsk region will provide a solution to the problems and challenges specific to each of them (Figure 10).

The management of the same territory can be carried out at different levels (federal, regional, municipal). To better ensure territorial management, it is necessary not only to compare the strategies for the socio-economic development of the municipalities of the Arkhangelsk region with the Strategy, but also to coordinate such strategies of the municipalities of the Arkhangelsk region of the same zone with each other.

As a mechanism for the implementation of the Strategy, it is planned to apply a policy of spatial zoning with the definition of priority areas for development for each identified socio-economic zone.

"Poles of growth" - these territories act as drivers for the development of the entire Arkhangelsk region.

The instrument for ensuring the rapid development of the social and economic spheres is the introduction of innovations, as well as the creation of conditions conducive to the retention and attraction of highly qualified personnel for employment in innovative industries, namely:

- development of a multimodal logistics complex;
- creation of new sectors of the economy (biotechnological production, development of aquaculture, production of biopolymers, development of paint technologies);
- development of educational and scientific centers; formation of a high-tech technopark;
- development of information infrastructure, including the creation of a regional data center;
- improvement of cluster policy, including expansion of inter-cluster interaction;
- improving the quality of the housing stock;
- improvement of cities based on "smart technologies"; development of suburban agriculture.

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Territories of influence of "growth poles" - "growth poles" influence the development of these territories, which, in turn, play a significant role in the functioning of "growth poles". The priority measure is the support of the territories, expressed in the creation of the missing infrastructure and the stimulation of employment, the expansion of the functions of the territory, in its convergence with the "poles of growth" in the socio-economic aspect, primarily:

- development of the transport and communication framework;
- implementation of investment projects (agriculture, industry, services);
- support for small business in rural areas;
- creation of a network of reference villages and development of infrastructure in rural areas;
- implementation of initiatives of rural residents through the activities of territorial public self-government;

- creation of a comfortable urban environment.

Sustainable developing territories are the backbone agricultural territories of the Arkhangelsk region, as a result of which the implementation of projects for the development of the agro-industrial complex becomes a priority; no less important are projects aimed at supporting the timber industry and improving the living conditions of the population. The objectives of the development of these territories include:

- implementation of investment projects of the agro-industrial complex;
- development of forms of cooperation;
- support for small business in rural areas; implementation of reforestation projects;
- assistance in the creation of investment projects for the timber industry;
- creation of a network of reference villages and development of infrastructure in rural areas;
- implementation of initiatives of rural residents through the activities of territorial public self-government;
- renovation of urban housing;
- 100% supply of water supply and sewerage to residential buildings in urban areas;
- providing investment platforms for the consumer market and business;
- creation of a comfortable urban environment.

Developing territories with systemic problems - territories are characterized by a fairly developed infrastructure and economy, a high proportion of the urban population, but they have insufficient conditions to meet their needs. To solve problems you need:

- implementation of reforestation projects;
- stimulation of employment of the population in small and medium-sized businesses;
- renovation of urban housing;
- 100% supply of water supply and sewerage

to residential buildings in urban areas;

- providing investment platforms for the consumer market and business;
- creation of a comfortable urban environment;
- support for small business in rural areas;
- creation of a network of reference villages and development of infrastructure in rural areas;
- implementation of initiatives of rural residents through the activities of territorial public self-government;
- conducting a high-speed Internet network, including in hard-to-reach settlements.

Weakly developed territories - territories to the least extent received infrastructural and economic development, excluding the development of forestry and fisheries in some areas. The presence of forest reserves in hard-to-reach areas is noted. For a number of municipalities of the Arkhangelsk region, the main problem is the fragmentation of the territory due to underdeveloped infrastructure and the presence of natural barriers. Territories require:

- installation of a high-speed Internet network, including in hard-to-reach settlements;
- connection of local networks to the centralized energy system of the Arkhangelsk region and provision of year-round road communication;
- implementation of projects for reforestation and transport development of remote areas of forestry;
- support for small business in rural areas;
- creation of a network of reference villages and support of infrastructure in rural areas;
- implementation of initiatives of rural residents through the activities of territorial public self-government;
- incentives for resettlement in settlements with better socio-economic conditions.

The basis of the spatial structure of the economy will be sectoral clusters, territorially tied to economic growth zones. To do this, it is necessary to continue the development of all types of infrastructure (transport, energy, engineering, social, scientific and educational, financial and others), aimed at improving the conditions for competition and facilitating the creation of new organizations in developing clusters, including within the framework of special forms of spatial organizations (special economic zones, industrial parks, research parks, etc.).

The key condition for effective spatial development is the close interaction between the state authorities of the Arkhangelsk region and local governments. To do this, it is necessary to empower the state authorities of the Arkhangelsk region and form associations of local governments within each zone. The development of the territory of each zone should be carried out on the basis of strategic planning documents with a clear division of competencies between the state authorities of the Arkhangelsk region and local governments. If necessary, the

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transfer of municipal powers to the executive bodies of state power of the Arkhangelsk region, the implementation of which in conditions of low population density is inefficient, should be organized.

The implementation of the Strategy with the use of the spatial zoning policy will make it possible to save budgetary funds and improve the efficiency of the implementation of the regional spatial policy.

The basis for the implementation of the Strategy is the involvement of the population of the Arkhangelsk region in this process. At the moment, territorial public self-government is being actively created and is functioning in the Arkhangelsk region. For this reason, it seems appropriate to use the mechanisms of social partnership. Social partnership is presented in the form:

- collective negotiations aimed at organizing the development of collective agreements, agreements, as well as their conclusion;

- holding public hearings during the development of draft regional laws and amendments to them;

- legal advice on the organization of the labor process; trade union activities;

- organization of tripartite commissions.

In addition, social partnership can be based on a social contract, which involves the performance of a number of state functions by a non-state structure.

A significant characteristic of social partnership is the possibility of participation in decision-making by all representatives of society. For this, it is necessary to create an appropriate institutional environment. The formation of such conditions is based on the cooperation of non-profit organizations with public authorities. Such activities of non-profit organizations are based on the following mechanisms:

- promoting the involvement of the population in the implementation of decisions;

- introduction of social innovations;

- charity;

- TOS support.

As a result of the consolidation of the efforts of state authorities and civil society on issues of socio-economic development, the interests of public authorities, business and civil society will be coordinated in the development and adoption of significant decisions in the social and economic spheres.

To increase confidence in public authorities, it is necessary to develop additional legal norms aimed at increasing the publicity of the exercise of state power by expanding the list of information about the activities of public authorities subject to disclosure, increasing the number of openly published reporting materials, and implementing measures to consolidate legal mechanisms for joint decision-making society and the state (the institute of public hearings, public commissions and public expertise), as well as to strengthen interaction and complementary cooperation between public authorities and local

governments.

The use of the mechanism of public-private partnership (hereinafter also referred to as PPP) is expedient for the implementation of most of the objectives of the Strategy. A systematic approach to the development of infrastructure and attraction, for these purposes, extrabudgetary funds, involves taking measures to form and develop the institutional environment in the field of PPP.

Among PPP projects in the field of transport, concessions prevail, which is due to many years of experience in structuring projects within the framework of concession legislation and, as a result, the confidence of investors and financing organizations in this form of PPP. Under PPP, concessions are able to partially cover the costs of the regional budget or local budget for the implementation of the project.

Due to the insufficient funding of PPP projects at the regional level, a mechanism has been developed for providing interbudgetary transfers for the implementation of concession agreements in the field of road PPP projects at the regional level. In order to finance regional road projects under PPP, a list of transport facilities has been approved for which it is planned to conclude concession agreements:

- creation of the highway Ust-Vaga - Yadrikha on the section km 200 - km 215, the volume of investments - 1,105.03 million rubles;

- creation and reconstruction of the highway Ust-Vaga - Yadrikha on the section km 174 - km 200, km 215 - km 219, the volume of investments - 2,219.4 million rubles;

- creation of the Kotlas - Koryazhma highway on the section km 0 - km 41 (with a bypass of the cities of Kotlas and Koryazhma), the volume of investments is 5,000.0 million rubles.

It is planned to expand the designated list of transport facilities, since the use of the PPP mechanism can partially compensate for the budget costs for the implementation of road projects in the Arkhangelsk region at the expense of private individuals. Projects for the construction and reconstruction of roads at the regional level are supposed to be sent to the Interdepartmental Commission for the selection of projects for the construction or reconstruction of roads (sections of roads and (or) artificial road structures) implemented by the constituent entities of the Russian Federation under concession agreements.

The experience of using PPP mechanisms in the sphere of housing and communal services and housing construction has been implemented for quite a long time. During the period of economic instability, special support is provided to businesses working in the housing and communal services: subsidizing the interest rate on loans for housing and communal services projects is being launched, mechanisms are being created for direct co-financing of infrastructure

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modernization in small towns. In addition, the concession legislation has been improved in such a way that all concession agreements must include targets for investors.

As one of the promising tools to change the situation in the housing and communal sector, public-private partnership is considered, based on attracting private investment in order to optimize public spending. To date, about 3 dozen PPP projects are being implemented in the Arkhangelsk region, mainly in the field of public utilities. The largest of them is the concession agreement concluded in October 2020 in relation to individual facilities of centralized water supply and sanitation systems owned by the municipal formation "City of Arkhangelsk". The agreement is designed for 49 years, the total investment is 12.8 billion rubles in 2020 prices.

The transfer of communal facilities to the concession will allow solving 2 global tasks at once - to provide the population with high-quality communal services without increasing their cost, and to realize the economic potential of the communal sector. It is recommended to create a subprogram for the development of public-private partnerships. It is also possible to apply the positive experience of other constituent entities of the Russian Federation, for example, the creation of a single operator of housing and communal services in order to consolidate public utilities in the Arkhangelsk region through the conclusion of concession agreements with local

governments of municipalities of the Arkhangelsk region.

Public-private partnership is one of the mechanisms for implementing social projects. Social infrastructure projects are characterized by poor payback, which makes them unattractive for investors. For this reason, the practice of guaranteed payments to the individual implementing the project is common. This mechanism can be used in the areas of healthcare, education, culture, sports and social protection. For the implementation of large projects of regional importance, the public partner may be the state authority of the Arkhangelsk region, while for local projects, the public entity may be the local government.

Private business and the state together, using the advantages of each of the parties, can implement many significant social projects. Despite the fact that the mechanism of public-private partnership in the social sphere is being implemented quite successfully, a transition from one-time events to systematic work in this direction is expected.

The implementation of investment projects is a mechanism that allows financing the activities of the Strategy using extra-budgetary sources, which include the companies' own and borrowed funds. Some of the activities of the Strategy are included in the list of priority investment projects of the Arkhangelsk region (Table 4).

Table 4. Priority investment projects being implemented and planned for implementation in the Arkhangelsk Region

Industry	name of the project	Amount of financing, million rubles	
		own funds	borrowed funds
Timber industry complex	Increase in volumes of deep wood processing, organization of biofuel production on the basis of Forest LLC	39.2	261.4
Timber industry complex	Organization of a modern full-cycle timber processing complex in the Arkhangelsk region on the basis of Pomor Sawmill Company LLC	500.0	10,542.0
Timber industry complex	Reconstruction of cardboard production	5,125.2	5,766.5
Timber industry complex	Construction of a sawmill and woodworking complex in the Maimaksan district of Arkhangelsk, st. Rodionova, 25	1259.7	2939.4
Timber industry complex	Organization of production for the processing of low-grade wood and sawmill waste on the basis of a limited liability company	2,795.2	5650.3
	"Ustyansk timber processing company"		
Fuel and energy complex	Organization of centralized power supply for Mezensky and Leshukonsky districts	203.0	3,834.0
Fishery complex	Construction and acquisition of fishing vessels	4982.6	11,165.60

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Agro-industrial complex	Dairy complex "Kholmogorsky"	761.0	-
Agro-industrial complex	Construction of a livestock farm for 1584 dairy cows with rearing of replacement young animals in the village of Nagorskaya, Ustyansky district, Arkhangelsk region (3rd stage)	96.9	301.4
healthcare	Establishment of a family medicine center in the Mayskaya Gorka district of the city of Arkhangelsk	120.0	-
Diamond mining industry	Mining and processing plant at the diamond deposit named after. M.V. Lomonosov	73400.0	-
Extractive industry	Construction of a mining and processing plant on the basis of the Pavlovskoye lead-zinc ore deposit and the port complex, Yuzhny Island of the Novaya Zemlya archipelago	10 650.0	24,850.0
Production of building materials	Design and construction of a workshop for the production of precast concrete products by continuous formless molding	27.5	148.4
Collection, treatment and disposal of waste	Construction of a modern inter-municipal integrated system for the treatment of municipal solid waste in the Arkhangelsk region	345.2	805.4
Exhibition activity	Exhibition Center "NORD-EXPO"	342.0	-

The total amount of financing of priority investment projects being implemented and planned for implementation in the Arkhangelsk Region is 166,911.8 million rubles. The activities financed within the framework of the priority investment projects of the Arkhangelsk region mainly relate to projects for the balanced development of an innovative forest industry cluster and high

technologies in timber processing.

To carry out activities aimed at supporting the development of the innovative infrastructure of the timber industry cluster, 5 investment projects are being implemented with a total funding of 24,336.9 million rubles (Figure 11).



Figure 11 Amount of financing of priority investment projects of the Arkhangelsk region by sectors of the economy

In the field of energy security of the Arkhangelsk region, it is planned to implement a project to organize a centralized power supply for the Mezensky and Leshukonsky districts with a total funding of 4,037 million rubles to carry out activities to connect isolated energy districts to the centralized energy system of the Arkhangelsk region.

The implementation of large projects requires significant investments. Inclusion in the project of the

interests and resources of different subjects of the Russian Federation and foreign countries allows better diversification of risks and more efficient spending of public and private funds. The advantage of interregional and international projects is the ability to attract additional competencies, strengths of the constituent entities of the Russian Federation and foreign partner countries.

Interregional investment projects and projects in

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the field of foreign economic cooperation are carried out in the following areas:

- 1) implementation of transport infrastructure development projects "Belkomur" and "Deep water area of the seaport of Arkhangelsk";
- 2) formation of large transport and logistics hubs within the framework of the program "Development of the Northern Sea Route and ensuring navigation in the Arctic";
- 3) expansion of research cooperation within the framework of the project "Creation of equipment and technologies for oil and gas and industrial engineering necessary for the development of mineral resources of the Arctic zone of the Russian Federation";
- 4) development of export-oriented projects in the fish, timber processing, mining, chemical and shipbuilding industries;
- 5) scientific and research collaborations of international and Russian universities with higher educational institutions of the Arkhangelsk region;
- 6) formation of an interregional and international tourism cluster;
- 7) expansion of interregional cooperation within the framework of the Silver Necklace of Russia project;
- 8) development of event tourism and interaction in the field of culture by expanding the list of all-Russian and interregional cultural and sports events;
- 9) expansion of museum and cultural

cooperation projects within the Barents/Euro-Arctic region.

Conclusion

The long-term development of the Arkhangelsk region will be carried out within the framework of the general federal socio-economic policy, taking into account regional specifics. First of all, this implies participation in the implementation of federal sectoral strategies, long-term programs, and priority national projects.

In accordance with the forecast for the socio-economic development of the Arkhangelsk region for the period up to 2035, the average annual index of investments in fixed assets during 2020-2035 will be 105.39 percent.

Taking into account the projected level of the investment deflator index, comparable to the long-term inflation rate forecast by the Ministry of Economic Development of the Russian Federation, in current prices, the annual volume of investments should increase from 108.92 billion rubles in 2020 to 486.83 billion rubles in 2035 year. Thus, the amount of financial resources required for the implementation of the Strategy will be about 4.4 trillion. rubles from 2021 to 2035 (Figure 12).

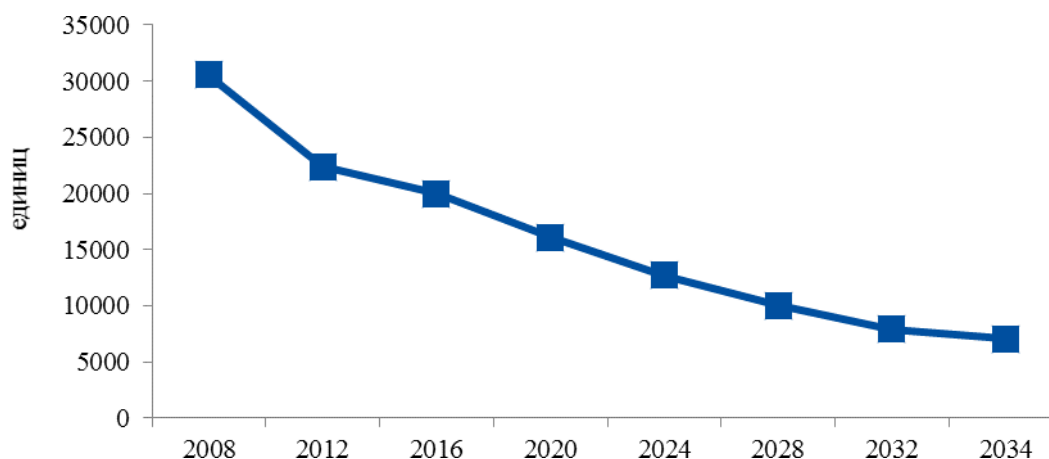


Figure 12. Forecast of the number of registered crimes, units

The mechanisms for resource provision of the Strategy, in addition to government programs, are:

intensification of activities to submit applications for financing of planned investment projects of capital construction in all existing and developing federal programs;

wide use of funds from the federal targeted investment program, the Investment Fund of the Russian Federation; federal budget subsidies, subsidies and other intergovernmental transfers;

activation of participation in priority national projects;

inclusion of investment projects of the Arkhangelsk region in projects of federal long-term sectoral strategies, concepts, programs, including priority national projects;

attraction of funds from the regional and federal budgets, as well as extra-budgetary sources to finance programs and projects within the framework of comprehensive investment plans for the

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modernization of single-industry towns;
 strengthening financial discipline and ensuring strict observance of the undertaken obligations for the intended use of attracted budgetary funds;
 interaction of the Arkhangelsk region with Russian and foreign financial organizations, including for the purposes of issuing debt financial instruments aimed at raising funds;
 implementation of direct and portfolio private investments;
 cooperation with specialized development institutions and participation in projects of both international and macro-regional levels.
 Directions for increasing budgetary self-sufficiency include: privatization and use of state and municipal property;
 stimulating the transition of agricultural entities, leading personal subsidiary plots, to entrepreneurial forms;
 optimization of budget expenditures in the social sphere through the formation of a targeted principle for the provision of social services;

transfer of non-core functions of state and municipal institutions to outsourcing;
 development of municipal-private partnerships, mainly in areas requiring budgetary support (housing and communal services, transport);
 consolidation of municipalities of the Arkhangelsk region, optimization of the system of local governments;
 optimization of the system of benefits;
 increasing the tax base for property tax by bringing the cadastral value of real estate to the market level.
 The system of 7 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 the consolidation of 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 5).

Table 5. 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
social development	ensuring a high quality of life for the population by increasing the availability of high-quality social services, the implementation of spiritual and cultural development, interethnic harmony
Effective Governance: Implementation Tools	creation of a modern development management system, introduction of advanced practices of public participation, new instruments of tax, budget and investment policy

The implementation of the Strategy is designed to respond to the main demographic challenge of the long-term development of the Russian Arctic regions. In conditions of rather high mobility of the population,

people choose to live in those regions where they can realize their potential. The answer to this should be an appeal to the needs and capabilities of each inhabitant of the regions of the Russian Arctic and positioning

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the state as an assistant, the role of civil society in governance should be radically changed, mechanisms for effective feedback from residents should be

established. Therefore, at the center of the Strategy are people and their well-being.

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Article



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STRATEGY FOR THE DEVELOPMENT OF THE MARINE INFRASTRUCTURE OF THE RUSSIAN ARCTIC

Abstract: *in the article, the authors argue that the implementation of the Fundamentals of the State Policy of the Russian Federation in the Arctic for the period up to 2035 will ensure outstripping all-Russian growth in the quality of life and incomes of the population of the Arctic zone of the Russian Federation (AZRF), including people belonging to small peoples. Today, the main trend in the development of social infrastructure facilities in the regions of the North and the Arctic of the Russian Federation is an increase in disproportions, causing a decrease in the availability of quality social services in cities that are not administrative centers, in remote and small settlements. The implementation of the Strategy is designed to respond to the main demographic challenge of the long-term development of the Russian Arctic. In conditions of rather high mobility of the population, people choose to live in those regions where they can realize their potential. The answer to this should be an appeal to the needs and capabilities of each inhabitant of the Russian Arctic and positioning the state as an assistant, the role of civil society in governance should be radically changed, mechanisms for effective feedback from residents should be established. Therefore, at the center of the Strategy are people and their problems.*

Key words: seaports, competitiveness, structure, infrastructure, sea berths, strategic development, profitability, profit, financial condition, profit, priority, Stable TEP.

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Introduction

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The importance of seaports for the development of the AZRE economy is extremely high. A modern seaport is a major transport hub that connects various types of transport: sea, river, rail, road, pipeline, etc. Port activities are a strategic aspect of the development of the state's economy and one of the key

links in the functioning of the transport system. Ports play a significant role in ensuring transport independence, defense capability, foreign trade, as well as in ensuring the transportation of national economic goods, the development and use of Russia's transit potential. In the seaports, the national maritime, customs and border policy is implemented, and state port control is carried out. The Russian Federation has the longest coastline of the sea coast in the world.

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Today, the sea port economy of Russia is more than 900 port complexes with a capacity of about 800 million tons, a mooring front length of about 150 thousand linear meters, located in 63 sea ports included in the Register of the country's sea ports, where more than half a billion tons of various cargoes are handled.

The volume of cargo handling in Russian ports over the past decade has more than doubled and for the first time in the history of domestic seaports in 2021 exceeded the five hundred billion mark.

The structure and volumes of cargo transshipment in seaports are largely determined by the trends in the development of the country's economy. In this regard, we will analyze the trends in the development of seaports in different periods.

Thus, in the period of the USSR, under the conditions of a planned economy, in the structure of cargo flows in the 80s, as a result of a significant increase in foreign trade cargo turnover, a disproportion was formed between the carrying capacity of the fleet and the throughput of ports. Due to the lack of port facilities during the period of mass receipt of goods, especially during the transshipment of imported grain and other food products, up to 400 units were idle in the roadsteads of seaports, waiting for unloading. transport ships, which led to the death of material values, the loss of currency, the delay in the delivery of goods to consumers and the loss of their commercial condition.

But, despite the significant shortage of port facilities in the period from 1980 to 1990. there was an increase in the cargo turnover of the seaports of the USSR from 392.6 million tons in 1980 to 456.0 million tons in the peak year of 1984 (by 1.2 times) and up to 403.4 million tons in 1990.

By the end of the 90s of the twentieth century, Russian seaports had a throughput capacity of 360 million tons of cargo per year and fully satisfied the country's needs for reloading foreign trade and national economic cargo, and in terms of tonnage, the transport fleet occupied one of the leading places in the world.

The collapse of the USSR led to a sharp decline in production, disruption of existing economic ties and cargo flows, a significant deterioration in the provision of transport services for Russia's domestic needs and foreign trade, and the loss of foreign investors. At the same time, within a short period of time, the integration of Russian foreign trade transportation into a single world transport system took place.

The period of modern Russia (1991-2025).

The main result after the crisis development for the Russian financial market is that, despite serious crisis shocks, it managed to survive and ensure gross growth in cargo transshipment.

The development of Russian seaports from 1991 to 2011 can formally be divided into three stages.

The first stage (1991-2011) is the solution of tasks to overcome the crisis state of the domestic port economy caused by the division of maritime transport between the former Soviet republics. With the collapse of the USSR, Russia lost free access to a significant part of the port facilities that the former USSR had. As a result of this division, most of the seaports of the former USSR in the Baltic and Southern basins ended up outside of Russia. These included the youngest, and therefore technically well-equipped ports of Novotallinsky and Yuzhny, high-performance specialized complexes for reloading oil and mineral fertilizers in Ventspils, sea rail ferry crossings Klaipeda - Mukran and Ilyichevsk - Varna.

For these reasons, in the early 1990s of the twentieth century, more than half of Russian foreign trade cargo was handled in the ports of Ukraine and the Baltic countries. The current situation created a threat to the transport independence of Russia.

The specialization of the ports located on the territory of Russia did not fully correspond to the nature of Russian cargo flows, and their production capacity was insufficient to handle the rapidly growing volumes of Russian cargo, especially export ones.

These problems were generally resolved during the implementation of the Program "Revival of the Russian Merchant Fleet for 1993-2000". Over the years of the Program implementation, the volume of transshipment of Russian cargo in seaports increased by 56% (from 176.1 million tons in 1993 to 275.1 million tons in 2001), including in Russian ports by 82% (from 113 .0 million tons to 205.6 million tons).

Until 1998, the volumes of coastal cargo transshipped in the ports were constantly decreasing. After 1998 there was a turning point. The volumes of transshipment of coastal cargoes began to grow as a result of the intensification of production activities in the regions of the Far North and the Far East.

It is important to note that over the specified period, the volumes of transshipment of Russian cargo in the ports of neighboring countries also increased, but their share in the total Russian maritime foreign trade turnover decreased from 50.7% to 26.7%.

As a result, the threat of transport isolation of Russia was eliminated. Since the beginning of the 2000s, the seaports of neighboring countries have been considered as ordinary competitors of Russian ports in the transport services market.

The second stage of development of seaports (2012-2020) was accompanied by the Sea Transport Subprogram of the Federal Target Program Modernization of the Russian Transport System (2002-2010).

The task of this stage was to meet the needs of the Russian economy and foreign trade in the transshipment of export-import, transit and coastal cargo at a high technical, technological and organizational level in close cooperation with related

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modes of transport and cargo owners.

The growth in the cargo turnover of seaports is associated, first of all, with the development of port facilities.

As a result of the implementation of the activities of the Federal Target Program "Modernization of the Transport System of Russia" in 2012-2020, modern high-tech mechanized transshipment complexes with a capacity of 317 million tons were introduced, including transshipment:

1. Hydrocarbons - by 140 million tons (ports of Arkhangelsk, Varandey, Vitino, Vysotsk, Primorsk, Ust-Luga, Novorossiysk, Taman, Kozmina Bay, Prigorodnoye, De-Kastri);

2. Dry cargo ships - for 177 million tons, including: coal (ports of Murmansk, Vysotsk, Ust-Luga, Vanino (Muchke Bay), mineral fertilizers (ports of Murmansk, St. Petersburg, Ust-Luga, Taman, Tuapse, Novorossiysk, Vladivostok), grain (ports of Novorossiysk, Tuapse, Rostov, Vladivostok), as well as container complexes and universal berths for the processing of general cargo (ports of Murmansk, St. Petersburg, Ust-Luga, Baltiysk, Novorossiysk, Vladivostok).

The ratio of budgetary and private investments under this subprogram was 1:7.

Almost all major Russian seaports have been modernized: they have upgraded transshipment equipment, reconstructed berths, and carried out dredging.

At this stage, there was a decrease in the share of ports of neighboring countries in the total volume of transshipment of Russian foreign trade cargo. In 2009, their share was already 18% (for comparison, in 2006 - 20.8%, in 2001 - 26.7%, in 1992 - 50.7%).

Domestic seaports in this period were in the lead both in terms of total cargo turnover and in transshipment of each cargo of the established nomenclature. Only for bulk cargo (coal, ore and mineral fertilizers), as well as oil products, the share of foreign ports still remained relatively large (from 30.0% to 45.0%), although significantly lower than the share of Russian ports.

However, an analysis of the cargo turnover by individual basins reveals some cargoes, the transshipment of which is carried out mainly in foreign ports. So, in 2019, 32.3% of coal and 50.5% of oil products gravitating to the Baltic basin were transshipped in the ports of the Baltic countries, and 21.0% of coal and 38.8% of oil products gravitating to the Black Sea-Azov basin were transshipped in the ports of Ukraine. These data confirm the need to further increase the corresponding production capacities in Russian ports.

It should also be noted the change in trends in the transshipment of coastal cargo. In 2019, coastal cargo transshipment volumes amounted to 30.4 million tons, which is 4 times higher than in 2018.

The cargo turnover of Russian seaports in the

period from 2012 to 2019 increased by 47.4% to 496.4 million tons.

The third stage of the development of Russian seaports (2019 - 2025) is accompanied by the implementation of activities of the Sea Transport subprogram of the Federal Target Program "Development of the Russian Transport System (2019-2025)".

The cargo turnover of Russian seaports in the period from 2019 to 2021 increased by 18.7% and amounted to 589.1 million tons. During this period, a turning point in the volumes of liquid cargo transshipment is characteristic - in 2018, there was a peak in the transshipment of liquid cargo (314.0 million tons), and since 2019 a decline has begun (in fact, in 2020, 301 million tons, in 2021 - 315 million tons).

The main reason is the drop in oil exports, which in turn, according to experts, is due to two factors. One of them is the growth of domestic processing. The volume of crude oil sent for processing in Russia in 2021 increased by 3.4% (by 8.4 million tons) to 256.8 million tons. Another reason is the reduction in oil production at a number of fields oriented to sea transport, or the reorientation of volumes to pipeline transport. So, oil transshipment through the Varandey terminal decreased almost 2 times (by about 3.8 million tons) - to 3.91 million tons due to a decrease in production at the South Khylochuy field located in Timan-Pechora (Nenets Autonomous Okrug), whose reserves turned out to be less than predicted. The volume of oil pumped through the CPC-R terminal in Novorossiysk also decreased (by almost 9% - 31.8 million tons (by 3 million tons)). In the port of Primorsk, the volume of oil transshipment decreased by 2%. Oil exports through LLC Spetsmornefteport Kozmino decreased by almost 1% (to 15.2 million tons). However, oil transshipment through the port of De Castries (from Sakhalin fields) increased by 11.7% (up to 7.8 million tons), which is associated with the active development of Sakhalin fields and the development of exports to the countries of the Asia-Pacific region. A feature of Sakhalin oil is its low sulfur content, and a short transport distance allows it to compete with Middle Eastern oil in the Asia-Pacific region. In 2021, the volume of liquid cargo transshipment slightly increased due to the commissioning of the second stage of the BPS-2 pipeline in the port of Kozmino, as well as the liquid cargo transshipment terminal in the port of Ust-Luga. However, oil transshipment through the port of De Castries (from Sakhalin fields) increased by 11.7% (up to 7.8 million tons), which is associated with the active development of Sakhalin fields and the development of exports to the countries of the Asia-Pacific region. A feature of Sakhalin oil is its low sulfur content, and a short transport distance allows it to compete with Middle Eastern oil in the Asia-Pacific region. In 2021, the volume of liquid cargo

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As for the transshipment of dry cargo, the increase in cargo turnover in the analyzed period was primarily due to the growth in transshipment of cargo in containers in the Baltic direction, grain in the ports of the Black Sea basin, and ore in the Arctic basin. In 2021, coal transshipment increased by 13.3%.

It should be noted that the downward trend in the share of transshipment of domestic foreign trade cargo through the ports of neighboring states continues. Every year, due to the lack of specialized capacities, the high cost of cargo transshipment and ship calls, and a number of other reasons, about 90-110 million tons of Russian cargo goes to foreign ports. The share of Russian cargo transshipment in 2021 in the direction of the ports of the Baltic countries and Ukraine in the total volume of Russian cargo transshipment decreased and amounted to 13.3%. However, the share of transshipment of Russian cargo and mineral fertilizers in the seaports of the Baltic States and Ukraine remains quite high and amounts to 49.6% and 46.8%, respectively.

The increase in volume indicators is the result of the development of ports through the construction of new and reconstruction of existing facilities, as well as the intensification of stevedoring activities.

The top ten largest seaports in terms of cargo transshipment in 2021 include Novorossiysk,

Primorsk, Ust-Luga, the Big Port of St. Petersburg, Vostochny, Murmansk, Vanino, Nakhodka, Tuapse, and Prigorodnoye. They account for about 77% of the total volume of transshipment through Russian seaports.

More than half of the cargo processed in domestic ports is liquid - 333.3 million tons, or 56.6%. Dry cargo ships account for 43.4% of the total volume of processing, or 255.7 million tons.

An analysis of the cargo turnover of seaports by type of transportation shows that the main share is export cargo - 78%, imports account for 8.3% of cargo turnover, transit - 7.6%, cabotage - 6.1%.

Since 2010, projects of the federal target program "Development of the transport system of the Russian Federation (2010-2020)" have been implemented, which is formed according to the project principle.

As a result of the implementation of the activities of the Federal Target Program "Development of the Transport System of Russia" in 2010-2020, modern high-tech mechanized transshipment complexes with a capacity of 454 million tons will be introduced, including transshipment:

1. Hydrocarbons - by 286 million tons (Peninsula Yamal, Murmansk (village Teriberka), Ust-Luga (BTS-2), Taman, Tuapse, Olya, ESPO);

2. Dry cargo ships - for 168 million tons, namely: coal (ports of Murmansk, Vysotsk, Taman, Olya, Vostochny, Vanino), grain (ports of Ust-Luga, Taman, Olya, Vladivostok, Vanino), as well as container complexes and universal berths for the processing of general cargo (ports of Arkhangelsk, St. Petersburg, Ust-Luga, Baltiysk, Taman, Tuapse, Sochi, Olya, Vanino, Sakhalin, Petropavlovsk-Kamchatsky).

A significant number of measures will be aimed at the integrated development of transport hubs, where both the construction of transshipment complexes and railway and road approaches to ports (Murmansk, Kaliningrad, Ust-Luga, Novorossiysk, Taman, Rostov transport hub, Olya, Vostochny, Vanino) are envisaged.

According to the federal target program "Development of the transport system of the Russian Federation (2010-2020)" by 2035, it is planned to ensure the transshipment of goods in the amount of about 770-780 million tons per year, including the creation of a 15% reserve capacity of seaports, which will allow redirecting Russian foreign trade cargo from the ports of neighboring states to Russian ports, as well as using it at times of peak loads in the general transport network of the Russian Federation.

Particular attention will be paid to the development of the deep water ports of Murmansk, Ust-Luga, Kaliningrad, Taman, Vostochny and Vanino. These ports are planned to be developed as hub ports, including for servicing international transport corridors.

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It is planned to ensure the flow of extra-budgetary investments through the advanced preparation of project documentation and the development of mechanisms for financing projects on the terms of public-private partnership. Concession arrangements are expected to be of great use. This form of investment is widely used and recognized in the world as the most successful form of participation of private capital.

At the same time, in order to determine further growth points and potential opportunities for the use of port infrastructure, we will analyze the use of existing transshipment complexes.

As of the beginning of 2022, the Russian port complex included 846 berths with a capacity of 860 million tons, including 149 berths for liquid cargoes with a capacity of 494 (57.4%) million tons, and 697

berths for dry cargo ships with a capacity of 366 million tons. (42.6%).

Of the existing berths, only 793 berths with a capacity of 589.2 million tons (or 68.5%) are used, including: for liquid cargo - 126 berths with a capacity of 329.4 million tons (or 55.9%), for dry cargo - 667 berths with a capacity of 259.8 million tons (or 44.1%).

An analysis of the use of berths (by capacity) shows that the ports of the Caspian basin are used by 32.4%, the Arctic by 64.3%, the Baltic by 70.2%, the Azov-Black Sea by 66.1%, the Far East by 75.3%.

In large seaports with a design capacity of more than 20 million tons, a fairly high percentage of idle port capacities is observed in the port of Tuapse (54.0%), Ust-Luga (33.3%), the Big Port of St. Petersburg (29.7%). Murmansk (21.7%) (Table 1).

Table 1. Use of berths in seaports as of January 1, 2022

Swimming pool	Total berths			
	Quantity, units	Rated power, million tons	Actual capacity used in the reporting year, million tons	% idle capacities
Arctic	113	71.9	46.2	35.7
Baltic	210	307.8	216.1	29.8
Azov-Chernomorsky	221	264.0	174.5	33.9
Caspian	41	24.4	7.9	67.6
Far Eastern	261	191.9	144.5	24.7
Total in Russia	846	860.0	589.2	31.5

About 75% of the total volume of processed cargo in Russian seaports is transshipped at specialized berths, which shows their high role in the work of seaports. Including for dry cargo, this figure is slightly less than half (47%) of the total volume of dry cargo (for coal - 57.1%), and for liquid cargo, it is close to 100%.

Despite the active development of seaports in recent years, it should be recognized that in Russia, in the presence of demand, there are practically no modern berths capable of receiving vessels with a draft of up to 18 meters, with a loading capacity of up to 3500 tons per hour or 150 containers per hour per 1 vessel, modern refrigerated terminals, LNG terminals, etc. Especially there is a shortage of coal, container berths, as well as berths for servicing fishing vessels. Recently, the situation of dissynchronization of the development of ports with the possibilities of railway and automobile approaches has sharply worsened.

Main part

The main share of cargo transshipment of Russian seaports falls on the Baltic and Azov-Chernomorsky - in 2021, respectively, 36.7% and

29.6% of the total transshipment volume. The ports of the Far East Basin account for 24.6%, the Arctic Basin - 7.8%, the Caspian - 1.3%.

With the unconditional unity of all seaports as part of a single transport system, the work and development of ports in each sea basin have their own characteristics.

arctic basin

Seventeen Russian seaports are located on the basin. Ports are occupied mainly with the transshipment of foreign trade and coastal cargo. Coastal cargo accounts for 26.6% of their cargo turnover (according to 2021 data).

In 2021, the ports of the basin handled 46.2 million tons of cargo (7.8% of the total cargo turnover of Russian ports), including 12.3 million tons of coastal cargo (34.2% of the total transshipment of coastal cargo in the country). The ports of the basin transship 6.5% of liquid and 9.6% of dry cargo from the total turnover of these types of cargo of all ports of the country.

The ports of the basin can be roughly divided into three groups. The first includes the ports of Murmansk, Arkhangelsk, Vitino and Kandalaksha,

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which have railway approaches connected with the country's transport system. These four ports handle 83.8% of the cargo passing through the basin. To the second - ports serving the needs of one company. These are Varandey and Dudinka.

The third group includes the remaining 11 ports, which are located in areas where there are no land communications, and which currently provide transshipment of goods to ensure the life of the settlements in which they are located with their immediate surroundings. Their capacity is used by 5-50%, and there are no prerequisites for increasing the cargo base and increasing cargo turnover.

All ports of the Arctic Basin (except for ice-free Murmansk) operate most of the year in conditions of low temperatures and ice-covered waters. Therefore, port icebreakers are needed to ensure normal operation. And the delivery of goods to the ports is carried out under the ice assistance of linear icebreakers, including nuclear ones.

Cargoes of the "northern delivery" pass through the Arctic ports, which are necessary to ensure the livelihoods of the small peoples of the North and the development of the natural resources of the vast northern territories.

Finally, another feature of the Arctic ports is their functions for servicing the Northern Sea Route, which will become significantly more complicated with the planned growth in the transportation of goods in international transit along the NSR, as an international transport corridor. Ports will be forced to significantly expand their ship servicing functions (bunkering, supply, emergency repairs, etc.).

In the future, the Arctic ports will be focused on transshipment of fuel and energy resources (crude oil, oil products, coal, liquefied gas). At the same time, oil and gas will be supplied to ports from the shelves of the northern seas. For their transshipment, the ports of Varandey, Kharasavey (port point) were built and new ports of Sabetta and Teriberka are being built. The construction of new ports is carried out in hard-to-reach areas, which requires much more investment than the construction of ports in other basins.

The creation of a port special economic zone (PSEZ) in the largest port of the Northern Basin, Murmansk, should also be attributed to the number of features. There are currently only two such zones in Russian seaports (the second one is in the port of Sovetskaya Gavan).

Baltic basin

As noted, in terms of the total volume of transshipped cargo, the ports of the Baltic basin rank first among the ports of other sea basins. They will retain their leadership in the long term until 2035. Proximity to the most developed industrial regions of Russia and, at the same time, to European countries, contributes to the fact that the flows of the entire range of goods pass through these ports.

There are seven Russian seaports in the basin:

Bolshoy Port St. Petersburg, Primorsk, Vysotsk, Vyborg, Ust-Luga, Kaliningrad, and the Passenger Port of St. Petersburg. The Baltic ports are mainly occupied with the transshipment of foreign trade and coastal cargo. Transit cargo accounts for less than 1% of their cargo turnover.

In 2021, the ports of the basin handled 215.9 million tons of cargo (36.7% of the total cargo turnover of Russian ports), including 3.1 million tons of coastal cargo (8.6% of the total transshipment of coastal cargo). The ports of the basin transship 40.1% of liquid cargo and 32.1% of dry cargo from the total cargo turnover of all ports of the country.

The ports of the Baltic Basin are the end points of the Russian sections of the international transport corridors "East-West" and "North-South". If these corridors provide promising international transit cargo turnover (this will be mainly cargo in containers), the total cargo turnover of these ports will increase significantly. Already in the short term, the main cargo flows will go through the ports of Ust-Luga (mainly dry cargo and partially liquid cargo) and Primorsk (liquid cargo).

Meanwhile, the largest port of the Baltic Basin, St. Petersburg, is limited by city buildings and highways and does not have the opportunity to expand its territory. Therefore, the development of the port of St. Petersburg is carried out at the expense of outports (Bronka, Lomonosov, Kotlin Island).

A feature of the Baltic basin is also the presence of the enclave Kaliningrad region, with which communication is carried out using the sea railway crossing Ust-Luga - Baltiysk - ports of Germany.

Azov-Black Sea basin

In terms of the total cargo turnover of seaports, the Azov-Black Sea basin ranks second after the Baltic basin. Twelve Russian seaports are located on the basin. The ports of the Azov-Black Sea basin are the end points of the Russian section of the international transport corridor "North-South".

The ports of the basin transship cargoes of the entire range (liquid, bulk, general). The Black Sea ports are mainly engaged in transshipment of foreign trade and transit cargo. Coastal cargoes make up about 1.0% of their cargo turnover.

In 2021, the ports of the basin handled 174.4 million tons of cargo (29.6% of the total cargo turnover of Russian ports). The ports of the basin transship 33.6% of liquid and 24.5% of dry cargo from the total turnover of these types of cargo of all ports of the country.

The ports of the basin are divided into three unequal groups:

The first includes ports located on the Black Sea coast, ice-free, capable of receiving large-capacity sea vessels and having the potential for further development.

The second group includes the ports of the Sea of Azov. Freezing, shallow, as a rule, located in cities

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and having no development prospects associated with an increase in cargo turnover.

The third group consists of ports located in the Black Sea resort towns.

The bulk of the basin's cargo is handled in the ports of Novorossiysk (64.6%), Tuapse (10.2%), Rostov-on-Don (6.2%), Taman (5.5%) and Kavkaz (4.5%). The remaining 7 ports in the basin process only 9.2% of cargo. As capacities are put into operation in the new Black Sea port of Taman, the share of Azov ports in the basin's cargo turnover will continue to decline.

The seaports of the basin (first of all, the port of Sochi) faced a special burden during the Winter Olympic Games. On the coast of the Black and Azov Seas, it is planned to develop a recreation area, sports, resort and health facilities. Seaports play an important role in the development of maritime tourism.

The work of domestic maritime transport in the Azov-Black Sea basin is complicated by Turkey's attempts to unilaterally change the mode of navigation through the Bosphorus and Dardanelles. Ship delays in the Black Sea Straits lead to serious financial losses. This indirectly affects the work of seaports.

Caspian basin

There are three Russian seaports on the basin: Astrakhan, Olya and Makhachkala. Ports reload mainly foreign trade and transit cargo. Coastal cargoes account for 4.3% of their cargo turnover.

In 2021, the ports of the basin handled 7.9 million tons of cargo (1.3% of the total cargo turnover of Russian ports), including 3.4 million tons of transit cargo (7.6% of the total transshipment of transit cargo). Through the Caspian ports, 1.4% of liquid and 1.2% of dry cargo from the total cargo turnover of all ports of the country are reloaded.

The features of the Caspian basin are due to the fundamental change in the status of the Caspian Sea after the collapse of the USSR. If in the past the water area, seabed, biological and raw material resources of the Caspian belonged to only two countries - the Soviet Union and Iran, then at present there are five countries on the Caspian coast: Russia, Azerbaijan, Kazakhstan, Turkmenistan, Iran. The interests of these countries do not coincide in many respects, and therefore their coordination requires a long negotiating process.

The Caspian basin ended up in a region where several "hot spots" are concentrated at once (the Russian Caucasus; Karabakh, which serves as a bone of contention between Armenia and Azerbaijan; Iran, which has come into conflict with the world community over nuclear weapons). These circumstances impede the development of the seaports of the Caspian basin and the organization of transportation along the international transport corridor "North-South".

According to some experts, the potential transit cargo flow along the North-South ITC between India

and Iran, on the one hand, and the countries of Northern and Central Europe, on the other, can amount to 35-40 million tons per year, of which about half will for cargo in containers.

Far Eastern Basin

Twenty-two Russian seaports are located on the basin. Ports are occupied mainly with the transshipment of foreign trade and coastal cargo. Coastal cargoes account for 12.3% of their cargo turnover.

More than 84% of the cargo turnover is carried out by the main ports located in the Khabarovsk and Primorsky Territories - these are Vostochny, Vanino, Nakhodka, Prigorodnoye Vladivostok. The first four ports are among the ten largest ports in Russia and are the main elements of the railway-sea transport hubs. The Vanino-Kholmsk ferry service provides a stable connection between Sakhalin Island and the mainland: more than 90% of the cargo handled at these ports is handled by the rail-sea system.

In 2021, the ports of the basin handled 144.8 million tons of cargo (24.6% of the total cargo turnover of Russian ports), including 17.8 million tons of coastal cargo (49.4% of the total transshipment of coastal cargo in the country). The ports of the basin transship 18.4% of liquid cargo and 32.6% of dry cargo from the total turnover of these types of cargo in all ports of the country.

The ports of the basin can be roughly divided into three groups:

The first includes the ports of Vostochny, Vanino, Nakhodka, Vladivostok, and Posyet, connected to the country's transport system by railway approaches or pipelines. These five ports handle 76% of the cargo passing through the basin.

To the second - ports connected by pipelines with the offshore fields of Sakhalin - Prigorodnoye, De-Kastri, and serving the needs of one company. Their cargo turnover is 16% of the cargo turnover of the ports of the basin.

The third group includes the remaining 15 ports, which are located in areas where there are no land communications, and which currently provide transshipment of goods to ensure the life of the settlements in which they are located, with the immediate surroundings. Their capacity is used by 10-50%, and there are no prerequisites for increasing the cargo base and increasing cargo turnover.

The port of Zarubino stands apart, which has railway and automobile approaches, a good location, opportunities for development and almost completely unloaded capacities.

The ports of the Far Eastern Basin provide for the transshipment of cargoes necessary for the population of vast territories, including hard-to-reach ones, of the Russian Far East, as well as the export of goods from this region and coming from other regions of Russia to the domestic and foreign markets.

Features in the work and development of the

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ports of the Far Eastern basin are due to their remoteness from the central regions of Russia. At the same time, these ports are located near the rapidly developing countries of the Asia-Pacific region (China, Japan, South Korea), with which Russia seeks to strengthen foreign trade and other ties. The ports of Primorye are the terminal points of the International Transport Corridor "East-West".

In addition to the above, it is necessary to note the features that are characteristic of not one, but two or three marine basins.

Thus, earlier it was said about the need for powerful linear icebreakers to ensure maritime transportation in the Arctic basin. In other basins, transportation and port operation in winter also require ice assistance, although not on the same scale as in the Arctic basin. For example, in the winter of 2020-2021, the number of ships stuck in the ice of the Gulf of Finland reached 150. For the ice assistance of these ships, 14 diesel-electric and one nuclear-powered icebreaker Vaigach were involved. In late January - early February 2012, an abnormally heavy ice situation for this region developed in the Sea of Azov. Ice pilotage of the vessels was carried out by four FSUE "Rosmorport" icebreakers.

The peculiarities of the seaports of the Baltic and Black Sea-Azov basins are that they operate in conditions of competition with the ports of Ukraine

and the Baltic countries (Lithuania, Latvia, Estonia, Finland).

A feature of the ports of the Arctic and Far Eastern sea basins is the transshipment of large volumes of coastal cargo compared to the ports of other basins.

In order to assess the place of domestic ports on the world stage, conduct a comparative analysis and identify their strengths and weaknesses, we will consider the dynamics of the world container turnover, and also use one of the strategic planning methods - SWOT analysis.

In total, according to the Port Guide Fairplay, there are about 9,400 seaports and terminals in the world, the total cargo turnover of all seaports in the world in 2020 is estimated by UNCTAD at 14.23 billion tons. Russian ports, respectively, occupy less than 1% in terms of the number of terminals and about 4% in terms of cargo turnover. Taking into account the volume of Russian cargo annually transiting through the ports of neighboring states (the Baltic countries and Ukraine), the share of Russian ports in the world cargo turnover is approaching 5%. Consequently, in terms of the cargo potential of maritime trade, Russia is among the 6 leading countries in the world (along with China, the USA, Japan, Great Britain and Australia) (Table 2).

Table 2. Volumes of cargo transshipment through the seaports of the countries of the world

Port cargo turnover	Countries
Over 1 billion tons/year	China, USA
From 500 to 1000 million tons/year	Japan, UK, Australia, Russia
From 300 to 500 million tons/year	Italy, Netherlands, Singapore, Spain, France, India, Brazil
From 100 to 300 million tons/year	Germany, Norway, South Africa, Turkey, Belgium, Sweden, Denmark, Greece, Ukraine, Mexico, Saudi Arabia
From 50 to 100 million tons/year	Canada, Finland, Ireland, Portugal, Poland, Latvia, Estonia, Argentina, Chile, Colombia

The change in the world container traffic reflects the general dynamics of world trade volumes. One of the global trends is to increase the level of containerization of the world's seaborne transportation of general cargo. In many of the world's leading ports, containers provide the vast majority of all general cargo: in Rotterdam - 80%, in Hong Kong - 87%, in Singapore - 92%, in Hamburg - 96%, in Long Beach - 99%.

For the countries of the Far East region, the countries of South and Southeast Asia and the countries of Western Europe in 2020-2025 more than 70% of the world's maritime container traffic will remain. The contribution of other regions to the world

sea container turnover is much more modest and does not exceed 10%.

At the same time, the share of Russian ports in the world sea container cargo turnover is still extremely insignificant: out of 610.4 million TEU in the world sea container cargo turnover in Russian seaports in 2019, 3.6 million TEU or less than 1% were processed.

At the moment, the competitive struggle of the world's leading ports for attracting container traffic has reached a high level of tension. An increasingly important success factor is the quality of services provided and the level of logistics services (Table 3).

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Table 3. The quality of services provided and the level of logistics services

	Turnover of containers, million TEU per year
Port of Shanghai (Shanghai, China)	32.5
PSA Port of Singapore (Singapore)	31.7
Port of Rotterdam (Rotterdam, Netherlands)	11.9
Port of Los Angeles (Los Angeles, USA)	8.1
Port of New York & New Jersey (New York, USA)	5.7
Ports of Russia	5.1

Thus, it seems appropriate to pay special attention to improving the quality of services provided in seaports and building up port capacities, including specialized ones, focusing on modern world achievements and developments.

In order to achieve the target indicators for the development of the transport complex and remove transport infrastructure restrictions on the development of the country's economy, it is necessary to ensure the rapid development of the transport complex. According to the estimates of the Ministry of Economic Development of Russia and the Ministry of Transport of Russia, the growth rate of investments in the transport complex should be higher than the average for the economy by 5-7 percentage points. In the long term, it is predicted to maintain state support for the development of the transport complex. One of the tools for developing infrastructure and overcoming the gap in financing investments in the development of transport will be an increase in the corresponding expenditures from the federal and regional budgets from 1.2% of GDP in 2020 to 2-2.1% in 2035.

The development of seaports is modeled on the basis of scenarios for the development of the transport complex, developed in two versions - conservative (energy) and innovative.

Along with the fact that in many respects the basic conditions of both scenarios for seaports are identical, a number of features can be identified that characterize certain trends. First of all, by the nature of the cargo base, as well as by related restrictions and financial support.

The analysis shows that, with a high degree of probability, there will be no significant structural changes in the world commodity market until 2035, and Russian hydrocarbons will remain the main cargo processed in seaports. In this regard, the prevailing trend in the development of seaports until 2035 will be the development of port infrastructure, mainly for transport support for the development of new mineral deposits and the increase in fuel and raw materials exports, the realization of Russia's competitive potential in the field of transport and the growth of exports of transport services. At the same time, the conservative (energy-resource) option (En) assumes the following features:

implementation of large-scale projects

(including within the framework of public-private partnerships) that ensure the development of mineral deposits in new mining areas, mainly in Siberia, the Far East and the continental shelf;

continued diversification of export destinations for Russian hydrocarbons and the creation of an appropriate infrastructure;

growth in LNG exports to the European market and Asia-Pacific countries;

development of transport infrastructure that ensures the implementation of the country's transit potential;

increase in domestic transportation of coal in connection with the development of power generating capacities and metallurgical production;

increase in transportation volumes and assortment of products of fuel processing and raw materials (petroleum products, concentrates, chemical cargoes, metals, etc.), as well as engineering products;

An additional impetus will be given to the development of transport in the Arctic zone.

The implementation of this scenario will be carried out mainly within the framework of a system of large projects for the development of a transport system of energy and raw material specialization (Lower Angara, Chita region, BAM zone) and the development of access roads to ports and port areas. At the same time, this scenario takes into account the lower demand for energy resources from the world economy, as well as the slowdown in the growth of world trade due to the continued impact of the global crisis and the low degree of realization of Russia's transit potential.

The innovative option (Inn) involves the accelerated and balanced development of the country's transport complex (including seaports), which, along with the achievement of the goals envisaged in the implementation of the energy and raw materials option, will provide transport conditions for the development of the innovative component of the economy, improving the quality of life of the population, transition to a polycentric model of Russia's spatial development.

For the innovative option, a number of features characteristic of the energy-raw material option are retained. At the same time, the distinctive features of the development of the transport system according to the innovative option will be:

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a significant increase in export transportation of highly processed goods, primarily products of high-tech sectors of the economy, the growth rate of which will be 2.5 times higher than the growth rate of transportation of similar imported goods;

increasing the role of transport and logistics infrastructure in organizing the movement of goods;

The development of seaports, along with the tasks of ensuring the transportation of bulk cargo, including export ones, will increasingly focus on improving the quality of transport services for cargo owners and strengthening interaction in the framework of ensuring effective logistics chains of goods movement.

At the same time, the "infrastructural effect" of the formation of urban agglomerations associated with the implementation of projects for the construction of large transport complexes, multimodal logistics centers and information hubs, including those based on seaports, will be of paramount importance. Such seaports will serve as the basis for the formation of territorial production clusters and "growth points" of the regions.

Seaports will develop according to the so-called "Rotterdam model", when the port is inextricably linked with remote railway junctions and transport and logistics complexes. This will require the development of access roads to ports and port production and storage areas focused on the processing of cargo, the formation of port zones that ensure the processing of incoming cargo.

Regional aspects of the development of the country's transport system will be associated with the creation of a network of competitive innovation clusters, new regional centers of economic development in the Far East and South of Russia, overcoming the backlog of depressed regions, the development of tourist and recreational areas on the Black Sea coast (especially in connection with the holding of the XXII Olympic Winter Games in Sochi), in the regions of the North, etc.

An important role will be played by the development of the Northern Sea Route, primarily for the development of maritime transportation, with the creation of an appropriate infrastructure on the northern coast of Russia.

The differences in the scenarios for the development of seaports mainly lie in the presence of such limiting facts as: the synchronism of the development of adjacent modes of transport (railway, road and inland waterways), resource provision (maintaining or reducing the existing rates, primarily budget financing) and investment climate (willingness of investors to implement large infrastructure projects).

The innovative scenario is characterized by a significant increase in costs for the development of transport infrastructure, and, consequently, the removal of restrictions in the land zone on approaches

to ports. At the same time, this scenario assumes a much more complex model of managing the development of transport for both the state and business. It is associated with investing in high-tech projects and human development with parameters far beyond the medium-term payback limits that have developed on the market.

The innovative scenario is characterized by a significant increase in the requirements for environmental friendliness and energy efficiency of transport development.

The implementation of the innovative scenario will allow not only to overcome the infrastructural limitations of economic growth, but also to ensure the balanced development of the country's transport system and meet the growing demand for transport services.

It should be noted that, most likely, significant structural differences between the considered scenarios will appear after 2025.

With the same degree of probability, under different scenarios, much attention will be paid to ensuring the integrated safety and sustainability of the operation of seaports, including improving the safety of navigation, as well as reducing the harmful impact of transport on the environment.

In accordance with the considered scenario options, the parameters of the long-term development of seaports for the long term are determined, which are given in the next section.

The main goal of implementing the Strategy for the Development of Seaports Infrastructure is to meet the needs of the Russian economy, foreign trade and the population in transshipment of goods and ensuring the safety of navigation in seaports and on approaches to them by forming an innovative infrastructure of seaports, integrating them into transport hubs with the stimulating role of the state in their comprehensive development.

Competitiveness is understood as an increase in port capacities and volumes of cargo transshipment through domestic ports, an increase in the quality of services provided, a reduction in the unit cost of transshipment of a ton of cargo and the cost of ship calls at domestic ports.

Achieving this goal will make it possible to satisfy the needs of the Russian economy in the services of seaports to ensure the transshipment of goods in all directions (export, import, transit, cabotage) through the reconstruction of existing and construction of new facilities, attracting investments to Russian ports and ensuring their integrated development.

The provision of all port services by 2035 should reach a qualitatively new level, primarily on the issues of integrated safety of navigation in the waters of seaports and on the approaches to them. The implementation of this goal will make it possible to achieve a safe level of functioning of the port

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infrastructure that meets international and national requirements, improve the safety of navigation in the waters of seaports and on the approaches to them, environmental and anti-terrorist security.

To achieve the main targets of the Strategy, it is necessary to solve the following main tasks for the development of Russian seaports:

1. Increasing port capacities and ensuring the effective development of port infrastructure;
2. Ensuring the safe functioning of the sea port infrastructure and maritime transport;
3. Creation of conditions that increase the competitiveness of domestic seaports;
4. Improving public administration in the field of sea port facilities.

Task 1. Increasing port capacities and ensuring the efficient development of port infrastructure

Further increase in the production capacity of Russian seaports is due to the following reasons:

- the growing need of the developing and expanding foreign trade relations of the Russian economy in the sea transportation of goods and, accordingly, in their transshipment in ports, the volume of which, according to forecast estimates, will reach 1.0-1.3 billion tons by 2035;
- the necessity and expediency of reorienting a certain part of cargo flows from the ports of neighboring countries to Russian ports;
- the probable forthcoming growth in the transportation of goods in international transit along the Russian sections of the international transport corridors (ITC) in the directions "East-West" and "North-South", as well as along the routes of the Northern Sea Route (NSR).

In this regard, one of the most important tasks for the development of seaport infrastructure is to increase the capacity of berths, berthing depths, improve the mechanization and automation of loading and unloading equipment, develop the port network of rail transport, roads, conveyor and pipeline transport, providing the most rational interaction between modes of transport in transport hubs, direct cargo operations.

It is extremely important to increase the utilization factor of existing berths by rational distribution of cargo flows and reconstruction of capacities for certain types of cargo.

Task 2. Ensuring the safe functioning and development of the sea port infrastructure and maritime transport.

To improve the integrated security and sustainable development and functioning of the transport system, it is necessary to ensure the reliability and safety of the functioning of maritime transport:

- achieve modern world standards in the field of infrastructure security in ports, modern world standards in the field of navigation safety (including uninterrupted icebreaking support in freezing ports and revision of the legal framework and organization

of the icebreaking fleet, taking into account climatic and geographical conditions);

- increase the effectiveness of countering terrorist attacks, form a security and anti-terrorist protection system in accordance with the requirements of the International Maritime Organization;

- ensure the protection of transport infrastructure facilities and vehicles from acts of unlawful interference;

- to ensure the safety of the functioning of the sea port infrastructure under the impacts of man-made and natural nature.

All this will improve the safety of navigation on sea routes, approach channels and in port waters, reduce the number of accidents in maritime transport and minimize their consequences.

Increasing the level of safety of navigation and transport security in the territories and water areas of seaports is carried out in the following areas:

- 1) In the field of ensuring the safety of navigation:

Development and maintenance at a high level of navigational and hydrographic support for the approaches and water areas of seaports, including regular hydrographic work (sounding) and optimization of vessel traffic routes, operation of ship reporting systems (GOFREP, BarentsRep).

Optimization of pilotage areas and provision of seaports with pilotage services.

Commissioning of the required number of vessels of the supporting fleet (icebreakers, tugboats, emergency rescue vessels, hydrographic, pilotage, pilotage, environmental, etc.), creation and maintenance of coastal systems for ensuring the safety of navigation, search and rescue, communications.

Creation of a system of medium-term and long-term forecasting of hazardous phenomena that disrupt the normal functioning of ports, in order to improve the system of long-term planning of sea and port operations and improve the coordination of actions of various port services to ensure the normal functioning of the port (icebreaking fleet, pilotage service, towing service, etc.).

Creation and maintenance at the proper level of information systems for monitoring shipping (RISS, MoRe, etc.), international cooperation in the field of global monitoring of shipping (SafeSeaNet, HELCOM-AIS, BlackSea - AIS).

Creation of a modern organizational and technical system of emergency and rescue support in the water area of the Northern Sea Route.

Development of the material base for the training of qualified specialists in the field of maritime transport operation in accordance with international standards.

- 2) In the field of ensuring anti-terrorist security:

Development and implementation of a reliable and effective system of measures to protect transport infrastructure facilities and vehicles in seaports from

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potential, immediate and direct threats of acts of unlawful interference in the activities of maritime transport.

Harmonization of Russian legislation in the field of ensuring transport security with the 1974 International Convention for the Safety of Life at Sea ratified by the Russian Federation.

Widespread introduction of advanced technologies, specialized equipment and innovative engineering and technical means to identify and prevent security threats to transport infrastructure facilities and vehicles.

Development of the material and technical base for the professional training of personnel directly related to the provision of anti-terrorist protection of maritime transport infrastructure facilities.

3) In the field of increasing the level of environmental protection:

Ensuring the implementation of the requirements of international treaties in the field of protection of the marine environment, one of the contracting parties of which is the Russian Federation.

Increasing the responsibility of the administrative authorities of seaports for the state and quality of the marine environment in the port water area.

Responsibility for the administrative bodies of seaports to monitor and control the quality of the provision of services for the receipt of ship-generated waste in seaports, develop and periodically update management plans for the disposal of ship-generated waste in seaports.

Development of a legal document on the procedure for organizing industrial environmental control and monitoring in seaports, consistent with the federal law "On Environmental Protection" and the Technical Regulations on the safety of maritime transport facilities, contributing to their implementation.

Development of a system of hydrometeorological, hydrochemical and environmental observations (including using remote methods) in the water area and in close proximity to the port water area, to provide data for environmental monitoring activities.

Development of a procedure for the use of funds received from the environmental fee for the maintenance and updating of technical means for the reception and processing of shipboard waste.

Creation of a response system to oil spills and other harmful substances in the eastern region of the Arctic.

Development of economic mechanisms for stimulating the transition of industry entities to environmentally friendly and energy-saving technologies, including the transition to alternative energy sources, coastal power supply of transport ships when moored in the port.

Use of the mechanism of public-private

partnership in investment projects for the creation of technical facilities in ports for the reception of ship-generated waste.

Carrying out a comprehensive assessment of the compliance of the current situation in the Russian Federation with the provisions of the International Convention for the Safety of Life at Sea (SOLAS), the results of the implementation of the ISPS Code in Russia.

Conducting periodic comprehensive exercises to work out the actions of all interested state and regional authorities, law enforcement and commercial structures to prevent and neutralize non-military security threats at sea and in coastal areas in all sea basins.

Task 3. Creation of conditions that increase the competitiveness of domestic seaports.

Increasing the level of competitiveness of domestic seaports is possible by:

– Strengthening the innovative component in the development of seaports, equipping them with the latest technical means, advanced technologies, modern electronic systems for managing technological and information processes, updating the auxiliary fleet.

One of the most effective areas in the field of innovation is the active introduction of logistics transport and technological systems. The transport system of Russia is still far behind the advanced countries in the field of transportation of goods by enlarged units according to the "door-to-door" scheme. For example, the production capacity of container terminals in Russian seaports is only 30% of the total capacity of transshipment complexes for handling general cargo, which, as a rule, is subject to containerization. This implies the need for the active introduction of advanced technologies for the transportation and transshipment of goods in ports in enlarged places. In addition, an urgent task is to update the handling equipment in the ports and increase the share of Russian-made equipment.

In the future, such mechanisms as the creation of technological platforms and the formation of regional territorial clusters based on seaports will acquire a special place.

One of the ways to increase the competitiveness, and mainly, the safety of navigation in the port is the construction, renovation and "rejuvenation" of the vessels of the auxiliary fleet, bringing the average age of the vessels up to 15 years.

– Formation of infrastructure for handling large-tonnage vessels.

An increase in the range of vessels handled will allow cargo owners to choose the most profitable transport and logistics schemes for cargo delivery, which increases the attractiveness of the port in terms of reducing transaction costs.

– Organizations of Port Special Economic Zones (PSEZ).

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ISI (Dubai, UAE)	= 1.582	ПИИЦ (Russia)	= 3.939	PIF (India)	= 1.940
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Tax incentives applied in the SEPZ contribute to attracting investments in the development of port infrastructure and the introduction of advanced equipment and advanced technologies. And this, in turn, is an important factor in attracting cargo flows to the port. To date, SEPZs have been established only in two Russian ports - Murmansk and Sovetskaya Gavan. It is necessary to extend this experience to other ports through which the most important cargo flows that are of strategic importance for the Russian economy pass.

– Improvement of the tariff policy.

Developing port infrastructure, thereby creating attractive conditions for ships to enter domestic ports. Maintaining port dues, tariffs for loading and unloading operations and related services and other services provided in the seaport at a level that ensures the competitiveness of ports, contributes to an increase in ship calls to ports. Improvement of tariff and price regulation for the entire range of services of natural monopoly entities in seaports should be based on the following principles:

- at present, state regulation of prices in seaports applies only to services provided in the areas of activity of subjects of natural monopolies;
- full transition from the “cost-plus” model (full reimbursement of all reasonable costs incurred plus ensuring profitability) to a model for determining the price cap (“pricelaps”) for a long period;
- separate accounting of income and expenses by types of activities of subjects of regulation;
- in the near future - a gradual refusal to regulate tariffs for loading and unloading operations, in connection with the development of competition in the markets, as well as services for the provision of berths and storage of goods in seaports.

– Attraction to domestic ports of a rational share of the domestic cargo base transhipped in the ports of neighboring states.

Despite the relatively low share of the ports of neighboring countries in the total volume of transshipment of Russian cargo (17.1% in 2021), for individual cargo this share is still unreasonably high. Thus, in 2021, about 56% of coal and 54% of mineral fertilizers gravitating to the ports of the Baltic basin were transhipped in the ports of the Baltic countries, and more than 48% of coal and 51% of mineral fertilizers gravitating to the ports of the Black Sea basin were transhipped in the ports of Ukraine. Significant volumes of Russian oil products and packaged cargo are also handled in the ports of neighboring countries.

At the same time, the need to switch all Russian cargo flows from the ports of neighboring countries to Russian ports is not so obvious. Currently, the ports of Ukraine and the Baltic countries do not pose a threat to the transport independence of Russia, as it was in the 90s. Today these ports are regarded as ordinary competitors in the transport services market.

Therefore, there is no need to bring their share in the transshipment of Russian cargo to a meager, and even more so zero, value.

The Transport Strategy of the Russian Federation until 2035 (updated version) provides for a more than twofold increase in the volume of cargo turnover of domestic seaports (up to 1013.4 - 1196.1 million tons, depending on the development scenario) and an increase in port capacities by 408-758 million tons (to the base of 2013). These values are taken as key indicators, based on which target indicators for the implementation of the Strategy have been developed, corresponding to the tasks set.

Task 1. Increasing port capacities and ensuring the effective development of port infrastructure:

- volume of cargo transshipment in seaports, million tons;
- volume of port capacities, million tons;
- coefficient of use of transshipment complexes (in fractions of a unit or in %);

Task 2. Ensuring the safe functioning of the sea port infrastructure and maritime transport:

level of coverage of seaports and approaches to them:

- coastal means of ensuring the safety of navigation %;
- means of ERA and OSR readiness %;
- waste collection and disposal facilities %;

Task 3. Creation of conditions that increase the competitiveness of domestic seaports:

total gross tonnage of ships calling at seaports, GT;

the ratio of port dues per 1 ton of cargo turnover of seaports, rubles/tons;

the share of Russian foreign trade cargo handled in the ports of neighboring states (Ukraine, the Baltic States), in the total volume of cargo handled in the ports of Russia and neighboring states %;

the ratio of budgetary and non-budgetary sources in investments in berths and infrastructure rub.;

Task 4. Improving public administration in the field of seaports:

budget efficiency of public investments in port infrastructure (internal rate of return of budget investments), %.

All target indicators imply a more detailed division and elaboration, taking into account the specifics of the basins and the main types of cargo, of which a macroeconomic forecast of the main indicators was formed.

• Strategy for the development of the forest complex of the Russian Federation for the period up to 2035

• General scheme for the development of the gas industry for the period up to 2035

• General scheme for the development of the

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oil industry for the period up to 2035

- Program for the Development of Infrastructure and Logistics for the Grain Market of the Russian Federation for 2021-2035.

The volumes of products produced by these industries must be divided into products for domestic consumption and products for export. In turn, in export products, it is necessary to separate the volumes intended for transportation by sea from the volumes for transportation by other modes of transport.

To obtain reliable forecasts in terms of foreign trade transportation, close interaction between industrial and transport sectors is necessary. In the pre-reform period, such interaction was carried out through state associations of the Ministry of Foreign Trade under the conditions of a monopoly of foreign trade activities. At present, due to the transition to market relations and the abolition of the monopoly of foreign trade, these ties have significantly weakened, which negatively affects the forecasting of cargo flows, and, consequently, the operation of maritime transport. It is necessary to overcome this shortcoming and resume a full-fledged information exchange between industry and transport in matters of managing the movement of goods in the long-term, current (annual) and operational (quarterly, monthly) sections.

One of the elements of the forecast is to determine the country's needs for imported goods, which are determined by many factors, in particular:

- the need to purchase imported equipment, machine tools, instruments, some materials for the developing Russian industry, since the quality of domestic products in most cases is still inferior to similar foreign samples (for example, seaports are mainly equipped with imported handling equipment).

- constant purchases of a large number of imported consumer goods (clothing, footwear, household appliances, perfumes, furniture, etc.). Cars of foreign brands are in great demand in Russia;

- an unjustifiably high share of imported food products. Despite the backwardness of Russian agriculture, the share of domestic food products on the Russian market could be much higher with a reasonable organization of agricultural production, timely purchases and proper storage of agricultural products. But for now, the situation is as it is today, when forecasting the cargo base, it is necessary to provide for the cargo flows of imported food products, including perishable ones, requiring refrigerated ships, wagons, warehouses, and containers for their transportation and storage.

In the total volume of Russian foreign trade cargo, exports in different years exceeded imports by 8-13 times. If only dry cargo ships are taken into account, then the excess of exports over imports was 5.0-5.5 times.

Another factor in forecasting cargo flows is the

analysis of changes in world commodity markets that occur constantly, affect any parameters (types of goods, sales volumes, prices, etc.) and are due to many reasons. Below are some examples:

- the huge range of fluctuations in oil prices is well known. These prices depend on the growth rate of industrial production (fuel consumption is higher at high rates), the season and temperature regime (more fuel is consumed in the cold season than in the warm season, more in frosty winters than in mild ones), progress in the development of alternative types of energy (solar, wind, etc.), strong-willed decisions of the main oil exporters (primarily OPEC) and many other reasons. In addition, competition for oil from coal and gas is intensifying;

- markets for food products, especially grain, depend on the harvests in exporting and importing countries;

- the sale of mineral fertilizers depends on the agricultural policy of specific countries. Thus, developing countries use mineral fertilizers in large quantities in order to increase crop yields, while developed countries focus on the ecology of food and therefore limit the use of mineral fertilizers.

The factor of competition is very significant when promoting any product to the world market. So, at one time, when exporting coal to European countries, Russian exporters faced competition from Poland. In recent years, China has become an increasingly powerful competitor in a number of goods. Tough competition is constantly taking place in the market of food products, especially grain.

The most important role in forecasting cargo flows is played by observations of fluctuations in world prices for various types of products. It is prices that primarily determine the volume of goods entering the market. At the same time, there is an inverse relationship: an increase in the volume of goods entering the market usually leads to a decrease in prices, and a decrease in volumes can provoke their growth.

Based on data on prospective cargo flows, a detailed analysis of supply and demand, the most preferable location of capacities for handling cargo transported by sea to / from Russia is determined, including decisions are made on the following issues (Figure 1):

- construction of new seaports;
- construction and reconstruction of transshipment complexes in existing seaports;
- development of elements of transport hubs adjacent to seaports (port stations, railway and auto approaches, access roads, etc.);
- redistribution of cargo flows between Russian ports, as well as between the ports of Russia and neighboring countries.

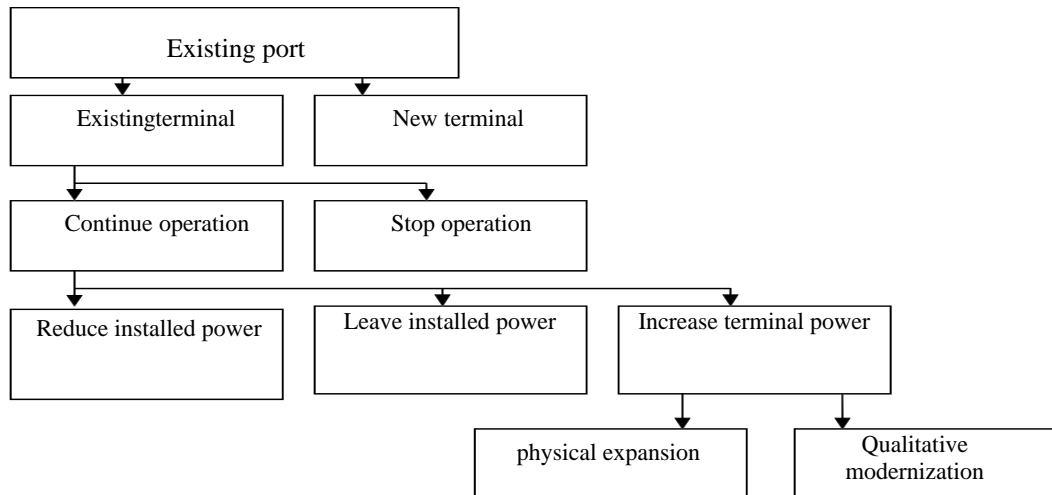
At the first level, there is a choice between existing and new ports. In the event that there is a

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more suitable available location for port development on the Russian coastline than existing ports, or where

existing ports cannot be developed, the formation of new ports may be considered.



Picture. 1 Strategic direction development tree

At the second level, a choice is made: whether to continue using the existing terminals in the port or whether new ones need to be developed.

For all terminals for which it is decided to continue using them, it is necessary to consider whether the terminal capacity should be:

- reduced (for example, due to environmental restrictions);
- increased (due to physical expansion or increased efficiency);
- or maintained at the same level (for example, due to the inability to expand or improve efficiency).

It should be noted that the increase in terminal capacity can be achieved through physical expansion and quality upgrades. Among the main physical improvements that increase the capacity of terminals are the expansion of approach channels;

- acceleration of icebreaking assistance in freezing ports;
- increase in operational efficiency (use of efficient equipment);
- increase in work efficiency (use of a greater length of the quay wall);
- improvement of road and railway approaches to the port (elimination of bottlenecks in the transport infrastructure).

The main quality improvements to increase the throughput of terminals are:

- improvement of customs procedures;
- elimination of administrative barriers;
- improvement of operational procedures in terminals.

The choice of the most preferred locations for the development of port facilities is based on an analysis of the quality and reliability of the three components of the logical chain:

1) navigation accessibility.

It is assessed as the ability of a port located in a given territory to receive ships typical for a given region. Thus, for each basin, the typical configuration of the prevailing vessels determines the requirements for the development of the port's navigation infrastructure. Two characteristics largely determine navigational accessibility: the physical dimensions of the approach channel (depth, width, length) and climatic conditions (freezing of the port, etc.);

2) Possibility of developing port facilities.

In the development of port infrastructure, one of the paramount importance is the efficient and reliable operation of port facilities. The most important is the efficient operation of the loading and unloading complex, where ships are loaded and unloaded, the ability to receive and process waste from ships. However, other infrastructure facilities, such as customs and screening terminals, also need to operate at high levels of efficiency. In this sense, projects that involve the expansion of existing ports with developed routes and a well-functioning cargo handling mechanism and possible territories for secondary development have certain advantages over projects involving construction in an "open field".

In addition to the existing services provided by the port, the ability to expand the volume of services and their quality is an important factor in choosing the most preferred port locations. Ports (territories) with physical and / or environmental restrictions cannot provide investors with a perspective for long-term and stable development;

3) internal availability.

In order to guarantee the efficient transportation of goods located inland, ports must be connected by a network of roads or railways, inland waterways. Without a stable and reliable connection between the

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port and the hinterland, ports cannot provide cargo owners and operators with services of the proper quality. Therefore, the availability and quality of internal accessibility of a port are very important characteristics that affect the assessment of the competitiveness of ports.

Strategic development directions determine where and what kind of seaport infrastructure should be developed. The tree below illustrates the development of strategic development directions for a particular type of cargo for each basin.

After the development of strategic directions for the development of the seaport infrastructure, specific activities (projects) are selected that correspond to the developed strategic directions.

The structure of the document allows a step-by-step analysis of the main trends affecting the functioning of the Russian port industry. Starting with a review of the global macroeconomic situation and trends in world trade, as well as the domestic resource base, the methodology allows you to gradually go down to the selection of specific projects in specific Russian ports.

Based on the analysis carried out for each type of cargo within the framework of regional directions, proposals were formulated for the optimal development of Russian seaports, taking into account their competitive advantages. The list of seaports with indication of forecast cargo flows by types of cargo and promising development projects is presented in Appendix 5 to this Strategy.

As part of the development and application of the methodology and tools for forecasting the dynamics of the cargo base in the context of the directions of cargo flows, with the allocation of individual basins (ports), types of cargo and regions of destination/departure, short-, medium- and long-term forecasts of development were carried out. At the same time, key indicators of federal, sectoral, departmental, and regional development programs were taken into account.

When developing the forecast, the program activities in terms of the development of seaports were also taken into account, provided for by the Transport Strategy of the Russian Federation for the period up to 2035 and the federal target program "Development of the transport system of Russia (2020-2035)" (subprograms "Sea transport" and "Development of export of transport services").

Also, the methodology for forecasting the commissioning of port facilities was supplemented by the data available at FSUE "Rosmorport" on the business proposals of investors for the development of ports for the period up to 2035.

The cargo base in this document is understood as a comprehensive description of cargo flows in the direction of seaports with distribution according to the established nomenclature of goods and types of transportation (export, import, international transit,

cabotage), indicating the areas of their origin, destination and ports of transshipment.

Usually, foreign trade and, accordingly, maritime transport of foreign trade goods develop more or less synchronously with the development of the country's economy. However, an inverse relationship is often observed. So, in the 90s of the last century, Russia lived in a deep crisis, a sharp decline in industrial production. At the same time, the cargo turnover of seaports increased annually at a fairly high rate. Over the period from 2019 to 2021, the total volume of cargo transshipment in Russian ports increased by 1.6 times (from 113.0 million tons to 182.2 million tons). Russia exported products of the fuel and energy complex and raw materials industries in order to purchase the necessary goods and food with the proceeds.

Another very typical example. Due to the decline in production in the Russian domestic market, the demand for metals dropped sharply. And then all the surplus metals were exported, especially since the demand for metals on the foreign market was quite high. Over the period from 2019 to 2021, the volume of transshipment of export metals in Russian ports increased 4 times (from 3.8 million tons to 15.5 million tons).

Therefore, when developing the forecast, not only macroeconomic indicators were used, but also specific situations in the global and domestic markets were analyzed for each type of cargo of the established nomenclature.

Despite the potential of the ports of the Russian Federation, primarily in providing export-import flows, Russian ports often lose competition for their own traffic to the ports of neighboring countries. Thus, in particular, the share of the ports of the Baltic countries and Ukraine has been gradually decreasing in recent years, but, nevertheless, in recent years it has been at a relatively high level of 15-20% of the total maritime traffic oriented to Russia. At the same time, for some cargoes, such as mineral fertilizers and ore, traffic oriented to Russia is distributed approximately equally between the ports of Russia and the ports of the Baltic countries and Ukraine. It should be noted that Russian ports have a much better location relative to the Russian centers of production and consumption of goods, which, with significantly lower costs of transporting goods by sea,

Along with the geographical position in relation to consumers and producers, one of the most important factors in choosing a port of unloading is the speed and quality of cargo handling. Another important indicator of the attractiveness of Russian ports is the cost of a ship call. Without Russian ports reaching the level of best international practice in terms of these indicators, it is difficult to talk about a fundamental change in the state of the industry.

In general, the results of forecasting the cargo base of seaports are characterized by the following

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indicators.

The total volume of cargo transshipment in the seaports of Russia for the period from 2019 to 2035 will increase according to various scenarios by 1.8 - 2.1 times and is estimated at 1013.4 million tons - 1196.1 million tons (tables 5 - 6 - 7).

Development scenarios The conservative (energy-resource) scenario is based on the dynamics

of cargo flows, which will mainly be provided by domestic cargo generating sectors of the economy. High growth rates under the innovation scenario are associated with the potential for growth in world trade in the direction of the Asia-Pacific region and the development of Arctic deposits.

Table 5. Forecast of cargo transshipment through Russian seaports for the period up to 2015-2025-2035

Type of cargo	2013 fact	2025		2030		2035	
		En	Inn	En	Inn	En	Inn
TOTAL CARGO, including:	589.2	637.7	683.6	832.8	915.1	1013.4	1196.1
bulk	333.4	364.0	377.0	427.0	435.0	464.0	477.0
bulk carriers	255.8	273.7	306.6	405.8	480.1	549.4	719.1

The share of ports of neighboring countries in the total volume of transshipment of Russian foreign

trade cargo will decrease from 15% at present to 4% by 2035.

Table 6. Volumes of transshipment of Russian foreign trade cargoes through the seaports of Russia and the ports of neighboring states according to the conservative (energy and raw materials) option

Cargo flows	2013 fact	2025 forecast	2030 forecast	2035 forecast
TOTAL CARGO, including:	674	698.8	877.8	1053.6
1. Coastal	35.9	38.0	44.7	59.9
2. Foreign trade	638.1	660.8	833.1	993.7
Of them:				
2.1. through Russian ports	553.3	599.7	788.1	953.5
2.2. through the ports of neighboring states	84.8	73.2	45.3	40.2
Share of ports of neighboring countries in the total volume of transshipment of foreign trade cargo	13%	9%	5%	four%
Total via Russian ports (1+2.1.)	589.2	637.7	832.8	1013.4

In the study period, the basis of cargo turnover is stillly will be products of the fuel and energy complex (crude oil, oil products, liquefied gas, coal) and raw

materials industries (ore, chemical and timber cargoes), as well as metals not in business. At the same time, there will be some structural changes.

Table 7. Forecast of volumes of cargo transshipment through seaports in the context of the main nomenclature items for 2025-2030-2035

Type of cargo	2013 fact	2025 forecast		2030 forecast		2035 forecast	
		En	Inn	En	Inn	En	Inn
Total cargo	589.2	637.7	683.6	832.8	915.1	1013.4	1196.1
including							
1. Bulk	333.4	364.0	377.0	427.0	435.0	464.0	477.0
1.1. crude oil	207.5	226.0	235.0	255.0	258.0	260.0	265.0
1.2. oil products	111.7	116.0	120.0	120.0	125.0	122.0	130.0
1.3. other bulk	14.2	22.0	22.0	52.0	52.0	82.0	82.0
2. Bulk carriers	255.8	273.7	306.6	405.8	480.1	549.4	719.1
2.1. Bulk	132.2	122.8	146.0	166.3	198.5	234.1	296.9

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2.1.1. coal and coke	101.1	90.2	110.0	100.7	115.4	136.0	166.0
2.1.2. ores and concentrates	7.4	10.9	11.5	24.5	29.8	32.2	39.2
2.1.3. chemical (mineral fertilizers)	12.9	12.8	14.5	29.0	35.1	51.4	60.7
2.1.4. sugar	1.0	2.4	3.0	2.7	4.1	3.7	6.5
2.1.5. other bulk	9.8	6.5	7.0	9.4	14.1	10.8	24.5
2.2. Corn	18.3	24.6	28.1	34.2	39.9	37.6	46.0
2.3. Forest	4.4	8.1	9.5	12.3	17.8	21.0	27.5
2.4. General	100.9	118.2	123.0	193.0	223.9	256.7	348.7
2.4.1. metals are out of business	32.6	33.6	34.0	51.2	55.0	67.8	85.1
2.4.2. cars and equipment	5.2	4.5	5.0	6.9	8.2	7.0	12.4
2.4.3. perishable	3.7	5.5	6.0	8.2	10.9	8.2	15.1
2.4.4. containers	44.4	48.3	50.5	90.5	106.8	135.5	183.0
2.4.5. ferries	6.5	12.4	13.0	18.0	23.9	19.2	29.7
2.4.6. others	8.5	13.9	14.5	18.2	19.1	19.0	23.4

If in 2013 the share of liquid cargo transshipped in Russian seaports was 56.6% of the total cargo turnover, then in 2035 it will decrease to 45.8% (energy and raw materials scenario) - 39.9% (innovative scenario).

It is planned to "ennoble" foreign trade maritime transport. If in 2013 the share of general cargo was 17.1% of the total cargo turnover of domestic ports, then in 2035 this share will reach 24.1% (energy and raw materials scenario) - 25.5% (innovative option), i.e. . will increase by 5.5-6.9 points.

When developing a forecast for the cargo flows of crude oil, oil products and liquefied gas exported from Russian seaports, the main provisions of the following documents were taken into account:

- Energy strategy of Russia for the period up to 2035 (2009);
- General scheme for the development of the oil industry for the period up to 2025 (report on October 28, 2010);
- Scenario conditions for a long-term forecast of the socio-economic development of the Russian Federation until 2035 (March 2020).

According to these documents, oil production in the country after 2025 will stabilize at around 510-515 million tons per year, i.e. the volumes of 2018-2020 will practically remain.

The projected volumes of exports of Russian hydrocarbon resources given in these documents are slightly different, which is explained by the difference in the time of issuance of documents. However, in all three documents one and the same trend can be clearly

seen - stabilization and even some reduction in exports of crude oil and oil products.

Thus, in accordance with the latest document (Scenario Conditions), the export of crude oil in the first years of the forecast period grows at a low rate and, having reached 252 million tons by 2020, then decreases and after 2025 stabilizes. The export of petroleum products reaches a peak already in the period 2018-2020, after which it will stabilize or slightly decrease to 247 million tons by 2035 due to a slight decrease in European demand for Russian oil. The share of exported oil will be about 48% in 2030.

The export of liquefied natural gas (LNG) under both scenarios remains at the level (14 billion cubic meters) until 2025, after which it grows rapidly and reaches 42 billion cubic meters by 2035. m. Further, according to the innovative scenario, it remains at this level, and according to the energy and raw material scenario, it continues to grow, reaching 54 billion cubic meters by 2025. m and remains at this level until 2035.

The reasons for such a cautious (one might even say, pessimistic) forecast for oil and oil products are the following factors:

- depletion of initial oil reserves. The degree of depletion of reserves of large, actively developed oil fields is approaching 60%. Newly developed reserves are mainly concentrated in medium and small deposits and are, as a rule, difficult to recover;

- a decrease in the demand for energy resources in the foreign market due to a decline in production during the global economic crisis;

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-use of alternative, renewable energy sources (solar, wind, tidal, etc.), gradually increasing their share in the energy balance;

-modernization of the Russian economy, providing for the priority development of science-intensive industries rather than raw materials, producing means of production and consumer goods.

At the same time, a deeper and more detailed consideration of these factors allows us to draw conclusions that differ from those presented in the above documents. As some experts note, the next wave of the global crisis will end by 2021. After the crisis, there usually comes a surge in business activity and a rapid increase in production, which, in turn, leads to an increase in energy demand.

The use of alternative energy sources is certainly a progressive phenomenon, but it will not be possible to replace traditional sources soon. In any case, oil, gas and coal will remain the main energy resources until 2030.

Modernization and further development of the Russian economy will not only not lead to a decrease in the need for energy resources, but, on the contrary, will significantly increase this need because, firstly, the growing economy requires additional energy supply, and secondly, modernization requires large financial resources, which can be obtained the country is still able only through the sale of oil and other resources.

It should be noted that the above scenario conditions are preliminary and can be changed in the direction of increasing or decreasing export volumes. However, in the present work, the values indicated in the documents cited above are generally taken as limitations. However, a more versatile analysis shows that in practice these values will be exceeded, and the size of the excess will increase as the forecast horizon increases.

Particular attention should be paid to plans for the construction of complexes for coal transshipment. The long-term program for the development of the coal industry for the period up to 2035, approved on January 24, 2018, provides for an increase in coal production and exports to 140 million tons in 2018, 150 million tons in 2025, 170 million tons in 2035.

According to statistics, 90-95% of export coal is transported by sea. Consequently, in 2035, seaports must transship about 155 million tons of coal for export. The volume of cabotage is estimated at about 2.5 million tons.

There will be a slight, but still some leveling of transshipment of export and import cargoes. In 2018, in terms of transshipped cargo, exports exceeded imports by 9.5 times; in 2035 this excess will be reduced to 6.9 times (under the energy and raw materials scenario) - 6.6 times (under the innovative scenario).

The growth of cargo transshipment in the period up to 2035 will be observed in all basins. In the

forecast period, transshipments of liquefied gas, as well as general and bulk cargo (coal, ores, cargo in containers) will grow at the highest rates. It is planned to strengthen Russia's leadership as a grain exporter on the world market. Therefore, transshipment of grain in Russian seaports will almost double.

For individual basins, the situation can be characterized as follows.

In the Baltic basin, by 2035, demand for cargo transshipment is projected to grow to the level of 332.4 million tons in the energy and raw materials scenario (382.2 in the innovative one).

In 2035, the Baltic basin will become the main seaport for the export of Russian hydrocarbons and mineral fertilizers, as well as the largest Russian sea basin in terms of refrigerated and containerized cargo turnover. The basin will retain its leadership in cargo transshipment among all destinations. The main challenge facing the seaports of the Baltic will be the transfer of goods oriented towards Russia from the Baltic and Scandinavian ports.

In the Azov-Chernomorsky direction, by 2035, an increase in demand for cargo transshipment is forecasted to reach the level of 289.1 million tons in the energy and raw materials scenario (348.3 million tons in the innovative one).

In general, in 2035 the Azov-Black Sea basin, along with the Baltic, will remain the largest sea basin in Russia in terms of cargo handling volumes. 36.6% of oil, 31% of oil products, 95% of sugar and grain and 55% of the country's Ro-Ro cargo is planned to be transshipped in the ports of the Azov-Black Sea basin. According to the forecast for the turnover of containers, the Azov-Black Sea basin will be inferior to the Baltic and Far Eastern basins, and in terms of hydrocarbon exports it will be comparable to the Baltic.

One of the main tasks facing the seaports of the Azov-Black Sea basin will be the transfer of goods oriented towards Russia from Ukrainian ports.

In the Caspian Basin, by 2030, demand for cargo transshipment is projected to grow to the level of 23.9 million tons in the energy and raw materials scenario (42.7 million tons in the innovative one). The share of the ports of the Caspian basin in the total volume of cargo transshipment will increase from the current 1.3% to 2.4-3.6% by 2035.

In connection with the decision of the Government of Russia on the accelerated socio-economic development of Siberia and the Far East, freight traffic will shift somewhat to the east. This will also be facilitated by the strengthening of Russia's foreign economic relations with the rapidly developing countries of the Asia-Pacific region. In 2018, the share of seaports in the Far East basin was 24.6% of the total volume of transshipment of Russian cargo, by 2035 it will be 23.2% (energy and raw materials scenario) - 22.6% (innovative scenario).

In general, in 2035 the cargo base of the ports of

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the Far Eastern Basin will be provided with mineral and raw materials and forest resources of Eastern Siberia and the Far East, as well as the functioning of the East-West transport corridor (containers). However, there is a possibility that the further development of the capacities of the ports of the Far Eastern Basin will be limited by the capacity of the railway.

In the Far East direction, by 2035, demand for cargo transshipment is projected to grow to the level of 234.7 million tons in the energy and raw materials scenario (270.5 million tons in the innovative one).

In the ports of the Arctic Basin, by 2035, an

increase in demand for transshipment of liquid cargo is forecasted to reach 133.3 million tons in the energy and raw materials scenario (152.4 million tons in the innovative one), mainly due to LPG. The ports of the Arctic Basin will be focused on the transshipment of hydrocarbons produced on the Arctic shelf, as well as timber and mineral resources of the Russian north. The share of Arctic ports in the transshipment of goods will increase significantly, from the current 7.8% to 13.2% (energy and raw materials scenario) - 12.8% (innovative scenario) by 2035 (tables 8 - 9 - 10).

Table 8. Distribution of cargo transshipment volumes in the seaports of Russia by sea basins in the peri

Pools	2013 report		2035 forecast			
	million tons	%	En		Inn	
			million tons	%	million tons	%
Total	589.2	100	1013.4	100	1196.1	100
including:						
Arctic	46.2	6.8	133.3	13.1	152.4	12.8
Baltic	215.9	36.5	332.4	32.8	382.2	31.9
Azov-Chernomorsky	174.4	31.2	289.1	28.5	348.3	29.1
Caspian	7.9	1.8	23.9	2.4	42.7	3.6
Far Eastern	144.8	23.7	234.7	23.2	270.5	22.6

Table 9. Distribution of cargo transshipment volumes in Russian seaports by types of transportation and sea basins in the period up to 2035 (energy cheese)

Pools	2013 report		2025 forecast		2030 forecast		2035 forecast	
	million tons	%	million tons	%	million tons	%	million tons	%
Total	589.2	100	637.7	100	832.8	100	1013.4	100
including								
Arctic	46.2	6.8	50.1	7.9	95.4	11.5	133.3	13.2
Baltic	215.9	36.5	223.8	35.1	271.3	32.6	332.4	32.8
Azov-Chernomorsky	174.4	31.1	195.1	30.6	257.8	31.0	289.1	28.5
Caspian	7.9	1.9	14.3	2.2	22.5	2.7	23.9	2.4
Far Eastern	144.8	23.7	154.4	24.2	185.8	22.3	234.7	23.2
Export	506.4	86.0/100	533.8	83.7/100	695.7	83.5/100	831.2	82.0/100
including								
Arctic	33.3	6.6	31.3	5.9	70.9	10.2	98.9	11.9
Baltic	187.3	40.2	187.9	35.2	221.9	31.9	265.1	31.9
Azov-Chernomorsky	160.6	28.1	177.8	33.3	233.1	33.5	258.5	31.1
Caspian	6.6	0.8	8.6	1.6	14.1	2.0	14.5	1.7
Far Eastern	118.6	24.3	128.2	24.0	155.7	22.4	194.2	23.4
Import	46.9	8.4/100	66	10.5/100	92.4	11.1/100	122.2	12.1/100
including								
Arctic	0.6	1.5	2.5	3.8	3.6	3.9	4	3.3

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Baltic	25.5	50.7	32.7	49.5	45.6	49.4	62.4	51.1
Azov-Chernomorsky	11.6	29.9	15.5	23.5	22.6	24.5	27.8	22.7
Caspian	0.8	1.3	5.2	7.9	7.8	8.4	8.6	7.0
Far Eastern	8.4	16.6	10.1	15.3	12.8	13.9	19.4	15.9
Cabotage	35.9	5.6/ 100	37.9	5.8/ 100	44.7	5.4/ 100	60	5.9/ 100
including								
Arctic	12.3	26.7	16.3	43.0	20.9	46.8	30.4	50.7
Baltic	3.1	7.9	3.2	8.4	3.8	8.5	4.9	8.2
Azov-Chernomorsky	2.2	7.5	1.8	4.7	2.1	4.7	2.8	4.7
Caspian	0.5	3.5	0.5	1.3	0.6	1.3	0.8	1.3
Far Eastern	17.8	54.4	16.1	42.5	17.3	38.7	21.1	35.2

Table 10. Distribution of cargo transshipment volumes in Russian seaports by types of transportation and sea basins in the period up to 2035 (innovative scenario)

Pools	2013 report		2025 forecast		2030 forecast		2035 forecast	
	million tons	%	million tons	%	million tons	%	million tons	%
Total	589.2	100	683.6	100	915.1	100	1196.1	100
including								
Arctic	46.2	6.8	88.7	13.0	115.4	12.6	152.4	12.7
Baltic	215.9	36.5	221.9	32.5	284.6	31.1	382.2	32.0
Azov-Chernomorsky	174.4	31.1	198.8	29.1	274.8	30.0	348.3	29.1
Caspian	7.9	1.9	15.3	2.2	33.8	3.7	42.7	3.6
Far Eastern	144.8	23.7	158.9	23.2	206.5	22.6	270.5	22.6
Export	506.4	86.0/ 100	555.1	81.2/ 100	770.9	84.2/ 100	983.4	82.2/ 100
including								
Arctic	33.3	6.6	63.3	11.4	90.7	11.8	125.6	12.8
Baltic	187.3	40.2	182.8	32.9	238.6	31.0	316.2	32.2
Azov-Chernomorsky	160.6	28.1	175.2	31.6	246.4	32.0	291.4	29.6
Caspian	6.6	0.8	7.6	1.4	24.2	3.1	26.8	2.7
Far Eastern	118.6	24.3	126.2	22.7	171	22.2	223.4	22.7
Import	46.9	8.4/ 100	78.9	11.6/ 100	95.5	10.5/ 100	158.5	13.3/ 100
including								
Arctic	0.6	1.5	2	2.5	2.2	2.3	2.7	1.7
Baltic	25.5	50.7	36.6	46.4	43.6	45.7	63.4	40.0
Azov-Chernomorsky	11.6	29.9	21.7	27.5	26.5	27.7	54.6	34.4
Caspian	0.8	1.3	7.2	9.1	9.1	9.5	15.3	9.7
Far Eastern	8.4	16.6	11.4	14.4	14.1	14.8	22.5	14.2
Cabotage	35.9	5.6/ 100	49.5	7.2/ 100	48.7	5.3/ 100	54.2	4.5/ 100
including								
Arctic	12.3	26.7	23.3	47.1	22.5	46.2	24.1	44.5
Baltic	3.1	7.9	2.5	5.1	2.4	4.9	2.6	4.8
Azov-Chernomorsky	2.2	7.5	1.9	3.8	1.9	3.9	2.3	4.2
Caspian	0.5	3.5	0.5	1.0	0.5	1.0	0.6	1.1
Far Eastern	17.8	54.4	21.3	43.0	21.4	43.9	24.6	45.4

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The development of seaports in each time period had its own characteristics. For example, in the early 1990s In the 20th century, there was a question about the increased construction of new ports in the Baltic in order to ensure the economic security of Russia and prevent the transfer of foreign trade cargo flows to the ports of neighboring states. In the 2000s, mechanisms for attracting investments in port infrastructure were actively developed, and mechanisms for managing the sea port economy were structured.

At present, the task is to integrate all types of transport and increase the efficiency of their interaction in order to realize the competitive advantages of Russia and strengthen its transit potential.

In accordance with the subprogram "Development of the export of transport services" of the Federal Target Program "Development of the transport system of Russia (2018-2035)", the following projects are expected to be implemented:

comprehensive development of the transport corridor "West - East" in the direction of Europe - the Russian Federation - Japan with branches from the Russian Federation to Kazakhstan, Mongolia and China. The key links of this corridor should be 1) a double-track and fully electrified Trans-Siberian Railway, 2) strategic seaports, 3) multimodal transport hubs and 4) inter-regional logistics centers that will allow switching the transport flows of the Asia-Pacific region to the West-East transport corridor »;

comprehensive development of the North-South corridor in the direction of Northern Europe Russian Federation-Iran-India with branches to the Caucasus, the Persian Gulf, and Central Asia. As part of the North-South corridor, work will be carried out to develop main lines of communication and complex transport hubs, the expansion and construction of approaches to sea and river ports (Novorossiysk, Taman, Rostov universal port), railway stations, airports and multimodal terminals will continue.

Today, the tasks are set to develop and increase the competitiveness of seaports located in places of maximum concentration of export and transit cargo flows. Russian seaports in all basins are "entry points" of international transport corridors ("Trans-Siberian", "North - South", route "Europe - Western China"). To ensure the accelerated development of cargo transportation in containers, it is planned to build container and transshipment terminals in the ports of Novorossiysk and Murmansk, create an integrated transport hub based on the port of Taman and the Rostov universal port.

Of decisive importance in the future will be the specialization of seaports through the creation of so-called "layered ports" following the Rotterdam model, when the port system will include remote railway junctions and transport and logistics complexes. This will require the development of access roads to ports and port production and storage areas focused on the

processing of cargo, the formation of port zones that ensure the processing of incoming cargo.

It is necessary to significantly expand regional transport cooperation in the field of transport to realize the interests of the Russian transport business:

in the north-west of Russia - within the framework of the Council of the Barents Euro-Arctic Region and the Council of the Baltic Sea States;

in the south - within the framework of the Black Sea Economic Cooperation;

in the east - within the framework of the Shanghai Cooperation Organization and the Asia-Pacific Economic Cooperation.

To ensure the growth of transportation of goods and passengers on socially significant routes, it is planned to build ferry complexes to provide communication with the Kaliningrad Region and Sakhalin Island, and build infrastructure for servicing passengers.

The use and development of modern innovative and information technologies in maritime transport is envisaged.

In modern conditions, effective management is an essential factor in strengthening the economic growth rates of regions and the state as a whole. The role of regions as places for the formation of a competitive environment for economic entities located there, in particular, seaports, is significantly enhanced.

The development of seaports has a stimulating effect on the economic growth of territorial entities, entrepreneurial activity and competition in the market, the influx of investments and qualified personnel, and the development of innovative technologies. Often, seaports are city-forming enterprises of social importance for the region. Maritime transport provides about 60 percent of Russia's foreign trade economic relations, plays a significant role in realizing Russia's transit potential and an indispensable role in the transport provision of hard-to-reach areas and the delivery of goods to the Far North.

The task set at the state level to increase the country's export opportunities can be solved in the unity of increasing the foreign economic potential of the state and the integrated development of regions, including the social component.

An analysis of strategic documents for the development of ports at the regional level allows us to conclude that both the development of individual ports directly and some forecasts of their activities (of course, implying their development) are affected in almost every region of the Russian Federation bordering the sea. At the same time, the northern regions are more focused on the development of ports that provide exploration and production of hydrocarbons on the Arctic shelf, and on the development of the Northern Sea Route, the organization of northern delivery to hard-to-reach

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regions, etc. In the Baltic, within the framework of regional strategies, the development of the Big Port of St. Petersburg, Kaliningrad, Baltiysk is envisaged. It implies the development of a system of rear terminals that ensure the transfer of the maximum possible volume of cargo operations outside the port. One sees the functioning of sea cargo terminals in the area of the Bronka railway station, the city of Lomonosov and the city of Kronstadt. In the ports of the South Basin, much attention is paid to the development of the transport potential of the region through the integrated development of regional transport hubs, in particular, the creation of port special economic zones in the ports of Olya and Taman. In the Far East basin, the most diversified development of ports is planned, based both on the implementation of the import-export and transit potential of the country, and on the solution of regional social problems (development of cabotage transportation, organization of wholesale fish exchanges in ports). In the ports of the South Basin, much attention is paid to the development of the transport potential of the region through the integrated development of regional transport hubs, in particular, the creation of port special economic zones in the ports of Olya and Taman. In the Far East basin, the most diversified development of ports is planned, based both on the implementation of the import-export and transit potential of the country, and on the solution of regional social problems (development of cabotage transportation, organization of wholesale fish exchanges in ports). In the ports of the South Basin, much attention is paid to the development of the transport potential of the region through the integrated development of regional transport hubs, in particular, the creation of port special economic zones in the ports of Olya and Taman. In the Far East basin, the most diversified development of ports is planned, based both on the implementation of the import-export and transit potential of the country, and on the solution of regional social problems (development of cabotage transportation, organization of wholesale fish exchanges in ports).

A comprehensive analysis shows that, unfortunately, with the simultaneous implementation of all the identified strategic initiatives, it is possible, on the one hand, to develop excess capacity (different regions in the development of ports, in fact, count on the same market), on the other hand, insufficient capacity (certain important aspects seem unattractive to all regions, but they need to be implemented by those who have the lowest costs). For a full-fledged, coordinated and unified approach to the development of the entire domestic port infrastructure, these regional initiatives must be considered at the federal level. Evaluation and analysis of these initiatives, especially in terms of realizing the country's import and export potential, should be carried out in the context of the main directions for the development of seaport infrastructure developed in the Strategy. Thus,

the relevant initiatives should be considered and included, in case of a positive assessment, into the Strategy on the same terms as other activities. Accordingly, the subjects of the Federation are the initiators of these events.

Transportation or organization of fish markets in the port, it is only necessary to have an agreement on the consistency of the general principles of the event with the principles of the Strategy. A detailed analysis of the economic feasibility or sources and amounts of funding at the federal level can be omitted, these decisions are given to the regional level.

Despite intensive plans for the development of regional sea port complexes, there are systemic constraints that hinder the development of port activities and reduce their competitiveness:

- lack of effective interaction between the state and private business in the development of port infrastructure;
- features of the geographical position of the ports: shallow depths, long approach channels, ice conditions, remoteness from the main directions of world shipping;
- inconsistency with world practice of the regime and procedures for the operation of checkpoints;
- unsettled land and property relations in ports;
- the absence of tax and customs preferences accepted in world practice, including for the creation of port special economic zones.

A separate priority of the Strategy for the Development of Maritime Port Infrastructure is cooperation between ports and within them, which will contribute to the overall effective development. Cooperation in this Strategy is understood as a specific interaction between the parties that participate in the activities of the port. According to the level of interaction, cooperation can be of an intercountry, regional or intra-port character. According to the types of interaction, cooperation can be conditionally divided into institutional (for example, institutional exchange of experience at the country level), industrial (for example, exchange of experience in practical work at the level of individual ports) and commercial (for example, the creation of joint ventures). Events involving inter- and intra-port cooperation for the exchange of best practices, knowledge, creation of mutually beneficial regional platforms for interactions have an additional priority within the framework of the Strategy. In doing so, we single out the following types of special priority areas:

- exchange of information and experience in the work of the port economy;
- holding exhibitions and organizing working platforms for the exchange of best practices and discussion of cooperation opportunities;
- facilitating the introduction of intra-port

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electronic document management;

- creation of industrial parks and development of regional multimodal links to reduce the costs of movement of goods through supply chains;
- consolidation of all-Russian standards for maintaining port statistics in accordance with accepted international practice;
- training of personnel for the port industry.

It is worth dwelling in particular on the development of the Arctic zone of the Russian Federation (territories located mainly to the north of the 60th parallel).

The fundamentals of the state policy of the Russian Federation in the Arctic for the period up to 2020 and beyond define the main goals, main tasks, strategic priorities and mechanisms for implementing the state policy of the Russian Federation in the Arctic, as well as a system of strategic planning measures for the socio-economic development of the Arctic zone of the Russian Federation and ensuring Russia's national security.

The state policy in relation to the Northern Sea Route is based on the following principles: the state supports the priority sectors of the Arctic economy that can increase cargo flows in a short time; creates favorable regulatory legal and financial and economic conditions for the activities of Russian commercial enterprises and foreign investment in these industries; develops the federal transport infrastructure (icebreakers, hydrographic fleet, means of navigation, hydrometeorology, communications, rescue) as the basis for a unified national transport communication in the Arctic. Commercial enterprises and constituent entities of the Russian Federation, as economic activity develops and the cargo base grows, create their own transport fleet or use the services of shipping companies, develop the port economy and take a share in the development of the infrastructure of the NSR, which ensures the activities of these entities. As a result, a self-sustaining Arctic maritime transport system is being created.

The main goals of the state policy of the Russian Federation in the Arctic are supposed to be achieved by solving, among other things, the following tasks:

- to ensure the restructuring of the volume of cargo transportation along the Northern Sea Route, including through state support for the construction of icebreaking, rescue and auxiliary fleets, as well as coastal infrastructure;
- to form a system of control over ensuring the safety of navigation, managing traffic flows in areas of heavy vessel traffic, including through the implementation of a set of measures for hydrometeorological and navigational support in the Arctic zone of the Russian Federation.

According to the plans for the development of the Arctic, it is planned to radically modernize the Northern Sea Route and increase the cargo turnover on its routes by 2020 to 30-35 million tons annually

through transportation from new offshore facilities and transit flows from Europe to the countries of the Asia-Pacific region.

Estimated volumes of cargo turnover will be created due to the transportation of hydrocarbons from new fields of the Arctic shelf, the Timan-Pechora province, partial switching of cargoes of Russian manufacturers that are transported through the Suez Canal, connection of the first transit cargo transportation between the ports of Western Europe, North America, the Far East and the South East Asia (in the event that foreign shippers switch part of their cargo flows from southern to northern routes).

The modernization of the Arctic transport system is a priority for the development of the Arctic zone of the Russian Federation.

Restoring the functions of the NSR for safe navigation along its routes involves the modernization of the Arctic ports of Khatanga, Tiksi, Pevek, Dudinka, Dikson and the creation of new port (transport and logistics) complexes / offshore shipping terminals Indiga, Kharasavey, Murmansk, Varandey.

The development of the backbone transport network of the Arctic territories to ensure transportation through it also provides for the development of the infrastructure of the Arctic ports of Tiksi and Zeleny Mys. It is planned to build estuarine transshipment complexes at the mouths of the Lena, Yana, Indigirka and Kolyma rivers.

In order to implement plans for the development of the Arctic shelf and the delivery of hydrocarbons to Europe and the USA, as well as the use of the NSR for transit transportation between the countries of North-Western Europe and the Asia-Pacific region (Japan, China, the USA, Canada), it is planned to develop the navigation safety infrastructure along the Northern Sea way. A cardinal renewal of the icebreaking fleet, construction of specialized ice-class and reinforced ice-class vessels, double-hull tankers with additional emergency equipment is planned.

The modernization of the Arctic fleet leads to the expansion of the role of dual-purpose and multi-purpose vehicles, which are the most effective in the conditions of the modern Arctic, as well as small and medium-sized river-sea vessels, dry-cargo tankers, vessels for the transportation of transit container cargo, ice-class tankers, specialized vessels for the fishing, research fleet.

For the effective development of maritime transport, it is proposed to legislate the preservation of the icebreaker fleet, navigation systems, hydrography, hydrometeorology, communications and navigation management as the basis of Russia's unified national transport communications in the Arctic. The development of the icebreaking and transport fleet, ports and navigation safety systems will be aimed at year-round mass export of oil, gas and condensate from fields on the coast and shelf of the Barents and Kara Seas, regular transportation, transit along the

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Northern Sea Route, northern delivery of energy resources and consumer goods consumption, as well as the export of products.

Creation of transport vessels of ice categories, in particular tankers, will be carried out at the expense of joint-stock production and transport enterprises that develop the natural resources of the Arctic. The development of the coastal port infrastructure is supposed to be provided at the expense of the interested cargo owners and the Arctic regions of the Russian Federation on the principles of public-private partnership. Creation of new port transport and technological complexes in the area of the Kola Peninsula, terminal ports Indiga, Kharasavey, Yasya (Ob Bay); new road offloading terminals for liquid cargo (Varandey, Prirazlomnoye, Lipatnikovo/Igarka, container terminals in the ports of Murmansk, Tiksi, Egvekinot, Provideniya) are provided at the expense of commercial enterprises' own funds. The port of Egvekinot is considered as the base receiving and supply port of the Chukotka Autonomous Okrug with the organization in the near future (after the completion of the construction of the Egvekinot - Cape Schmidt - Pevek highway) year-round navigation in the direction of Vladivostok (Nakhodka, Vostochny, Vanino) - Egvekinot. All ports should be provided with waste collection and disposal facilities and environmental facilities.

The development of individual Arctic projects will be carried out as follows.

Murmansk region. Of particular importance is the implementation of the project "Integrated Development of the Murmansk Transport Hub", which is included in the federal target program "Development of the Transport System of Russia (2010-2020)". Its goal is to use the potential of the Murmansk transport hub to service the traffic flows of the Northern Sea Route, the Barents-Euro-Atlantic Transport Corridor, as well as hydrocarbon cargoes associated with the development and operation of offshore fields. As part of the project, it is planned to build new port transshipment complexes, sea container and logistics terminals, develop a network of access railways and roads, as well as other facilities.

Arhangelsk region. As part of the implementation of the first phase of the project for the exploitation of hydrocarbon reserves of the continental shelf, primarily the Shtokman gas condensate field, in the Arkhangelsk region, the possibility of locating a logistics and distribution center and an integrated support base is opening up.

The presence of free capacities of the Northern Railway is a strategic reserve, allowing a significant increase in the volume of freight traffic in the northern directions in a short period of time. The development of the transport sector of the Arkhangelsk region will be directed to the implementation of a priority project for the construction of a deep-water area of the seaport of Arkhangelsk. To ensure the processing of cargo

traffic, by 2035 it is planned to build and put into operation a new deep-water area "Severnoy" of the Arkhangelsk seaport in the Dry Sea Bay, which will be able to receive ships with a carrying capacity of up to 70-80 thousand tons.

On the territory of the Taimyr (Dolgano-Nenets) municipal district of the Krasnoyarsk Territory, a project will be implemented for the construction of a pipeline - tanker, transport and technological system for the export of crude oil from the Nizhne-Yenisei fields. The construction of an oil pipeline to the port of Dikson will create a sustainable local economy in the Dikson region. It will be possible to involve oil production from the fields of neighboring regions in this transport scheme.

Based on the implementation of the transport scheme Krasnoyarsk - Lesosibirsk - Turukhansk - Igarka - Dudinka, it will be possible to attract new cargo to the Northern Sea Route as a result of the access of enterprises of the Siberian Federal District to export markets and the import of imported equipment. The radical modernization of the Dudinsk seaport will reduce the annual costs of restoration work to put the port's berths into operation, reduce the period between floods and reduce the forced downtime of the port.

Nenets Autonomous Okrug. Railway transport corridors and the port of Naryan-Mar will play a huge role in the transformation of the Okrug's economy. These systems provide a transcontinental connection between the ports of the White, Barents and Kara Seas with the ports of the Pacific Ocean, determine new directions for the entry of the raw materials regions of the Urals and Siberia to the markets of Western Europe and North America, and contribute to the formation of new mineral resource flows. The port of Naryan-Mar is of great importance in providing cabotage transportation.

There will be a creation of a sea deep-water multifunctional port - the Indiga hub, a gas chemical and oil refinery complex, a natural gas liquefaction plant, the development of a pipeline system with access to the Indiga, including the Kumzhinskoye - Indiga gas pipeline. This project will ensure the creation of a new reliable transport system in the western part of the Arctic zone of the Russian Federation.

Amderma will be used as a modern port (subject to the construction of a railway to the port). The potential port and transshipment function of Amderma creates the conditions for placing here a modern processing mining complex, oriented to both internal and external cargo flows. A coal sea terminal will also be located here to receive 15-25 million tons of coal from the deposits of the district and the Komi Republic.

The construction of the port, access to the coast of the railway, the resumption of the operation of the airfield, which can be used as the main and alternate,

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as well as for aviation support in the development of the continental shelf, will ensure the transformation of Amderma into one of the most important strategic transport hubs of Russia on the Arctic coast.

Indiga will become another promising port-hub of a wide profile, which has favorable conditions for the entry of a large-capacity fleet from the Atlantic in a year-round navigation mode with the involvement of icebreaking facilities for 3-4 months, and the water area is sufficiently protected from the effects of extreme weather conditions. The construction of a multifunctional port-hub in Indiga will create favorable conditions for the development of pipeline transport according to the Kharyaga-Indiga scheme with the organization of an export terminal in the area of Cape Bolshoy Rumyanichny. Currently, the issue of laying the Sosnogorsk-Indiga railway to the port in the future until 2035 is being worked out.

Arctic regions of the Republic of Sakha (Yakutia). It is planned to modernize the fleet of the Lensky, Yansky and Kolyma shipping companies, the seaport of Tiksi, and restore the coastal service infrastructure.

Within the limits of the Chukotka Autonomous Okrug and the shelves of the seas washing it, six promising oil and gas bearing basins with significant hydrocarbon reserves have been identified. The oil and gas bearing structures of this zone are little studied and require significant investment in exploration. Preliminarily estimated reserves make it possible to predict the production of about 500 thousand tons of oil and 70 million cubic meters by 2025. m of gas, which will meet the needs of the district in oil products and energy resources, reduce budget expenditures on the northern delivery of oil products and increase the tax base of the regional budget. To this end, an oil refinery with a capacity of 350,000 tons per year will be built in Anadyr with the appropriate infrastructure, including a heated oil pipeline, a head pumping station, an oil depot and a new berth at the seaport. Cargoes arrive at seaports by all modes of transport. At the same time, the shares of individual modes of transport change over the years. However, traditionally and predominantly, cargo is delivered by rail and pipeline transport (in approximately equal

shares). Rail transport delivers dry cargo and oil products to ports, pipeline transport delivers crude oil. Over the period from 2018 to 2021, the share of railway transport increased by 4.4 points, pipeline transport - by 1.8 points.

The share of road transport significantly increased in terms of departure - by 8.2 points. This is due to the fact that many small and medium-sized enterprises have appeared in the market conditions, for which road transport is the most convenient means of delivering goods, despite the high cost of transportation.

The share of river transport both in the delivery of goods to the ports and in the export of them from the ports is reduced. At the same time, taking into account the reform of the inland water transport management system, in the future, we can expect an increase in the corresponding share of the Russian inland water transport.

The import and export of goods by sea is insignificant - mainly liquid cargo in the Arctic basin.

In the future, the distribution of shares in the import and export of goods between modes of transport will not undergo major changes. The share of road transport may increase somewhat. The share of river transport will increase provided that all the measures laid down during the reform are implemented.

Despite the potential of the ports of the Russian Federation, primarily in providing export-import flows, Russian ports often lose competition for their own traffic to the ports of neighboring countries. At the same time, it should be noted that Russian ports have a significantly better location relative to Russian centers of production and consumption of goods, which, with significantly lower costs of transporting goods by sea compared to land, should orient Russian export-import flows to Russian ports. Along with the geographical position in relation to consumers and producers, one of the most important factors in choosing a port of unloading is the speed and quality of cargo handling (Table 12). However, the primary constraint to the development of ports is land infrastructure,

Table 12. Arrival and departure of cargoes to/from seaports of Russia by different modes of transport forshipments by sea %

Types of transport	2013		2018		2019		2020		2021		2035 forecast	
	P	O	P	O	P	O	P	O	P	O	P	O
Railway	43.6	29.3	44.0	34.9	44.5	25.1	46.6	23.8	48.0	21.0	46.9	21.8
Automotive	5.7	54.8	5.1	54.0	5.3	52.4	6.8	61.5	6.0	63.0	7.4	55.8
River	5.0	7.5	3.7	3.3	2.9	2.9	2.8	3.1	2.0	3.0	1.8	0.4
maritime	0.0	0.0	0.2	2.2	3.6	11.5	1.9	2.3	0.0	1.0	2.5	5.8
Pipeline one	45.7	8.2	47.2	7.9	43.7	8.2	42.0	9.2	41.0	10.0	41.3	6.2

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P-arrival

O-departure

Almost half (at the end of 2021 - 47%) of cargo (upon arrival) is delivered to ports by rail. In this regard, the well-established work of port workers and railway workers, as well as infrastructure capabilities, are fundamental factors for the integration of these modes of transport (Table 12).

The analysis shows that in all sea basins of the Russian Federation there is an urgent need to develop railway approaches to seaports, both near and far.

This problem is exacerbated by the fact that the country's economy already requires significant volumes of cargo to be transported, while the deficit of Russian Railways' own investment program does not allow the full range of measures to develop the railway infrastructure to be carried out at its own expense.

In 2021, the volume of cargo transportation by railway transport of Russian Railways in the direction of Russian seaports amounted to 245.3 million tons (+2.8% growth compared to 2020). In the General scheme for the development of railway transport for the period up to 2025, the volume of cargo transportation by rail to seaports is forecasted in volumes from 357.5 million tons (according to the conservative option) to 422.8 million tons (according to the innovative option). To ensure the transportation of the indicated volumes of cargo in communication with ports, it is necessary to implement measures to develop the railway infrastructure with the required amount of investment funds from 834 to 1798 billion rubles.

This Strategy is based on the full implementation of a set of measures provided for by the Federal Target Program "Development of the Transport System of Russia (2018-2021)" and the General Scheme for the Development of Railway Transport for the period up to 2035, aimed at the integrated development of transport hubs, including railway approaches to seaports. However, if the activities of the subprogram "Railway transport" are not implemented in full, then with a high degree of probability we can talk about the failure to fulfill the projected volumes of rail transport in the direction of seaports. In this regard, the question arises of the effective regulation of cargo flows in the direction of seaports. For example, the question of the expediency of switching part of the cargo from the railway to other modes of transport (for example, internal waterway) - it is irrational to underuse the potential of seaports for the country's economy. Apparently, the issues of effective regulation, rational use of the possibilities of the transport system and the synchronous development of all modes of transport, together with the use of new forms of management and improvement of rule-making at the junctions of modes of transport, should become the subject of state policy in the field of transport at the present stage of development.

Comparing the increase in railway-oriented port capacities and the increase in railway capabilities, we can conclude that the latter will have a deficit of 39.9 million tons by 2025, and 155.0 million tons by 2035. The total deficit will be 194.9 million tons.

At the same time, the most significant shortage of railway carrying capacity to seaports will be observed in the North-West and the Far East - a shortage of about 40 million tons in each basin.

For example, consider the situation with the port of St. Petersburg (Baltic basin). The St. Petersburg railway junction within the administrative boundaries of St. Petersburg currently serves the areas of the Big Port of St. Petersburg, located in the vicinity of the port stations Avtovo and Novy Port. The total railway freight turnover of port stations in recent years has tended to increase and in the period 2018-2021, increased from 20.6 million tons to 26 million tons, i.e. growth over the period amounted to about 30%.

When analyzing the infrastructure of the Big Port of St. Petersburg and comparing its development plans with plans for the development of railway approaches, a discrepancy was revealed. In particular, it is planned to increase the capacity of the port of St. Petersburg by 11.2 million tons by 2021, while the increase in railway capacity during this period is limited to only 0.9-2.5 million tons (including Bronka and Oranienbaum). According to the forecast of cargo transshipment volumes in seaports arriving and departing by rail, compiled on the basis of projects implemented by FSUE "Rosmorport" and private stevedoring companies, in 2021 the Big Port of St. Petersburg will reach the volume of transshipment of such cargo at the level of 50 million tons. At the same time, according to JSC "Institute for Economics and Development of Transport" and JSC "Russian Railways", the volume of cargo transportation by rail through the Big Port of St. Petersburg in 2021 will amount to just under 30 million tons (20-27 million tons). The difference, as we can see, is 20 million tons, which requires the development of additional measures and the adoption of agreed decisions on the development of railway approaches to the port.

The situation is similar in the port of Ust-Luga. The forecast for the volume of transshipment of goods delivered to the port by rail for 2021, according to port workers, is ahead of a similar forecast made by railroad workers: 77 million tons (port workers) against 63 million tons (railway workers). And by 2035, this gap, according to forecasts, will increase by another 4 million tons.

As noted, the problem of shortage of railway approaches is especially acute in the Far Eastern basin, and in the future it may become even more aggravated.

The capacity of the Vostochny port is planned to be increased by 26.2 million tons by 2025 and another 24 million tons by 2035. While the increase in railway capacity to the Vostochny Port, according to the Institute for Economics and Transport Development

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OJSC and Russian Railways OJSC, will amount to 11.0 million tons by 2025 and another 5.0 million tons by 2035 (according to the innovative version).

The main barrier limiting prospective freight traffic on the Baikal-Amur Mainline is practically the entire eastern section of the BAM, from Khani station to Komsomolsk-on-Amur and further to Sovetskaya Gavan, including the Kuznetsovsky tunnel at the Komsomolsk-on-Amur-Vanino section. In the light of the current state of the transport infrastructure of the region, the priority areas for the development of transport in the Far Eastern Federal District are the strengthening of the Trans-Siberian Railway and the Baikal-Amur Mainline in conjunction with the development of transshipment capacities of the main mainland ports and ports on Sakhalin Island.

The implementation of plans for the development of mineral deposits in the Far Eastern and Siberian Federal Districts, the construction of port export facilities at the Vanino transport hub and the ports of Primorsky Krai will cause the largest increase in cargo traffic volumes at the BAM and Transsib sections. Thus, at the BAM, on the approaches to the Komsomolsk railway junction, by 2021, the traffic density is predicted to increase by 3.3 times, and by 2030 - by almost 4.5 times against the existing level. In accordance with the forecast, the total load of the railway network on the approach to Vanino is projected as follows: by 2021 it will be more than 41 million tons, and by 2030 almost 60 million tons. If we talk about the Primorsky Territory, then by 2021 this volume will amount to more than 91 million tons, and by 2035 more than 100 million tons of all types of cargo. In this way,

In the South, the opposite situation will be observed and significant unevenness in the construction of port facilities and related railway infrastructure. By 2021, the increase in railway capacity will outstrip the increase in port capacity, mainly due to the commissioning of 33.9 million tons of railway line to the port of Taman by 2025. And the commissioning of port facilities in Taman is scheduled only by 2035 in the amount of more than 60 million tons.

Thus, the analysis shows that the implementation of the announced plans for the development of seaports directly depends on the balanced development of railway approaches and is possible provided that all activities provided for by the General Scheme for the Development of Railway Transport for 2025 and 2035 are fully implemented.

The issue of synchronous development of related modes of transport - seaports and railways - should be addressed at the interdepartmental level using such planning mechanisms as the development of transport and economic balances, balanced schedules, road maps and others.

As noted, the role of road transport in the activities of seaports is extremely important. Road

transport is the main mode of transport by which cargo is exported from ports (more than 60% of cargo shipped). The problem of interaction between seaports and automobile approaches is especially typical for large port cities such as St. Petersburg, Novorossiysk, Vladivostok.

For example, the share of road transport in servicing the terminals of the Big Port of St. Petersburg in 2021 amounted to 44% of the total volume of transshipped cargo. According to ZAO Scientific Research and Design Institute for Territorial Development and Transport Infrastructure (St. Petersburg), at present, the capacity of the city's street and road network is the limit to ensure the existing traffic.

The existing access routes to the ring road create a significant load on the city's road network, the load factor of which reaches its maximum value and is 1.0. Highways that provide transport links between port terminal complexes and federal highways, in general, cannot cope with the current load. The most difficult traffic conditions are formed in the following transport hubs:

- South emb. Obvodny canal - Staro - Petergofsky pr.;
- South emb. Obvodny canal - Lifyandskayaul;
- South emb. Obvodny canal - Mitrofanevskoe highway;
- st. Marshal Govorov - st. Trefoleva;
- Kubanskaya st. - Blagodatnaya st. – WHSD;
- Avtomobilnaya st. (near Stachek Ave.);
- Kubinskaya st. - Krasnoutilovskaya st.;
- Vitebsky pr. - st. Salova.

To ensure satisfactory traffic conditions, it is necessary to provide for a number of measures aimed at increasing throughput.

The construction of the Western High-Speed Diameter is designed to solve the problem of transport approaches to the Big Port. The Western High-Speed Diameter route will also pass through the territory of the port, which will allow trucks to arrive at the terminals and leave them non-stop. It is planned to switch transit traffic flows to the new highway, including those passing through the port, which will significantly increase the capacity of the city's street and road network, allow the historical center of St. Petersburg to be unloaded from vehicles, and improve the environmental situation.

With regard to the Novorossiysk transport hub, the following problems exist today:

- Insufficient capacity of the road network of Novorossiysk, leading to systematic traffic jams on the main highways of the city;
- The negative impact of the growing transit car flows passing through the central streets of the city, following the M-4 Don and M-25 highways, on

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existing traffic;

- Depletion of the throughput capacity of the Novorossiysk station, leading to the impossibility of mastering promising cargo flows without reconstruction and expansion.

An analysis carried out by Center for Applied Logistics LLC (St. Petersburg) showed that the level of loading of the city's main highways during peak periods reaches the level of 80% -100%, which leads to a drop in the average speed of movement through the city network to 14.4 km / hour, and the insufficient number of railway sidings in the marshalling yard for the collection of wagons and the formation of shunting gears is estimated at more than 40 sidings.

In order to improve the situation, the following design solutions can be proposed:

1) The reconstruction of the Novorossiysk railway station provides for the construction of:

- additional main tracks on the Gaiduk section - the Kirillovsky checkpoint - the Nizhny park;
- receiving-departure park "B" (19 receiving-departure tracks);
- additional paths in parks and connecting paths between parks.

These solutions will ensure the processing of promising volumes of cargo transportation through the seaport. The construction of Park "B" and additional tracks will make it possible to master the estimated cargo flows of the station, increase the efficiency of the existing parks, and optimize the technology of the station.

2) The development of the road network provides for the construction of:

- highway Tsem dolina - st. Port;
- road junction on the section of the Sukhumi highway in the area of JSC "Novorossiysk Shipyard", YuGVR of the port;
- overpass from st. Main to st. Sudostalskaya.

The flow of trucks generated by the seaport, in the current situation, exerts a traffic load, mainly on the Anapa Highway, Sukhumi Highway and Methodievskaya Street. Design solutions for the development of road infrastructure will redistribute traffic flows, reducing the share of transit traffic through the main highways of the city. In the future, traffic flows will be redistributed to the new highways Tsem dolina - Portovaya st. and the North-Eastern bypass of the city of Novorossiysk, while partially unloading Mefodievskaya Street and Anapa Highway. It is expected that the proposed solutions will improve the ecological situation in the city.

High-quality modernization of seaport infrastructure services underlies the economic, transport, logistics and social efficiency of Russian ports. Increasing international competitiveness is unthinkable without putting into practice the best international experience in providing port services.

International competition and the development

of new technologies formulate new requirements for the safety, quality and speed of cargo handling in the port. In order to work effectively and comply with the best international practice in the development of ports, the Russian Federation should be at the forefront of optimizing and improving the efficiency of ship services.

The priorities for the development of the maritime port infrastructure services market are:

- improving the quality and speed of service;
- reducing the cost of moving goods through the port for the end user of services;
- construction of modern multi-modal logistics centers capable of high-quality and fast processing of consolidated transit and domestic cargoes;
- interconnection of the functions and powers of the main regulators of foreign economic activity with the goals of fast, safe and efficient passage of export-import, and especially transit cargo flows through Russian ports;
- improving the environmental safety of the port;
- automation of algorithmic operations;
- openness of the port and the procedure for the provision of infrastructure services;
- promoting the development of a competitive environment.

Currently, the speed of processing ships and cargoes in most domestic ports remains lower compared to the ports of other states. At the same time, in modern conditions, this parameter is a key factor in increasing their attractiveness and comes out on top in relation to factors such as distance and cost of transportation. Especially - for such ports that specialize in the processing of goods that require fast delivery (containers, refrigerated cargo, packaged goods).

Factors affecting the speed of servicing ships and cargoes in the seaport can be divided into internal and external. Internal factors will include measures to improve the technology of cargo transshipment and ship handling processes, the use of mechanization and automation, optimization of operations in ports, reducing their number, and increasing the innovative component. The external ones include improving logistics schemes, optimizing interaction with the railway, as well as coordinating the work of state bodies in the port on the principle of a "single window".

The introduction of automated or semi-automated ship and cargo handling systems in the port will contribute to the release of jobs directly from loading and unloading operations in favor of monitoring the implemented systems. Automation of algorithmic operations improves the quality and speed of work and reduces occupational injuries.

In international practice, tools are widely used to increase the speed of servicing ships in seaports and

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other qualitative parameters of the provision of services in seaports, in particular:

Operations planning system. At the Port of Shanghai, port personnel use the system, which was first developed and implemented in 1988, to automatically prepare berthing and container unloading plans and all other essential resource planning. Based on these plans, on a just-in-time basis, the required number of shore cranes are provided to the appropriate berth and the required number of trucks are provided in advance for loading / unloading (in case the port is the starting / ending point of cargo dispatch) . If the containers are intended for transshipment (trans-cement), the necessary and convenient place for their intermediate storage at the container site is provided in advance. If necessary, in the interval between unloading a container from one vessel and loading it onto another, special cranes on the container platform once again shift the containers in such a way as to ensure the fastest possible loading onto the next vessel (s). The laying order is also planned in the operations planning system, which has a direct interface with automated crane control systems. At each moment, the operations planning system stores all the information about where the container with a given number is located, when it was unloaded and when its further movement is planned. The laying order is also planned in the operations planning system, which has a direct interface with automated crane control systems. At each moment, the operations planning system stores all the information about where the container with a given number is located, when it was unloaded and when its further movement is planned. The laying order is also planned in the operations planning system, which has a direct interface with automated crane control systems. At each moment, the operations planning system stores all the information about where the container with a given number is located, when it was unloaded and when its further movement is planned.

In addition, key subsystems provide optimal planning for the order in which containers will be loaded or unloaded from the ship, as well as the sequence of operation of shore cranes; the subsystem minimizes the number of physical operations with containers due to their optimal location and order; thanks to this, a record speed of loading and unloading is ensured - up to 280 containers from one vessel per hour, (minimum unloading time for a vessel with 1400 containers is 6 hours). The average loading and unloading speed is 100 containers per hour.

- Electronic document management and data exchange system for trade operations, automating the entire cycle of processing operational, trade and customs documents in electronic form;

- Intelligent vessel traffic control system based on a network of radars and radio stations, united in a single dispatch center;

- Integrated container terminal management

system MES CTMS, which allows real-time management of the loading and unloading of ships, the gate of container trucks and their movement through the port area, collect and store information about the location of containers and ensure the movement of relevant documents, etc. The system uses wireless technologies for information transfer and communication with the staff of the port and transport companies. Thanks to the use of this system, high labor productivity indicators are achieved in the port:

- average loading/unloading speed - 12000 TEU/day;

- average loading/unloading volume per meter of berth - 3028 TEU/m;

- the average speed of the cranes is 31 operations/hour.

- Electronic system for providing data on containers and vessels - allows interested companies and their employees directly to make inquiries about the location and time of arrival of vessels and containers of interest to them both through the Internet site and through an automated telephone answering machine around the clock;

- The system of automatic control and prevention of failures in cargo handling equipment, using a network of sensors and gauges, analyzes the condition and operation of the equipment, and in case of failures, transmits the relevant information wirelessly to the dispatch center, which can significantly reduce the recovery time of equipment after accidents and failures and, ultimately As a result, increase the average speed of cargo handling.

In Russia, it is advisable to apply such practices, including the creation of geographic information transport systems that allow the formation of unified information and logistics centers and automated data exchange systems between participants in the transportation process (working online). The creation of such information and logistics centers is aimed at improving the interaction between seaports and other modes of transport (rail, road, inland water).

As noted above, among the external factors contributing to an increase in the speed and other quality parameters of ship servicing in seaports, there are issues of customs clearance and operation of checkpoints.

The lack of a unified system for the exchange of information on ships and cargo in Russian ports significantly slows down both the speed of cargo handling in ports and tracking the passage of potentially dangerous cargo, containers, the arrival of unwanted foreigners and other factors affecting national and port security. To date, the Ministry of Transport of Russia, together with other interested departments, are working on the issue of creating a single electronic customs database, which will simplify the document flow and reduce the time for processing customs declarations. Analogues of such a system exist today in all developed ports of the world.

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An important problem in the field of port activity in Russia can be considered the imbalance of sectoral and departmental interests. The main problem is that the regulatory framework used by customs and border organizations has the status of a federal law, while the regulatory framework used by stevedoring and shipping companies is fixed at the level of orders of the Russian Ministry of Transport.

The currently issued acts of customs legislation do not take into account the specifics of transshipment of goods in seaports.

One of the latest examples is the decision of the Federal Customs Service, according to which cargoes that have passed customs control in seaports must be stored separately from goods that are under customs control. In this regard, the time of cargo handling at sea terminals, according to market participants, will increase by 30-40%. In addition, the cost of handling cargo may increase by about a third due to its movement and re-warehousing. The distraction of equipment and personnel for additional operations will ultimately reduce the throughput of the terminals.

An important condition for the provision of quality services for servicing export-import and transit cargo flows, as well as passengers traveling in international traffic, is the fast and efficient operation of checkpoints across the state border of the Russian Federation located in sea and river ports.

The main directions of development of the system of checkpoints are optimization of the number of checkpoints; modernization of infrastructure and increase in the capacity of checkpoints; development and implementation of modern technologies that reduce the time for performing state control procedures when crossing the state border of Russia.

At present, coordinating boards of checkpoints have been organized and function on a permanent basis in seaports, new technological schemes have been approved for the passage of persons, vehicles and cargo across the state border, aimed at clearing ships without commission and allowing loading cargo work immediately upon arrival of ships at ports.

At the same time, until now, in most seaports, checkpoints have not been opened in accordance with the established procedure (out of 75 sea checkpoints in Russian ports, only 22 are officially open), and work is carried out according to temporary schemes agreed with state regulatory authorities. This is a significant obstacle to the daily and uninterrupted passage of persons, vehicles, cargo, goods and animals across the State Border in functioning seaports.

This circumstance excludes the possibility of allocating budgetary funds for the maintenance and development of the property complex of checkpoints. Often, all the expenses for the arrangement and maintenance of state regulatory bodies at the Checkpoints are forced to be borne by the operators of sea terminals. At the same time, the Law on the State

Border provides for the only option for the transfer of property from a private investor - a gratuitous transfer.

To create conditions for ensuring the investment attractiveness of the construction, reconstruction and equipment of checkpoints, it is necessary to amend the legislation, providing for other ways of transferring property or providing tax benefits.

Along with the speed of cargo handling, another qualitative parameter of the attractiveness of Russian ports is the cost of a ship call and environmental safety.

In relation to Russian ports, a stable reputational myth has developed about their serious high cost, in terms of port dues and other expenses of ship owners for servicing all "non-cargo" activities at the time of ship calls.

The analysis showed that the cost of a ship call is largely influenced by "other expenses of shipowners" - bunkering, ship Chandler services and agency fees, which are purely the subject of an agreement between private business entities.

The port dues themselves are comparable to the port dues of other states. For example, let's give the data of shipping agents on specific ships of different types.

Price ship calls for STK (river-sea class vessel) DWT 1669; GRT 1573:

according to the agency company Transmarine Hundested (Denmark) - 1738.83 euros Liepaja (Latvia) - 3004.40 euros

Nip House (Great Britain) - 3230.56 euros Fyrou (Germany) - 2685.00 euros Klaipeda (Lithuania) - 3582.93 euros

Gdansk (Poland) - 2132.62 euros Kaliningrad (Russia) - 1545.00 euros

Cost of ship calls for bulk carrier m/v Grumant - 15878 GT

Hamburg - 29,620 euros

St. Petersburg - 27,208 euros

The cost of such a bulk carrier calling at the Baltic ports is even more expensive. The cost of ship calls for Aframax m / v Petrodvorets - 59,731 GT Hamburg - 71,740 euros

Primorsk - 98,231 euros.

It is obvious that the difference between the training camps in Primorsk and Hamburg falls on the ice training camp, which simply does not exist in Hamburg.

Thus, the analysis shows that in reality there are no problems with the cost of a ship call in Russian ports. The myth grows rather from the total amount of expenses of cargo owners for stevedoring services, where he invests the costs of the port (more precisely, the shipowner does this for him, issuing a general invoice, which combines private stevedoring services and state port dues).

In accordance with the forecast values of the volumes of cargo transshipment through seaports, the commissioning of port facilities should be provided

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taking into account the best world achievements in the field of ecology and only if ecosystems are preserved and the appropriate quality of the environment is maintained.

In order to assess the nature of the problematics of the issue under consideration, a number of main negative factors affecting the state of the environment should be noted.

This is primarily pollution of the port waters with oily and bilge waters, household and technical waste, waste from processing fish products on ships and coastal enterprises, littering the seabed with sunken ships, fragments of nets, trawls, and discharge of untreated sewage and storm water.

The issue of reducing air pollution by emissions from ships and port infrastructure is becoming increasingly urgent.

Obviously, in order to minimize the negative impact on the environment in the port, it is necessary to increase environmental requirements for visiting ships, as well as to have the forces and means to ensure its environmental safety. First of all, these are receiving port facilities for the collection and further processing of ship waste, treatment facilities for oily and domestic waters, specialized vessels to ensure preparedness for responding to incidents causing pollution (oil and garbage collectors, bilge water collectors, booms), berths for their service and parking.

An important factor is the organization of the effective use of the entire complex of forces and means. There is a need for constructive cooperation with municipal and regional self-government bodies, communal services of settlements and business entities in terms of sharing production capabilities that can be used to receive and process shipboard waste.

An indispensable condition for the construction and reconstruction of facilities in seaports is to obtain a positive conclusion from the state environmental review, with a mandatory procedure for approving projects at public hearings.

The activities of domestic ports must comply with world practice and meet the so-called "green standards". Important points such as rational water use, stormwater management, pollution prevention, energy saving and energy efficiency, the use of environmentally friendly materials and the application of the zero waste principle are reflected in the

requirements of these standards.

The use of "Green Standards" in construction will minimize the destructive impact of anthropogenic factors on the environment during the construction and subsequent operation of the facility, and will serve as the basis for the development of uniform mandatory standards for economic activity in the future.

Due to the international nature of shipping, port activities in terms of environmental protection are regulated by the state in accordance with the requirements of international treaties. First of all, these are global conventions adopted within the framework of the activities of the International Maritime Organization.

The key document in this sense is the International Convention for the Prevention of Pollution from Ships, 1973, as amended by the Protocol of 1978 to it (MARPOL), one of the requirements of which is the obligation of the port state to provide in its ports the necessary facilities for the reception of waste from ships, without leading to their excessive downtime.

In order to reduce illegal discharges from ships in the ports of the Baltic region, in the framework of the Convention for the Protection of the Marine Environment of the Baltic Sea Area, since 1992, a "non-special-fee" system has been introduced for receiving ship-generated waste at reception port facilities. In accordance with it, the cost of receiving, collecting and disposing of ship-generated waste generated during the normal operation of ships is included in port dues or paid by the ship, regardless of whether it delivers the waste or not.

Domestic companies, in particular FSUE "Rosmorport", apply this principle not only to the Baltic Sea region, but also in seaports of other regions. Environmental duty rates depend on the type of vessel (tanker, ro-ro, etc.), type of navigation (foreign voyage, cabotage) and range from 0.11 to 5.5 rubles for different ports per vessel's gross tonnage.

Thus, Russian ports must continue to integrate into the global space in order to ensure the environmental attractiveness of shipping and compliance with international requirements.

Below are the current trends that have either relatively recently been introduced into the practice of the most efficient foreign ports, or are planned for implementation in the near future (Table 13).

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Table 13.

1. Infrastructure services in the maritime zone	
1.1. Servicing larger ships	<p>Ports need to adapt to the increasing tonnage trend of the ships they use. This imposes increased requirements on the speed of basic operations, infra and port superstructure. The priorities are:</p> <ul style="list-style-type: none"> • dredging to receive large-tonnage vessels; • maintenance dredging; • construction of terminals with the removal of berthing facilities to natural depths; • increase in the number of berths; • technical modernization of equipment (gantry cranes, container ships, loaders); • increasing the speed of loading and unloading and non-cargo operations and reducing the total time spent by large-capacity vessels in the port; • increasing the speed of ship repair operations; • providing the port with the necessary number of icebreakers.
1.2. Development and use of AtoN, GMDSS VTS, KKS, GLONASS (GPS) systems	<p>Effective interaction between ground services and ships in the modern world is impossible without automated systems necessary to improve the safety of navigation, safety of life at sea and environmental protection from possible negative consequences of navigation, as well as increase the efficiency of navigation and cargo transportation.</p> <p>Creation of assistance systems for maneuvering and warning of accidents during the movement of ships are an intermediate step in the implementation of E-navigation (E-Navigation).</p>
1.3. Adequate (proportional) development of the technical and auxiliary fleet	<p>The issues of construction and modernization of the service and auxiliary fleet should be one of the highest priorities in the development and modernization of port facilities. At the same time, approaches to providing ports with ships may differ both depending on the size</p> <p>port, and from its specialization. In small ports and ports, the operation of which serves to solve social problems to a greater extent, one should follow the path of providing multifunctional vessels that can combine icebreaking, pilotage, clearing, bunkering and other functions. In large and economically strong ports, specialization of the auxiliary fleet is necessary to provide the full range of services with high standards of quality and speed. At the same time, special attention should be paid to the timely renewal of the fleet and its compliance with the development of port facilities.</p> <p>The average age of the auxiliary fleet in the Russian Federation is over 26 years. The main priority of measures for the adequate development of the fleet is to create a sufficient number of it, through renewal and modernization, in accordance with the current and future needs of the ports to provide appropriate services to the best international standards. In addition, sufficient and adequate provision of ports with vessels of the auxiliary fleet, in particular, icebreakers, is required to ensure the proper and timely movement of vessels in the port waters during the winter navigation period, as well as a revision of the legal framework and organization of the work of the icebreaker fleet, taking into account climatic and geographic conditions.</p>
2. Infrastructure services in the port area	

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<p>2.1. Automation loading and unloading operations</p>	<p>Implementation of modern loading and unloading systems:</p> <ul style="list-style-type: none"> • control system for the operation of automated cranes (Automatic Crane Control); • system of automatic self-propelled vehicles (Automated Guided Vehicles); • system of automatic stacking cranes (Automated Stacking Cranes); • robotic container handling system (Robotic Container Handling); • a system for receiving and processing waste from ships. The introduction of automated or semi-automated systems of this level will contribute to the release of jobs directly from loading and unloading operations in favor of monitoring the implemented systems. Automation of algorithmic operations will improve the quality and speed of work and reduce occupational injuries.
<p>2.2. Optimization of work and traffic in the port area</p>	<p>Modern systems for managing the movement of goods in the port area:</p> <ul style="list-style-type: none"> • electronic document management system, including customs, certification and other documents (Electronic Data Interchange); • electronic cargo identification (Cargo Card System); • system of online tracking and monitoring of the movement of cargo in the port (On-Line Tracking and Tracing System); • warehouse management system (Warehouse System). <p>With the introduction of these systems, it is expected to improve the quality of the work of the entire port, improve the conditions of employment of personnel, reduce the number of errors and waste of time and space.</p>
<p>3. Infrastructure services in the land zone</p>	
<p>3.1. Optimization Efficient operation of approaches to the port</p>	<p>Modern practice is the creation in the port area transport and logistics centers for planning the arrival and departure of goods. The first priority, on the one hand, is an analytical work to optimize the work of the port in terms of interaction with railway, road and inland waterway approaches to the port, on the other hand, the introduction of modern equipment and systems that are directly responsible for loading and unloading cargo (analogues of foreign systems such as floating container 'pick-up'). A qualitative increase in the work of this component will, first of all, reduce the total costs of moving cargo and increase the speed of cargo exit from the port.</p> <p>Unfortunately, in almost all Russian ports there are restrictions and problems that are imposed by insufficient or not harmonized with the development of the port, the development of suitable road and rail infrastructure. One of the priority areas for the development of infrastructure services in the land zone is the synchronized development of rear infrastructure. When developing specific measures corresponding to the developed strategic directions, the development of approach routes for each transport hub should be taken into account separately.</p> <p>It also requires the development of the necessary land infrastructure of ports, including: reservation of land to ensure the development of ports and the creation of the necessary land infrastructure; ensuring proper transport support of ports, construction of the necessary road and railway access roads, maintaining them in proper condition, construction of car parking lots and sidings for railway transport.</p>

The presented priority directions for the development of infrastructure services are of a general nature and are not presented in the context of various types of cargo due to the highly specialized nature of the issues.

The basic infrastructure of the port should provide the necessary level of navigation safety, environmental safety, emergency preparedness and

other aspects. Based on the analysis of the current situation, the analysis of problems in the functioning of the industry and the best world experience in ensuring the security of sea port infrastructure, the following strategic directions for development can be taken as a basis both as implementation in the form of separate activities, and as guidelines on security issues during development (construction) of new objects of

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sea port infrastructure.

The economic and social effect from the implementation of the Strategy for the development of sea port infrastructure is formed due to:

- 1) Meeting the national need for trade and transport;
- 2) Achieving a billion-dollar milestone in terms of cargo transshipment in Russian ports and making Russia one of the leading countries in the field of port infrastructure;
- 3) Creation by 2030 of port capacities in the amount of at least 1.4 billion tons and ensuring the effective development of port infrastructure;
- 4) Increasing the utilization rate of transshipment complexes to the level;
- 5) Increasing the role of seaports in ensuring the transit potential of Russia, especially in the direction of the countries of the Asia-Pacific region, increasing transit cargo flows;
- 6) Switching part of the volume of foreign trade flows of the Russian Federation to Russian ports from Ukraine and the Baltic countries and reducing the share of neighboring states in the total volume of transshipment of foreign trade cargo to 5% or less;
- 7) Increasing the level of integrated safety of navigation in the water areas of seaports and approaches to them, the quality of the functioning of seaports by achieving a 100% level of coverage of coastal navigation safety equipment, DRA and OSR-preparedness equipment and waste collection and disposal facilities;
- 8) Ensuring the attractiveness of seaports by preventing discrimination in relation to the ports of neighboring states in terms of conditions for rail transportation, as well as maintaining the amount of port dues per ton of cargo transshipment, at a level comparable to the ports of neighboring states;
- 9) Increasing the role of sectoral education and science, organizing the continuity of the process of vocational training from primary to higher education, including the system of additional education;
- 10) Bringing the services of participants in port activities to a qualitatively new level in terms of both ensuring Russian foreign trade flows and competition of the industry at the international level, increasing the percentage of use of specialized complexes, “ennobling” domestic exports, increasing the share of processed products in the total cargo turnover;
- 11) Increasing innovation in the activities of seaports through the use of new technologies, taking measures to save resources, reduce the negative impact on the environment, and strengthen the industry's human resources;
- 12) Improvement of public administration in the field of maritime port facilities, sectoral legislation, application of new organizational mechanisms (SEPZ, concessions, management companies, technological platforms and territorial

clusters). An additional effect from the implementation of the Strategy is the development of the entire economy of the Russian Federation by reducing the total transport costs, developing production and the social sphere, increasing employment, and solving regional social problems.

13) Strict adherence to the main directions of development laid down in the Strategy will make it possible to bring the domestic industry to a competitive (international) level, thereby laying a reliable foundation for Russia's sustainable development and securing it among the world's transport powers.

14) The evaluation of the effectiveness of the Strategy is calculated integrally based on the evaluation of the effectiveness of individual activities, taking into account multiplicative synergistic effects. Efficiency is assessed on the basis of indicators of public, commercial and budgetary efficiency.

15) Evaluation of the effectiveness of spending budgetary funds allocated for the implementation of the Strategy is based on the main provisions of the methodological recommendations for evaluating the effectiveness of investment projects (approved by the Ministry of Economy of the Russian Federation, the Ministry of Finance of the Russian Federation and the State Committee of the Russian Federation for Construction, Architecture and Housing Policy).

Conclusion

The mechanism for implementing the Strategy provides for the use of a set of organizational, economic and legal measures necessary to achieve the goal and objectives of the Strategy. The mechanism was developed in accordance with the provisions of the legislation of the Russian Federation.

Current management and control over the implementation of the Strategy is carried out by the state customer-coordinator of the Strategy and state customers in accordance with the Procedure for the development and implementation of federal target programs and interstate target programs in which the Russian Federation participates, approved by the Decree of the Government of the Russian Federation. The selection of the executors of the Strategy activities takes place in accordance with the legislation of the Russian Federation. The implementation of the measures of the Strategy is:

in planning actions (events); which are consistent with the directions of the strategic development of the sea port infrastructure, laid down in the Strategy for the socio-economic development of the Russian Arctic;

in the implementation of planned activities;
in the subsequent monitoring of target indicators and production resources for the implementation of the activities of the Strategy;

in adjusting (if necessary) the activities of the Strategy and their subsequent planning - both on the

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basis of the adjustment made and on the basis of taking into account current trends.

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Article



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THEORETICAL STUDY AND DETERMINATION OF PARAMETERS OF SHEAR FORCES IN A TENSIONING ROLLER WITH ELASTIC ELEMENTS OF CONVEYING AND TECHNOLOGICAL MACHINES

Abstract: This scientific article discusses the development of a new design of a flat-belt transmission of a tensioning roller to prevent the lateral descent of the belt on transporting and technological machines, as well as theoretical studies of a raw cotton loader.

Key words: belt, pulley, tension, angle, roller, earring, hinge, moment, escaping and oncoming branches, mechanism, movements, shear force.

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ТЕОРЕТИЧЕСКОЕ ИССЛЕДОВАНИЕ И ОПРЕДЕЛЕНИЕ ПАРАМЕТРОВ СДВИГАЮЩИХ СИЛ В НАТЯЖНОМ РОЛИКЕ С УПРУГИМИ ЭЛЕМЕНТАМИ ТРАНСПОРТИРУЮЩИХ И ТЕХНОЛОГИЧЕСКИХ МАШИНАХ

Аннотация: В данной научной статье рассматривается разработка новой конструкции плоскоремненной передачи натяжного ролика для предотвращения бокового схода ленты транспортирующих и технологических машинах, а также теоретические исследования перегружателя хлопка-сырца.

Ключевые слова: лента, шкив, натяжения, угол, ролик, серьга, шарнир, момент, сбегющие и на бегющие ветви, механизм, движения, сдвигающая сила.

Введение

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Данная работа относится к области машиностроения и может быть использовано в

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качестве элементов привода технологических машин, в частности в транспортёрах.

Задачей является увеличение надежности передачи, ликвидации бокового схода ремня со шкивов.

Сущность работы заключается в том, что при увеличении силы P полуоси частей упругого натяжного ролика поворачиваются в вертикальной плоскости вниз и уменьшается перекося осей вращения полуоси ролика, что приводит к уменьшению рабочего профиля ролика, тем самым увеличению вогнутости криволинейных поверхностей, позволяющий ликвидации схода ремня со шкивов. При этом фактически ликвидируется поперечные перемещения ремня по поверхности ролика. Технико-экономическая эффективность предлагаемого конструкции заключается в повышении надежности, КПД плоскоремennых передач за счет устранения бокового схода ремня [1,2].

Основная часть

Плоскоремennая передача содержит ведущий 1 и ведомый 2 шкивы, охватывающий их ремень 3, натяжной ролик 4, (рис.1) включающий две симметричные левой 5, правой 6 частей с криволинейными поверхностями, соединенных между собой рычажно-шарнирным механизмом, вилки 12 и 13 с серьгами 16 и 17 которого жестко соединены между собой, а с частями 5 и 6 соединены шарнирами 15. Противоположные концы серег 16 и 17 соединены между собой посредством шарниров 18, 19, 20, 21 шатунами 22 и 23. На внутренних частях 5 и 6 ролика 4 закреплены пластмассовые втулки 11 и 14. Полуоси 7 и 8 частей 5 и 6 ролика 4 установлены в корпусе посредством шарнирных опор 9 и 10, которые дополнительно имеют упругие связи в виде пружин кручения 24 и 25 (рис.2). Оси вращения полуосей 7 и 8 в исходном положении составляют между собой угол $\theta > 180^\circ$ [3,4].

Ведущий шкив 1, вращаясь, передает движение ведомому шкиву 2 через охватывающий

ремень 3. При этом упругий натяжной ролик 4 создает определенное натяжение ремня 3. Увеличение силы P приводит к угловому перемещению на угол α полуосей 7 и 8 частей 5 и 6 ролика 4 и соответствующим деформациям (скручиванию) пружин кручения 24 и 25 в опорах 9 и 10, что приводит к уменьшению угла θ . Обе части 5 и 6 ролика 4 также поворачиваются на угол α друг к другу. Это приводит к уменьшению рабочей длины ролика 4 в зоне контакта с ремнем 3, но увеличению вогнутости криволинейной поверхности частей 5 и 6 относительно оси симметрии, при этом фактически ликвидируется сход ремня со шкивов 1 и 2 за счет ограниченности перемещения ремня 3 в поперечном направлении. Рычажно-шарнирный механизм между частями 5 и 6 ролика обеспечивает синхронность их вращения, передовая друг - другу избытки крутящего момента из-за несимметричности нагрузки P на поверхности частей 5 и 6 ролика 4. Момент (разница моментов) через вилки 12 и 13, серьги 16 и 17 посредством шатунов 22 и 23 передаются от левой части 5 и правой 6 и наоборот за счет шарнирных соединений 15, 18, 19, 20, 21 при несовпадении осей вращения полуосей 7 и 8 частей 5 и 6 ролика 4. Пружины кручения 24 и 25 позволяют возврату полуосей 7 и 8 в исходное положение. Шарнирные опоры 9 и 10 имеют две подвижности, при которых обеспечиваются вращение частей 5 и 6 ролика 4, а также угловому перемещению в вертикальной плоскости. Пластмассовые втулки 11 и 14 в процессе работы передачи предотвращают значительные изгибные деформации ремня 3 по центрированию, а также предотвращают контакты ремня с шарнирами 15, 18, 19, 20, 21.

Технико-экономическая эффективность предлагаемого конструкции заключается в повышении надежности, КПД плоскоремennых передач за счет устранения бокового схода ремня [5,6].

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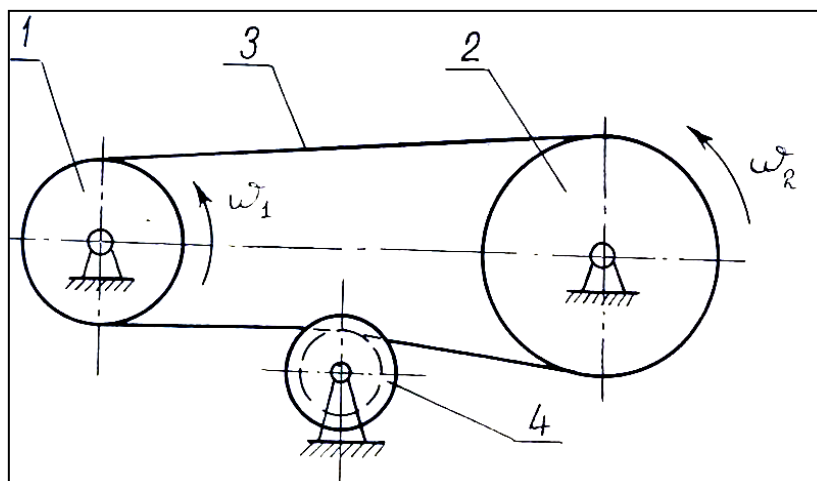


Рис.1. Плоскоременная передача с натяжным роликом

С целью уравнивания или же ликвидации возникающей сдвигающей силы из-за не параллельности осей вращения барабанов (шкивов), ось рекомендуемого упругого

натяжного ролика необходимо установить наклонно в противоположную сторону от угла перекоса осей барабанов.[7,8]

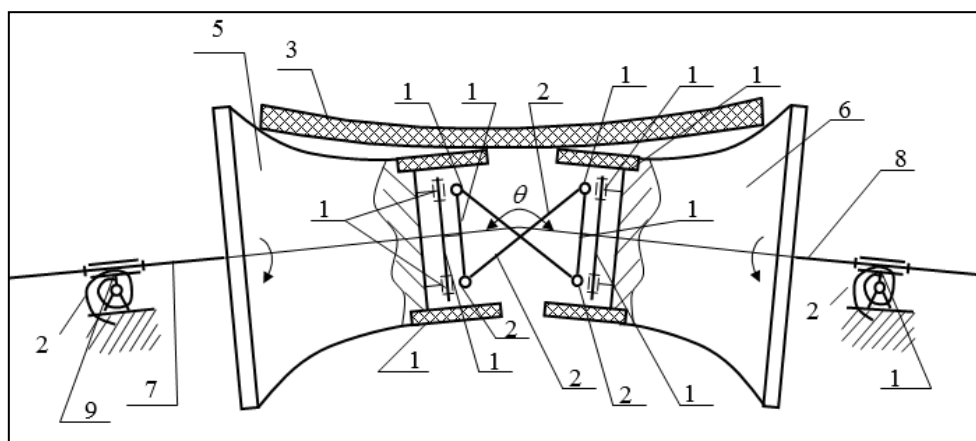


Рис.2. Кинематическая схема упругого натяжного ролика

Равнодействующая сила равна:

$$\vec{F}_e = \vec{F}_e^n + \vec{F}_e^t \quad (1)$$

где \vec{F}_B^n и \vec{F}_B^t – соответственно нормальная и тангенциальная составляющие равнодействующей силы [1].

Сила трения во время схода ремня

$$F_{Tm} = f \cdot F_e^n \quad (2)$$

где f – коэффициент трения между ремнем и упругим натяжным роликом.

Сила ликвидации схода ремня будет равен:

$$F_{..b}^1 = F_e^t = F_e \cdot \sin \alpha \quad (3)$$

где α – угол наклона осей вращения упругого натяжного ролика относительно вертикальной плоскости.[9,10]

Условие компенсации схода ремня со шкива

$$F_{Tp} + F_{Cд} \cdot \cos(\alpha + \beta) \geq F_{Cд}^1 \quad (4)$$

где β – угол поворота между осями вращения ведущего и ведомого шкивов.

Формула определения угла наклона оси упругого натяжного ролика относительно вертикальной плоскости имеет вид:

$$\alpha \geq \text{arcctg} \left(\frac{1 + \sin^2 \beta}{f + \frac{1}{2} \cdot \sin 2\beta} \right) \quad (5)$$

Для уточнения расчетных показателей лент зарубежных фирм “Хабасит“, Можно отметить, что все данные являются ориентировочными

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значениями при нормальных климатических условиях, т.е. $t = 20\text{ }^{\circ}\text{C}$ и влажности воздуха 65%.

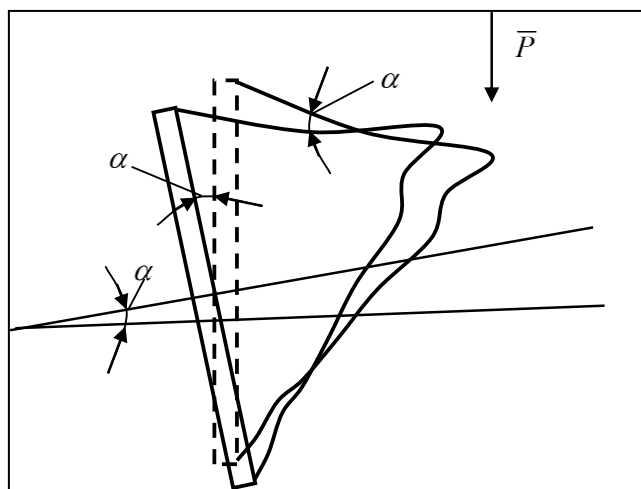


Рис.3. Расчетная схема упругого натяжного ролика

Согласно кинематической схемы на рис.3 сдвигающая сила $\bar{F}_{\text{СД}}$, возникающая от непараллельности осей вращения шкивов определяется

$$F_{\text{..B}} = \frac{60 \cdot k \cdot P}{\pi \cdot D \cdot n} \cdot \sin \beta \quad (6)$$

где β – угол отклонения оси вращения ведомого шкива относительно оси ведущего шкива. [11,12]

В дальнейшем рассмотрим вывод формулы для определения сдвигающей силы для перегружателя хлопка-сырца при не параллельности осей барабанов. Сдвигающая сила в транспортёре перегружателя хлопка-сырца

$$F_{\text{..B}} = \frac{k \cdot P_T}{\eta \cdot V} \cdot \sin \beta \quad (7)$$

где:

- h – К.П.Д. привода транспортёра;
- V – линейная скорость ленты транспортёра;
- P_T – потребляемая мощность на валу барабана:

$$P_T = \frac{\lambda \cdot T_x \cdot \omega}{1000} \quad (8)$$

где λ – коэффициент, учитывающий характер работы транспортёра.

Крутящий момент определяем согласно:

$$T_{\bar{o}} = (S_{\text{НБ}} - S_{\text{СБ}}) \cdot \frac{D_{\bar{o}}}{2} \quad (9)$$

где $S_{\text{НБ}}$, $S_{\text{СБ}}$ – силы натяжения в набегающей и сбегающей ветвей транспортёра.

Аналогичные расчёты по определению сдвигающей силы в плоскоремённой передаче натяжном ролике [13,14].

Анализ результатов расчёта показывает, что значение сдвигающей силы изменяется в пределах 80...200 н.

С увеличением линейной скорости транспортирующей ленты перегружателя хлопка-сырца уменьшается сдвигающая сила, так при $V = 6\text{ м/с}$ $F_{\text{СД}} = 80\text{ н}$, а при $V = 8\text{ м/с}$ $F_{\text{СД}} = 77\text{ н}$. Выявлено, что нагрузка от хлопка-сырца незначительно влияет на изменение сдвигающей силы. Основным параметром влияющей на значительное изменение сдвигающей силы транспортёра перегружателя хлопка-сырца является изменение угла наклона осей вращения рабочих барабанов, так при $\beta = 4^{\circ}$, $V = 6\text{ м/с}$, $F_{\text{СД}} = 80\text{ н}$, а при $\beta = 10^{\circ}$, $F_{\text{СД}} = 210\text{ н}$ [15].

Анализ результатов расчёта сдвигающей силы для упругого натяжного ролика плоскоремённой передачи показал, что изменение величины сдвигающей силы не только зависит от изменения угла наклона оси шкивов и скоростных режимов, но и от типа ремня.

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Article



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SELECTION OF THE VALUATION METHOD FOR DETERMINING THE MARKET VALUE OF REAL ESTATE IN THE REPUBLIC OF UZBEKISTAN

Abstract: In real estate valuation, there are three generally accepted approaches to determining value: costly, market and profitable. Each approach has its own established methods, techniques and procedures. The conceptual similarity of approaches to the assessment of various property objects is revealed. At the same time, the type of object being evaluated determines the features of specific methods resulting from specific evaluation problems inherent, as a rule, only to this type of property. The article describes the methods used to determine the price of real estate objects, as well as rights (ownership, lease, etc.) in relation to the property to which the price should be set.

Key words: real estate valuation, determination of the market value of real estate, a comparative approach to real estate valuation.

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Introduction

Real estate valuation is one of the most common valuation methods at present and includes determining the value of ownership or other rights, for example, lease rights, use rights. Appraisal expertise is carried out in relation to such objects as: industrial, social or cultural buildings, industrial complexes; residential buildings, apartments, rooms and other residential premises; office, warehouse and industrial premises; land plots, perennial plantings – gardens, parks, squares, developed plots in garden partnerships; structures and transmission devices – roads, bridges, access roads, reservoirs, pipelines, telephone and cable lines, power grids; objects under construction, including objects with suspended construction, mothballed objects and objects with discontinued construction; aircraft and ships.

An appraiser is a specialist who has the right to evaluate and sign a report on the evaluation of real estate, vehicles, equipment, enterprises, claims, works, etc. Appraisal activity is a professional activity to establish the value of tangible and intangible objects, taking into account the rights to them and the interests of subjects of civil rights in relation to them [1]. Depending on the purpose of the assessment, the following types of value are distinguished: market, investment, collateral, liquidation and others.

Main part

The legislation regulating evaluation activities in the Republic of Uzbekistan is represented not only by these regulatory legal acts, but also consists of other laws and regulatory legal acts of the Republic of Uzbekistan, as well as international treaties of the Republic of Uzbekistan. In addition to legislation

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regulating valuation activities, appraisers pay special attention to legislation regulating property rights and other property rights, certain types of obligations and property relations with respect to valuation objects. The basis of such legislation is the Civil Code of the Republic of Uzbekistan, the Tax Code, the Land Code, the Water Code and other legislative and regulatory acts, including on privatization, bankruptcy, lease, pledge, mortgage, trust management [2]. The right of ownership is a set of legal norms that consolidate the appropriation of things to individuals and collectives. The right of ownership is established by the territorial authority of the Federal Register at the location of the real estate object [3].

The income approach is a set of methods for estimating the value of an object based on determining the current value of an object of property as a set of expected income from its use.

When assessing from the perspective of a revenue approach, the future income from the operation of an object during its useful life is put at the forefront as the main factor determining the current value of the object [4]. In calculating the total income from an object for a number of years of its life, the methods of the income approach use techniques known from the theory of compound interest.

The methods of the income approach (the capitalization method and discounting of cash flows) are based on such principles noted above as the principle of expectation, accounting for factors of production, best and full use, contribution [5].

The undoubted advantage of these methods is the possibility of a comprehensive, systematic assessment, when it is necessary to evaluate not individual machines at the enterprise, but the entire operational property complex, including the entire fleet of interconnected equipment [6]. The use of income approach methods faces the limitation when it is difficult to estimate net income directly from the object being evaluated due to the fact that this object does not produce final products or final services or has more social than economic significance.

First, the net income from the functioning of the entire production and commercial system is calculated [7]. Then either the cost of the entire system is determined and the cost of the machine complex is allocated from it in one way or another, or first the part of it that is directly created by the machine complex is isolated from the amount of net income, and only then the cost of the machine complex itself is determined for this part of the income [8].

The income approach is implemented in the following methods: discounting of net income, direct capitalization of income; has long been an effective functional analogue. The undoubted advantage of these methods is the possibility of a comprehensive, systematic assessment, when it is necessary to evaluate not individual machines at the enterprise, but

the entire operational property complex, including the entire fleet of interconnected equipment.

The income approach proceeds from the principle that a potential investor will not pay for this business an amount greater than the current value of future income from this business [9]. This approach to valuation is considered the most acceptable from the point of view of investment motives, since any investor who invests money in an operating enterprise ultimately buys not a set of assets, but a stream of future income that allows him to recoup the invested funds to make a profit and increase his well-being [10].

There are two methods of a profitable approach: income capitalization method, and method of discounting cash flows.

The method of capitalization of income.

Using this method, it is possible to estimate the value of real estate as the current value of future cash flows. The income capitalization method is most suitable for situations in which an enterprise is expected to receive approximately the same amount of income over a long period of time (or its growth rate will be constant). It reflects the quality and quantity of flows and risks specific to real estate [11].

The methods of the income approach are based on the premise that a real estate object and its value are determined by the ability of this object to generate income in the future [12]. When using the methods, the following is reflected: the ability to reflect the actual intentions of a potential buyer, the ability to take into account the competitive features of real estate.

The definition of the income capitalization method in relation to the valuation of intangible assets is as follows: the establishment of the current value of the variable flow of projected economic income for a discrete period of time [13].

Method of discounting cash flows.

The discounted future cash flow method is used when future cash flow levels are expected to differ significantly from current ones, projected future cash flows are positive values for most forecast years, and cash flow in the last year of the forecast period is expected to be a significant positive value. Depending on the nature of the equipment being evaluated, the Appraiser may consider net cash flow or various forms of profit as expected revenues. The peculiarity of discounted cash flow methods and their main advantage is that they allow taking into account non-systematic changes in the income stream that cannot be described by any mathematical model. This circumstance makes it attractive to use the discounted cash flow method in the conditions of the Uzbek economy, characterized by strong variability in prices for finished products, raw materials, materials and other components that significantly affect the cost of the estimated equipment [14]. Another argument in favor of using the discounted cash flow method is the

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availability of information that allows you to justify the revenue model (financial statements of the enterprise, a retrospective analysis of the estimated enterprise, market research data, company development plans) [15]. When preparing the initial data for evaluation using the revenue approach, financial analysis is used, since it can be used to assess the features of the development of the enterprise, including growth rates, costs, profitability, discount rate.

The comparative approach determines the market value of real estate based on the prices of transactions with similar objects, adjusted to identify differences. The basis of the comparative approach is the proposition that the market value of the valuation object is directly related to the prices of comparable competing objects [16]. Therefore, analyzing the differences in price-forming characteristics, such as transferred property rights, motivation of the parties to the transaction, financing, date of the transaction, location, physical and economic characteristics, it is possible to model the value of the assessed object taking into account the characteristics of the territorial real estate market. Necessary conditions and scope of application [17].

The main condition for the use of comparative approach methods in real estate valuation is the activity of the real estate market and the availability of high-quality information about transactions with similar objects. If the real estate market in the region to which the appraised object belongs is insufficiently developed, or the appraised property is unique, or information about transaction prices and characteristics of analogous objects is not available to the appraiser, then using a comparative approach is impractical.

The basis of the comparative approach is the basic principles of evaluation, which justify the composition of the elements of comparison, reduction of price-forming characteristics, calculation and adjustments [18]. The market price of real estate objects is formed in the process of interaction between sellers and buyers, as well as loans that increase the size of investment resources and affect market prices with the help of established financing conditions [19].

The cost approach is a set of methods for estimating the value of a real estate object based on determining the costs necessary to restore or replace a real estate object, taking into account its depreciation. The cost-based approach is based on the principle of substitution, according to which it is assumed that a reasonable buyer will not pay more for a real estate object than the cost of building an object similar in its usefulness to the estimated object [20].

The application of the cost approach to real estate valuation consists of the following stages: assessment of the market value of the land plot; assessment of the replacement cost (replacement cost) of the building being evaluated, including the

assessment of the amount of entrepreneurial profit; calculation of the identified types of depreciation; calculation of the final value of the object of valuation by adjusting the replacement cost for wear and subsequent increase in the value obtained for the value of the land plot [21].

Determining the value of a plot of land that is part of the real estate assessed by the cost method is based on the assumption of its best and most effective use as free from development. The following methods are used to assess the market value of land: sales comparison method, distribution method, selection method, method of splitting into sections, residue technique for earth, capitalization of net land rent.

Conclusion

There are several dozen methods of assessing real estate objects used for different types of objects: buildings, structures, land plots, apartments, etc. The choice of any assessment method depends on a number of factors, including the nature of the object, the purpose and function of the assessment, and the information available to the expert. The choice of method depends on the evaluation function. If the evaluation results are necessary for the insurance of the object, it is more expedient to use one of the methods of the cost approach. If the evaluation results are necessary in order to invest certain funds in the development of a real estate object, it is better to use one of the methods of a profitable approach.

The objectives of the assessment are even more closely related to its methods. Thus, choosing a method for evaluating a real estate object is a complex, creative process. All methods of real estate valuation are grouped by specialists into three approaches: cost-based, profitable and comparative (market). The cost approach is currently used for the taxation of the property of individuals or the seizure of real estate.

Often, the value of the total replacement cost is used to determine the upper limit of the value of the assessed object, because an experienced buyer will not pay for an existing building as much as he will spend on the construction of a new and progressive building with similar utility. An exception to this rule may be cases when the buyer does not have time to wait until a new building is built, or when the buyer wants to avoid the risks associated with the construction of a new facility.

The most common method of evaluation in the comparative approach group is the method of direct comparative analysis of sales. It is based on the principle of substitution, which states: the buyer will not buy a real estate object if its value exceeds the cost of acquiring a similar object on the market with the same utility. Therefore, it is assumed that the prices at which the purchase and sale transactions of an object similar or similar to the object being evaluated took place on the real estate market reflect its market value.

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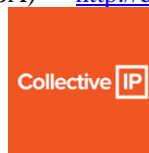
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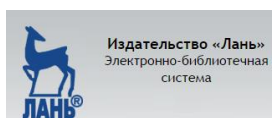
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