

FORMATION OF A NATIONAL SYSTEM AND INTERNATIONAL TRANSPORT CORRIDORS "NORTH SEA WAY - ENISEY - NORTH-RUSSIAN EURASIAN HIGHWAY - TRANSSIB"

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Abstract: *The scientific article is devoted to the formation of a system of national and international transport corridors of Russia. Given the detailed characteristics of the Northern Sea Route, the basic principles, the concept and strategy of its development. Lists the main goals that can be achieved by implementing a comprehensive project to develop the Northern Sea Route. It is noted that the most important element of the basic network infrastructure of Russia, including national and international transport corridors, are transport hubs and multimodal transport and logistics centers. It was summarized that the most important task of great strategic, geopolitical and socio-economic importance is the construction of the North-Siberian railway, since this highway will continue the BAM from Ust-Ilimsk to Surgut and become an integral part of the future North-Russian Eurasian highway.*

Keywords: *strategic transport structure, the Northern Sea Route, transport of the region, international transport corridors, infrastructure, economic complex, logistics centers, national and international transport corridors.*

I. INTRODUCTION

Further growth of the Russian economy is impossible without a stable, balanced and effective socio-economic development of the regions of Siberia, the Far East and the European North, without creating conditions for the industrial and transport development of this territory.

Earlier, attempts made to accelerate the industrial development of promising areas of the Far North, Siberia and the Far East, but the situation became especially urgent for Russia due to the collapse of the USSR and the imbalance of industrial and raw material of the basis of the economy. Currently, in the east of the country, there is only the Southern Economic Belt along the line of the Trans-Siberian Railway and individual industrial regions scattered throughout the country. The remaining space of the northern and eastern regions is virtually unoccupied, poorly developed economically and sparsely populated [3].

II. MAIN CONTENTS

The country's leadership identified the strategic objectives of Russia in the first quarter of the XXI century:

- raising the standard of living of the population,
- building economic potential,

- ensuring national security,
- occupying a worthy place in the group of world leaders, taking into account the integration processes taking place in the world and the emergence of new economic problems [1].

To solve these complex tasks, it is necessary to form a strategic cyclic-type transport structure throughout the country, including its Asian part without gaps and bottlenecks.

However, Russia is also a great sea power, washed by the Arctic and Pacific oceans, as well as a dozen seas. The Northern Sea Route (NSR) passes through the Arctic Ocean, providing water transport links between the eastern regions of Russia and its European part, as well as Russia's active foreign economic activity [4]. This means that the initial and indispensable condition for the realization of Russia's geographical advantages is the transformation of its main roads and waterways into a competitive transport system on a new technical and technological basis that meets the requirements of the 21st century.

This task is large-scale and long-term, and the government is primarily interested in its solution. This task is large-scale and long-term, and the government is primarily interested in its solution. The President of Russia noted the importance of fulfilling the tasks set, which is reflected in the Transport Strategy of Russia for the period up to 2030, as well as in regional strategies for socio-economic development [15].

An important role in economic development is in the Northern Sea Route. The Northern Sea Route is not just a transport route, it is the only way to develop the Russian North, to develop its infrastructure, mineral deposits. The North is a unique mineral resource base, which is the most important source of economic power in Russia: "The reserves and exploitation of most of the mineral resources extracted in the North constitute the bulk of the mineral resource base and industrial production in Russia. It produces more than 90% of nickel and cobalt, about 100% of diamonds, more than 98% of platinum metals, and produces about 90% of gas and 60% of Russian oil, 60% of copper. In the north of the country there are 80% of tin, tungsten and mercury, 40% of gold [2].

The Arctic shelf is a colossal super basin containing at least 100 billion tons of equivalent fuel. This fact determines the need for year-round high-speed transport on the Northern Sea Route, which is able to penetrate deep into the major rivers and their tributaries and without overloading for the delivery of goods to customers.

Described in the 80s of the last century, the turn of geological work, apparently, should have led to the implementation of the program using the Northern Sea Route. However, after several years, despite the enormous environmental and resource significance of the Arctic region, our country's attention began to weaken. In this regard, a number of problems were aggravated not only with the further development of the Arctic, but also with the survival of the indigenous population.

Analysis of the mineral resource base clearly shows that in the forecast period to 2025, the role of Arctic oil and gas, platinum group metals, diamonds, nickel and other minerals will continue to grow. Without their use, our country cannot exist and develop successfully. This

fact undoubtedly underlines the seriousness of the transport problem of the Northern Sea Route for Russia.

The Northern Sea Route is:

- extremely harsh temperature conditions (up to - 65 ° C in the Chukotka areas);
- these are the seas of the Arctic Ocean, whose waters under the ice are 8 - 9 months per year;
- insignificantly small power, road and terminal, port security;
- small population, which is decreasing every year;
- historically established national, unified communication of Russia in the Arctic.

The maritime transport system operating here is an important part of the infrastructure of the economic complex of the North. Huge material resources, labor of many generations of Russians are invested in the development of this highway [6, 7].

During 80 years of the last century, there were 16 icebreakers and more than 200 ice-class transport vessels. The total traffic on the Northern Sea Route reached 6.58 million tons. He was subject to exclusive state management, control, and material support. However, even in those years it believed that the problem not solved. This conclusion was even more noticeable in the new conditions of management, which emphasized the requirements for competitiveness of this highway compared to other transport routes in terms of costs, delays and reliability of transport. What is the development strategy of northern shipping? The National Institute developed the answer to this question for Scientific Research of the Fleet (NISRF) [13].

The development strategy of the Northern Sea Route based on the following principles:

1) the state supports the priority sectors of the economy of the North (mining, oil and gas, chemical and forestry), which can quickly develop the transport infrastructure, increase the freight traffic of the Northern Sea Route (port equipment, icebreakers, hydrography, navigation, communications, rescue, hydrometeorology); as a basis for the preservation of national unified transport communications;

2) the constituent entities of the Russian Federation and commercial enterprises use the services of joint-stock shipping companies and take part in the development of the Northern Sea Route;

3) some large commercial enterprises (Gazprom, Norilsk Nickel, Lukoil, etc.) build delivery terminals for exporting their products and create their own transport fleet;

4) the development of the Northern Sea Route is aimed at providing large-scale transport: in 2010 - 4 million tons, and in 2020 - 50 million tons, including liquefied gas from the Yamal Peninsula - 25-40 million tons, sea exports to Europe oil from the Timan-Pechersk province and the basins of the Ob and Yenisei rivers - 25-30 million tons;

5) in the process of reviving the economy of the Arctic zone and the development of the Northern Sea Route, a state system of self-sufficiency of the Arctic Sea transport is being created. The management of the Northern Sea is carried out in stages in accordance with the new economic conditions.

In accordance with this strategy, the Institute developed a concept for the development of the Northern Sea Route, according to which:

1) construction of a nuclear icebreaker leader with a capacity of 150,000 horse power (h.p.) each (by 2017); four nuclear icebreakers of a new generation with a capacity of 80,000 h.p. each (until 2014); five diesel icebreakers for 34,000 h.p. and three port icebreakers with a capacity of 9,000 h.p.;

2) the replenishment of ice-class vehicles in the amount of 80-90 units (by 2015), each with a capacity of 5000 h.p.;

3) modernization of existing and creation of new ports (Pechenga, Indiga, Kharasavey), shipping terminals (Tiksi, Providence Bay, Petropavlovsk-Kamchatsky);

4) improvement of maritime safety management systems.

For the development of the Northern Sea Route, the growth of the economy of the polar regions of the Far East of Russia with the prospect of high profitability of this transport artery, you need to create a new high-speed, highly efficient form of transport, called land-air amphibian (NCA). This type of transport is designed and offered for its implementation [9].

The development of the NSR through the introduction and creation of terrestrial amphibians - third generation screenplans allows us to announce the creation of a fundamentally new innovative transport technology, which in many ways can increase the level of welfare of its peoples, affect national security and the Russian economy.

Russia has unique opportunities for the development of water and railway (sea and river) transport. The northernmost transport corridor is the Northern Sea Route (NSR).

The NSR is the historically established national unified transport connection of the Russian Federation to the Arctic and the main part of the so-called Northeast Maritime Passage. It covers a vast area of sea areas from the Novaya Zemlya archipelago in the west to the Bering Strait in the east, including the Shokalsky, Vilkitsky, Sannikov, Dmitry Laptev straits, within which shipping routes are selected depending on the thickness, ice resistance of the fleet and real ice conditions. This zone covers the territorial sea, the exclusive economic zone of Russia, inland waters and may, depending on ice conditions, go beyond its limits. Taking into account the actual navigation routes used, the length of the NSR ranges from 2,2 to 3,0 thousand miles [13,15].

The Northern Sea Route is the only latitudinal highway that connects all the Arctic regions of Russia and affects the development of territories located to the south of the North Sea coast for many hundreds of kilometers. With many rivers flowing into the Arctic Ocean, the NSR forms a common system of water transport, which handles most of the so-called Northern cargo.

The Northern Sea Route is an important part of the infrastructure of the economic complex of the Far North and links between the Russian Far East and the western regions of the country. For some areas of the Arctic zone - Chukotka, islands of the Arctic seas and a number of settlements on the coast of the Taimyr (Yamalo-Nenets) Autonomous Region - sea transport is the only means of transporting goods and livelihoods of the population (northern delivery).

Railways only in the west connect the Northern Sea Route with the Russian transport system. In the Arctic, there are practically no major roads. Instead, they use winter ice roads (winter roads), many of which go to the ports of the Northern Sea Route. The main oil and gas pipelines built in the Arctic and in the North operate only in the southern and western directions (the exception is the Messoyakha-Norilsk gas pipeline) [12].

In modern conditions, the task of further attracting the most efficient resources of the North in the economic turnaround remains. Nevertheless, it assumes a qualitatively new form of its implementation - improving the geological study of the adjacent territories and the sea shelf, increasing the complexity of using raw materials, maximizing production through the use of science and technology, the introduction of waste-free technologies.

Estimated transportation volumes in the Arctic can be provided by seven nuclear-powered icebreakers, subject to a 10-year extension of the ship's nuclear power plants (APPU), the construction of four 60 MW universal nuclear double-deck icebreakers with a 110 MW nuclear icebreaker, the 50-year-old Victory icebreaker "And a nuclear icebreaker leader with a capacity of 110 MW.

Such a composition of the atomic icebreaking fleet should ensure safe and stable navigation in the Arctic in the winter-spring period, year-round introduction of promising large-capacity tankers and gas carriers, as well as reliable service for transit cargo traffic through the NSR. In order to provide cargo transportation to the transport and icebreaking fleet to the enterprises producing and transporting vessels, 16 icebreaking vessels were manufactured, and in the period 2006-2015 - 63 vessels trading on ice.

The management system and the functioning system of the Northern Sea Route do not correspond to current realities.

All these problems associated with the transformation of the Russian economy, determine the need for scientific research on the integrated development of the strategy for the economic development of the Arctic and the organizational and economic bases for the revitalization and development of the Northern Sea Route and adjacent territories.

The implementation of a comprehensive project for the development of the NSR can provide:

- increasing the integration role of the NSR in the transport system of the North;
- strengthening the common economic space in the Arctic;
- maximum satisfaction of the transport needs of the northern territories;
- strengthening the positive impact of the NSR on the social and cultural living conditions of the population of the Arctic zone;
- improving information support for the NSR.

To achieve these goals, it is necessary to develop a strategy for the integrated development of SMP and its use in the interests of the state, taking into account commercial benefits based on previously developed projects and programs and real material resources.

In particular, it is necessary to strengthen the borders of the Arctic possessions of the state, to delineate the economic zone and the continental shelf with Norway, to take state measures to consolidate the legal status of the Russian Federation on the fuel and energy and mineral resources of the Arctic continental shelf.

Among the priority issues are the development and adoption of laws on the legal effect in the Arctic zone - laws regulating the ownership and use of marine areas, obtaining licenses and other regulatory acts that ensure coordinated economic and defense activities.

Perspective cargo flows in the western sector of the Northern Sea Route are mainly associated with hydrocarbon production on the Yamal Peninsula, in the Timan-Pechora region, in the Kara Sea and on the Barents Sea shelf. Natural gas reserves in these areas are estimated at more than 20 trillion, and oil at 12-15 billion tons.

In the longer term, an increase in exports of liquefied natural gas in the amount of up to 20 million tons per year from the fields of the Yamal Peninsula (the city of Harasavei) is projected.

There is an opportunity to increase the volume of transit traffic on the NSR of Russian export enterprises through the export of mineral fertilizers and ferrous metals. Analysis of the transport flows of this product from the European part of Russia to Southeast Asia shows that, on average, 8-8.5 million tons of metals and fertilizers exported annually [15].

According to expert estimates, the annual cost of transportation of foreign currency is 230-250 million dollars. The advantage of the NSR for these exporting enterprises expressed in the reduction of delivery distances by 2-3 thousand miles, unlike the Baltic ports through the Suez Canal. At the same time, all foreign transport costs associated with the transit of goods through foreign countries, with the passage of the Suez Canal and costs for foreign ports eliminated. The Northern Sea Route shortens the distance from Murmansk to Vladivostok by half, and the time saved on the way through the Hamburg-Yokohama line is 10 days, and Pechenga-Yokohama for a container ship - 12 days.

The transit of goods through the NSR is of considerable interest, in particular, for Japan, which has views on the transport of radioactive materials from Western Europe along the Northern Sea Route. The Federation of Energy Enterprises of Japan is already working on this issue with the Russian NSR operators [11].

The effective functioning of the NSR as a transnational transport route will depend on the development of the transport services market, improving the management structure of the Northern Sea Route, which aims to increase the reliability of delivery, develop transport infrastructure, reduce transport costs and revitalize the economic activities of the entire Arctic region of the country.

In addition, it is necessary to form a modern information system, conduct a tariff, investment, tax, customs and insurance policy to create economically viable conditions for the NSR for commercial traffic, including international ones.

As priority regulatory and organizational measures can be proposed:

- making a decision on the formation of a state program to support it and on declaring the national status of the Northern Sea Route at the federal level;

- Amendments to the customs legislation (when importing purchased ships and ship equipment to the customs territory of the Russian Federation, abolishing VAT for Russian shipowners) and taxation (when buying and building ships with bank loans for a full settlement with the creditor, abolishing income tax and property in part of the loan and its calculation);

- Strengthening government measures for economic and technological integration between transport and transport sectors (sea, rail, road and river transport), including the harmonization of tariffs for the provision of Arctic transport.

The development of the route of the Northern Sea Route (NSR) was the most important condition for the development of the productive forces of the regions of the Far North of the USSR.

After the collapse of the USSR, Russia had limited opportunities for the development of shipping on the Black and Baltic Seas, which led to a rethinking of the role of the NDS in the 1990s. The Yenisei River, due to the conditions of navigation and geographical location, can really be, in contrast to Ob and Lena, the most important link in the NSR. By connecting the NSR with the deep continental part of Central Siberia, it will allow to solve the following important tasks for Russia:

- creation of a qualitatively new output of Siberian regions on the world market;

- formation of a route maintenance base (bunkering, meteorology, aviation services, etc.) at the border of the eastern and western sectors of the NSR / SP (Northeast passage);

- expansion of the service area (where it is economically justified), because of the deep parts of Central Siberia.

The solution of the last two tasks directly connected with the Angara-Yenisei region. First, effective work with moderate tariffs of the MPS is an important condition for the involvement of the region's rich resources in the country's economy, and the emerging potential for cargo turnover, in turn, can provide a significant regular load on the MPS. Secondly, the NSR with enhanced navigation and the conditions of the revenue-generating Yenisei are the most important conditions for the formation of a unified transport system - the Yenisei-SMP, which will be able to provide external relations with deep regions of Central Siberia [14].

Navigation on the Yenisei River to the port of Dudinka is carried out in a year-round regime with suspension for the period of spring flood and ice drift. In the same sailing route in the southwestern part of the Kara Sea, taking into account the work of the fleet in other directions of transportation, navigation practically does not stop throughout the year.

As the data of long-term statistics confirm, in order to maintain sustainable shipping along the Dudinka line from January to April, with modern cargo transportation, 4-5 nuclear ships need to be attracted for this period, which usually happens [10].

The Yenisei Bay of the Kara Sea - the lower reaches of the Yenisei - the second most important part of the entire NDS. Extremely favorable navigation conditions in comparison with the Ob lip and the Ob river, both in the Yenisei Gulf and in the Yenisei. In the future, the Norilsk-Turukhansky problem region of the Krasnoyarsk Territory will become the most important supplier of cargo on the Northern Sea Route and the main factor determining the feasibility of operating expanded navigation in the western Arctic.

The river and sea transport of the region are not competitors: the specialization of each of them in market conditions will be determined by the geography of consumers, tariffs, cargo composition, level of service and shipping conditions.

III. CONCLUSION

A significant event in the revival of the Northern Sea Route will be the formation of two new base ports - the Indiga on the coast of the Barents Sea and in the Efremov bay on the coast of the Kara Sea and the Yenisei Bay. The purpose of their creation is determined by the change in the geography of promising hydrocarbon deposits and the geopolitical conditions for Russia's entry into the world market.

Under these conditions, Russia's strategic task is to create new ports and further develop the maritime transport of goods (including hydrocarbons) in the Arctic Ocean basin.

From the beginning of the development of the Northern Sea Route in the Soviet years, the formation of three seaports - Dixon, Igarka and Dudinka - began in the basin of the lower course of the Yenisei and the Yenisei Gulf.

Currently, despite the existence of three seaports in the lower reaches of the Yenisei, the creation of a new large specialized port in the Efremova bay (or a reserve option - the neighboring Sloboda bay) on the eastern coast of the Yenisei Bay, the Kara Sea is being studied intensively. The need for it was identified in connection with the commencement of the development of the Turukhansk group of hydrocarbon deposits. Large companies (Anglo-Sibirskaya, Yeniseineft, Slavneft, Shell, etc.) arrived in the region, looking for funds to organize additional exploration of fields, equipment supply, field development and exploration of oil transportation options foreign markets [4,5].

Russia needs to move from purely transport projects to the organization of transport and industrial zones (TIZ). The main of such projects is the Northern Latitudinal Transport and Industrial Belt (TIB).

Its infrastructure base will pass through the North-Russian Eurasian railway line on the Sakhalin-BAM-Sevsib-Barentskur line (Belkomur), and the integrated industrial development of the adjacent strip will be the basis for the formation of a new Northern latitudinal belt of economic development in Russia.

The most important task of great strategic, geopolitical and socio-economic importance is the construction of the North-Siberian railway. This highway will continue the BAM from Ust-Ilimsk to Surgut and will become an integral part of the future North-Russian Eurasian Highway, the second latitudinal transport corridor between the countries of Western Europe and the countries of the Asia-Pacific Region (APR), and between the European and Asian parts of Russia [8].

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