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SOI: 1.1/TAS DOI: 10.15863/TAS

International Scientific Journal

Theoretical & Applied Science

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

Year: 2021 **Issue:** 03 **Volume:** 95

Published: 26.03.2021 **http://T-Science.org**

QR – Issue QR – Article

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FORMATION OF INTERCONNECTION OF THE RAILWAY AND THE NORTHERN SEA ROUTE FOR THE SOLUTION AND IMPLEMENTATION OF THE DEVELOPMENT STRATEGY OF THE ARCTIC ZONE OF THE RUSSIAN FEDERATION UNTIL 2035

Abstract: *In the article, the authors consider the Arctic region. Today, every educated person understands that the Arctic is not just Russia's tomorrow, it is its future, its chance to remain a great maritime power, using its geographical and strategic location to extract economic benefits and increase its influence in the world. And scientists, specialists in the transport industry have a great responsibility to identify specific scientifically grounded directions of Russia's economic development and its use of Arctic resources, including transport. Northern sea route and railway throughout the arctic zone.*

Key words: *Arctic zone of the Russian Federation, railway transport, Northern Sea Route, Arctic resources, strategy for the development of the Arctic regions, railways, investments, infrastructure development, highways, energy resources, cargo turnover, innovations, transport approaches, key seaports.*

Language: *English*

Citation: Blagorodov, A. A., Bordukh, D. O., Shcherbakov, D. S., Prokhorov, V. T., & Volkova, G. Y. (2021). Formation of interconnection of the Railway and the Northern sea route for the solution and implementation of the development strategy of the Arctic zone of the Russian federation until 2035. *ISJ Theoretical & Applied Science, 03 (95)*, 337-347.

Soi: http://s-o-i.org/1.1/TAS-03-95-53 ***Doi***: https://dx.doi.org/10.15863/TAS.2021.03.95.53

Scopus ASCC: *2300.*

UDC 419-47: 494-16

Introduction

The Government of the Russian Federation develops and approves a unified action plan for the implementation of the Fundamentals of State Policy

in the Arctic and this Strategy, which should reflect all stages of the implementation of this Strategy.

The transport strategy of the Russian Federation for the period up to 2035 (hereinafter referred to as the Strategy) has been developed in accordance with the Federal Law "On Strategic Planning in the Russian Federation" and ensures the implementation in the field of transport of the provisions of the Decree of the President of the Russian Federation of May 7, 2018 N2 204 "On National goals and strategic objectives of the development of the Russian Federation for the period up to 2024 "(hereinafter referred to as the Decree), the Unified Plan for Achieving the National Development Goals of the Russian Federation for the Period up to 2024 (hereinafter referred to as the Unified Plan) and other strategic planning documents developed at the federal level, and also takes into account the provisions of the Paris Agreement of December 12, 2015, signed on behalf of the Russian Federation on April 22, 2016 and adopted by the Resolution of the Government of the Russian Federation of September 21, 2019 No.N2 1228 acceptance of the Paris Agreement "(hereinafter - the Paris Agreement).

The details of the provisions on the development of sectors and spheres of public administration in the field of transport are given in the corresponding general schemes approved by the Ministry of Transport of the Russian Federation.

The implementation of the Strategy is carried out in 2 stages. The first stage is being implemented from 2020 to 2024, the second stage - from 2025 to 2035. The year 2018 was chosen to establish the baseline for the indicators.

At the first stage of the implementation of the Strategy, its goals, objectives and main activities are focused on achieving the following national development goals of the Russian Federation, determined by the Decree:

joining the Russian Federation among the 5 largest economies in the world and ensuring economic growth rates higher than the world ones while maintaining macroeconomic stability (including inflation at a level not exceeding 4 percent); creation in the basic sectors of the economy, primarily in the manufacturing industry and the agro-industrial complex, a highly productive export-oriented sector, developing on the basis of modern technologies and provided with highly qualified personnel; ensuring the accelerated introduction of digital technologies in the economy and social sphere; acceleration of the technological development of the Russian Federation, an increase in the number of organizations carrying out technological innovations, up to 50 percent of their total number.

The strategy is the basis for the development of state programs, national and federal projects containing measures for the development of sectors and spheres of public administration in the field of transport.

The general management of the implementation of this Strategy is carried out by the President of the Russian Federation.

The tasks, functions, procedure for coordinating the activities and interaction of state authorities, local authorities and organizations in the implementation of this Strategy are determined in accordance with the legislation of the Russian Federation.

The implementation of this Strategy is carried out at the expense of the budgets of the budgetary system of the Russian Federation, including at the expense of funds provided for the implementation of the state program of the Russian Federation "Social and economic development of the Arctic zone of the Russian Federation", and extra-budgetary sources.

Main part

The strategy for the development of railway transport in the regions of the Arctic and Eastern Russia has long been in the development of the Russian government. State. In 2020, by presidential decree No. 645 of October 26, 2020, work began on the implementation of the "development strategy for the Arctic zone until 2035". It affects the spheres of healthcare, science, education, housing, investment, oil and gas production, ecology, etc. The problem of the strategy is in one thing - the method of transportation for citizens working in the Arctic had not been solved before them. The air route is expensive for one person (the average price of a Moscow - Magadan ticket is about 170,000 rubles), sea transport is expensive, depending on the season and weather. For highway transport, there is no possibility of creating and maintaining the infrastructure of highways. Therefore, of all the existing ones, the most economically and socially profitable transport is the railway. The prospect of creation is clear on the face. Only on condition of doing, initially, well. We offer three development options from solution options -The first one implies the usual principle based on the "raw material appendage", i.e. energy export as an economic base. In the future, using this principle, it will be possible to increase the cargo turnover by almost one and a half times, and the passenger turnover - by 1.16 compared to the previous year.

The second option is already innovations in the development of the country, in which most of the export will be industrial products made in Russia, which will also allow the cargo turnover to grow by more than 1.5 times, and the passenger turnover by 1.33 times.

The most ambitious project of the Strategy is the construction of the North-Siberian Railway almost1900 km... The second most important project is the Ural Industrial - Ural Polar road project. Great changes are expected in Eastern Siberia, where the

construction of three canvases at once continues. It is also necessary to modernize old roads and lay bypass routes of railway junctions to ensure the safety of passengers and increase their capacity.

And if the implementation of the first and second development options fails, we provide for the third option. It implies the modernization of the coexisting system of routes and communications and, on the basis of it, the construction of new routes.

A dynamic expansion of railways is planned, at least by 16,000 km, until 2035.

Our ancestors perfectly understood the need to create ports on directions independent of Europe, as evidenced by the creation of ports on the coast of the seas of the Arctic Ocean from the semi-legendary Mangazeya to Arkhangelsk and Kola.

In accordance with the Strategy for the Development of Maritime Activities of the Russian Federation until 2035, developed by the Council for the Study of Productive Forces (COPS) and approved by the Order of the Government of the Russian Federation of December 8, 2010 No. 2205-r, the port infrastructure of Russia should be processed at all regional sea routes at least 1.1 billion tons of foreign trade cargo.

Moreover, a significant increase in capacities in accordance with the previously adopted "Fundamentals of State Policy of the Russian Federation in the Arctic for the Period up to 2020 and for the Future" should be provided mainly through the construction of new and modernization of existing ports on the coast of the seas of the Arctic Ocean. One of the key points in substantiating the concept of the development of the transport complex in the north of Russia is the identification of points for the creation of new key ports and transport approaches to them.

A doubling of the current level of cargo transshipment through Russian ports (535.5 million tons in 2019) will also require a doubling of the transportation capacity of railway transport, therefore, a serious development of its transport infrastructure, including in the northern direction.

Proceeding from the fact that the Trans-Siberian Railway is currently heavily loaded, and the transportation of export coal from Kuzbass to the western ports is characterized by signs of collapse, it is necessary to create a new transport complex based on a new railway line, mainly in latitudinal direction, leading out cargo flows to seaports such as the Arctic and the Pacific Basins. And this is exactly the idea, which is more than 150 years old.

With the outbreak of the Second World War, the situation of the First World War was repeated, when the northwestern ports were cut off by enemy troops. Twice the country's governments had to urgently look for safety options and turn to the idea of building a port in the Indiga Bay (which is very instructive). However, neither the tsarist nor the Soviet state succeeded in building a new port and a railway to it under war conditions.

New Russia received a project that included: completion of the construction of the Baikal-Amur Mainline (BAM) and its transformation into a link in the intercontinental transport bridge "Asia-Pacific Region (APR) - Western Europe" (Tokyo - Dublin); reconstruction of the Trans-Siberian Railway and its transformation into a specialized international-class highway "Trans-Asian Mainline", as well as the completion of the construction of the North-Siberian Railway (Sevsib) with the commissioning of the Nizhnevartovsk - Ust-Ilimsk section and its connection with the seaport in the southeastern ice-free part of Barents seas.

The organizing idea of the Barentskomur project is the geostrategic and feasibility study of the construction of the Ural-Komi-Barents Sea (Indiga) railway, which is capable not only of uniting the richest oil and gas reserves of the Siberian North, the unique metallurgical production of the Urals, ore , coal and forest resources of the Komi Republic, but also to open these resources the shortest direct export route from the continental depths of the Asian part of Russia to the coast of the Barents Sea.

To solve this problem, scientists of the Siberian and Ural branches of the Russian Academy of Sciences finalized the ideas of Siberian industrialists and developed a special scientific program "Problematic regions of the resource type: economic integration of the European North-East, the Urals and Siberia", which presents the goals and conditions for the integration of adjacent, but transport-disunited regions. Problematic regions of the Komi Republic, Sverdlovsk and Tyumen regions, Krasnoyarsk Territory, Nenets, Khanty-Mansi, Yamalo-Nenets and Taimyr Autonomous Districts, as well as the Arctic and Trans-Siberian transport corridors were selected as the main objects of research.

It is also obvious that the new highway, due to the reduction in the cost of transportation by reducing the distance of delivery of goods, will significantly contribute to the development of foreign economic relations of the regions of gravity.

The development of the country's transport potential is one of the priority tasks of modern Russia, in this regard, the "Strategy for the development of railway transport until 2030" has been developed. It notes that rail transport is the backbone of the country's transport infrastructure. A number of goals for the development of railway transport in Russia are highlighted:

· Build a modern, efficient and well-developed transport infrastructure;

· To increase the availability of transport services for the population of the country;

· Increase the level of competitiveness, as well as realize the transport potential of the country;

· To strengthen the integrated safety and stability of the transport system;

· Improve the investment state and give impetus to the development of market relations in the transport complex.

This idea was supported by the IEIE SB RAS in connection with the fact that the construction of the highway allows:

· Open access to large deposits of Siberia;

· Shorten the way to the Far East ports;

· Unload the Trans-Siberian Railway.

The creation of the North Siberian Railway, according to Leonid Reznikov, Deputy Governor of the Tomsk Region, during the VI International Forum "Transport and Transit Potential", will bring a significant multiplier effect (taking into account the payback period, it will be about 40 trillion rubles, which is 2.9 times the investment in the development of railway transport)

This will create infrastructural prerequisites for the development of the rich natural resources of the northern regions of the European and Asian parts of the country, which, as a result, will increase the transport and raw material security of the country.

In the analysis of IEIE SB RAS, its role was assessed by solving the problem of the national economic level in the variants “with SevSib” and “without SevSib”.

In the presence of SevSib, the average annual rates of gross output in Russia as a whole and its European part will be higher than without SevSib (table 1).

Table 1. Average annual growth rates of gross output, %

Territory	Without SevSib	With SevSib
Russia as a whole	five	6.1
european part of Russia	4.5	6.4
Asian part of Russia	6.4	5.7

A similar situation is expected for certain industries (Table 2). In the "with SevSib" option, the coal industry of the European part of the country almost does not increase production, and the incoming new needs are covered with coals from Kuzbass and from the Kansk-Achinsk fuel and energy complex. In the option "without SevSib", production costs increase to increase coal production in the European part of the country and reduce the likelihood of an increase in the level of the entire economy, all the main decisive branches of industry.

In the "with SevSib" option, funds from the European part of the country are intended for the growth of more profitable industries here - machine building, light industry, and ferrous metallurgy. At the same time, in the Asian part of Russia, there is an opportunity to apply the economies of scale - to carry out production at new large fields.

Table 2. Annual growth rates of gross output by industry (%) and territory

Industry	European part		Asian part	
	without SevSib	with SevSib	without SevSib	with SevSib
Coal	8	0.2	2.5	8.3
Energy	0,4	2.1	3.8	3
Non-ferrous metallurgy	5.1	6.9	3.7	6.5
Ferrous metallurgy	2.7	2.5	8.4	2.8
Woodworking	7	9	3	12
Light industry	0.9	five	one	2.4
Mechanical engineering	9.5	11.5	12.1	12.4

The processing complexes of the European part of the country are more interested in the creation of SevSib, since it is, they who receive a stable resource base of the Asian part of Russia, also using it as a guarantee against fluctuations in the prices of the corresponding resources in the world market. Thus, the construction of the North-Siberian railway is one of the main priorities for the development of the transport system of Siberia and the economy of all of Russia.

The SevSib project can be compared with similar railway lines, for example, with the Canadian Pacific Railway, which is located in a similar climatic zone (Table 3).

Table 3. Comparative assessment of the North Siberian and Canadian Pacific Railways

	Length, km	Cost, billion dollars
North Siberian Railway	2002	6-12
Canadian Pacific Railroad	14000	6

Canadian Pacific Railway (CP) is the second largest Class I railroad in terms of revenue and route miles. During 2016, CP transported cargo of intermodal containers (22% of revenue), chemicals, plastics and crude oil (14%), grain (24%), coal (10%), fertilizers and potash fertilizers (10%), the automotive industry, groceries (6%) and a diverse range of other goods.

Canadian Pacific Railroad is a paradigmatic example of long-term sustainable business performance and shareholder value creation that has been achieved in core assets.

This comparative analysis makes it possible to build a hypothesis that the project to create the North Siberian Railway will be no less effective than the Canadian Railway.

Already in October 2007, the Krasnoyarsk Territory administration announced that it was ready to begin construction of the first section of Sevsib - the Karabula-Yarki connecting branch. The cost of the bridge across the Angara and the road, 44 km long, will be about 5.1 billion rubles.

It is noted that SevSib is capable of bringing even greater returns to the region than the construction of the Boguchanskaya HPP, an aluminum plant, a pulp and paper mill, a manganese mine and other facilities of this project.

As a result, it can be noted that in addition to such important aspects as the development of new territories, the unloading of the Trans-Siberian Railway, which is especially talked about today, or the creation of new routes for export, first of all, this is a significant contribution to the development of railway infrastructure, which, according to the state plan , should become the key to the successful development of not only the Siberian region, but also Russia as a whole.

Analysis of the structure of the great Northern route

The North-Russian Eurasian railway from the Pacific port of Vanino (Vanino-Sovetsko-Gavanskiy industrial and transport hub) to the proposed port of Indiga in the southeastern part of the Barents Sea (hereinafter - the Vanino - Indiga highway) structurally consists of three sections: Baikal-Amur Mainline (BAM), North Siberian (Sevsib) and Barentskomur. A general view of the new highway is shown in Fig. one.

Fig. 1. General scheme and components of the North-Russian Eurasian railway

Fig. 1. General scheme and components of the North-Russian Eurasian railway

BAM has already sewed our immense spaces with “steel stitches”, connecting Taishet and the port of Sovetskaya Gavan. Even in its current state, the BAM with a length of 4287 km (and with its branches - 5.5 thousand km) is one of the largest railways in the world. BAM runs north of the Trans-Siberian Railway, branching off from it in Taishet, crosses the Angara in Bratsk, Lena - in Ust-Kut, bends around the lake. Baikal from the north, then passes through Tynda, crosses the Amur in Komsomolsk-on-Amur and ends on the Pacific coast in Sovetskaya Gavan.

The construction of the second section of the North Russian Eurasian Highway - Sevsib - in contrast to the BAM, is still only provided for by the Transport Strategy until 2035.

Although by the beginning of the 1980s, it would seem that everything was ready for active action on the Sevsib track. A serious impetus was given to the project in 1983 by the USSR Ministry of Transport Construction. On his instructions, the Central Scientific Research Institute of Transport Construction (TsNIITS) of the ministry carried out a cameral tracing of Sevsib. In the terms of reference, the need to build a highway was justified by the following words: “At the moment, the Siberian railway network is excessively overloaded. About 70% of rail freight traffic is carried out on lines with a freight intensity exceeding 70 million tons per kilometer. There are bottlenecks at a number of sections, which significantly limit the possibilities for increasing cargo turnover. In this situation, the transport network cannot ensure the development of the expected increase in traffic. "

The government decrees officially recognized the completion of all the necessary work to justify, prepare and develop a program for the development of this region and the construction of the North Siberian Railway. But ... 91 years burst out, then the August 1998 crisis happened, which led to the suspension of the project and gave the opponents of Sevsib a reason to promote the development program of the Lower Angara region.

Nevertheless, Sevsib was included in the Strategy for the Development of Railway Transport until 2030 (in its maximum version), but in a greatly reduced form - only to Nizhnevartovsk.

And this is the fundamental drawback of the project - the closedness of the main line in the western direction. It is not worth counting on the operating line Surgut - Tyumen - Sverdlovsk - it is overloaded and will not take on several tens of millions of tons of additional cargo traffic. The strategy does not imply the development of Sevsib in the western direction for the period after 2030.

It makes no sense to build a "castrated" Sevsib. All its multiplier effects will be fully manifested only as part of a single railway line - the North Russian Eurasian - provided that it includes all three blocks: BAM, Sevsib and Barentskomur.

The most likely connecting point of the Barentskomur and Sevsib is Ivdel (station Polunochnoye), to which it makes sense to exit from Kolpashevo through Tobolsk (a large port on the Irtysh and the former capital of the Siberian Territory), and not through Nizhnevartovsk. From Tobolsk, the highway should be built through Ustye-Akha and directed to Ivdel along the eastern bank of the river. Tavda. In this case, Sevsib will be reduced by the section Bely Yar - Nizhnevartovsk (538 km), and the capital of the Khanty-Mansi Autonomous Okrug can get a connection with the Russian railway network through Salym (200 km). The missing sections of the connecting line should be included in the railway construction plans.

The Barentskomur will solve the problem of implementing large-scale interregional projects of problematic resource regions of Russia and, first of all, the Ural region, the reserves of which have significantly depleted as a result of two centuries of intensive exploitation.

In the strategic building of a model of transport development in the Arctic, I consider the task of laying a railway from st. Sosnogorsk to the Indiga Bay and the creation of a base seaport there. This will provide the shortest passage of large-scale cargo from the south of the industrial Urals, from Siberia, Kazakhstan, Asian countries to the Northern Sea Route and further westward to the countries of Northern Europe and America (east coast), eastward to the APR countries, Canada and America (west coast), which is at the same time part of the Northern Maritime Corridor, agreed within the Barents Council, and the Indiga seaport will develop as the Northern Gateway of the EU-funded Northern Maritime Corridor (NMC) project.

The total length of the Ivdel - Indiga railway section is about 1200 km, the section of the new transport construction of the railway, according to preliminary estimates, is about 1000 km, which is about 250 km less than under the Belkomur project. If we take into account the fact that the branch of the Sosnogorsk - Troitsko-Pechorsk railway was deliberately built with the prospect of continuing to st. Midnight (the project of the 60s, that is, it was more modern than the "Belkomur"), then the conclusion follows that the initial construction of the railway to the Indiga Bay is more expedient.

A tangible plus in favor of Indiga is that the distance for the export of goods by rail from the Urals, Siberia, Kazakhstan, the Far East to this seaport is 350-400 km shorter than along Belkomur, which also implies significant savings on the construction of the railway itself and its operation (by about 15–20%).

The construction of the Sosnogorsk - Indiga railway has already been included in the Transport Strategy of the Russian Federation for the period up to 2030, but neither the road nor the port was included in the Federal Target Program "Development of the

Russian Transport System for 2010-2015" and, accordingly, were not provided with funding. The need for the construction of this railway in combination with the creation of a new seaport in Indiga Bay is beyond doubt - the potential cargo-generating base of the area of gravity to the port could range from 15 million tons of cargo in 2016 to 120 million tons in 2030.

The new multi-purpose seaport Indiga, in combination with the new approach line Sosnogorsk - Indiga, as part of the Barentskomur railway line, will become the basic element of sustainable socio-economic development not only in the Nenets Autonomous Okrug. In terms of its significance and scale, this project goes beyond the regional, since it will be able to make a significant contribution to the formation of the backbone transport network in the North-East of the European part of Russia.

Figure 2 - Construction of railways according to the "strategy 2035"

This arrangement of railway branches solves the social problems of the regions of the Russian Arctic. As already mentioned, the Tobolsk direction is considered the most preferable option for the withdrawal of Siberian cargo to the Barentskomur, although there are options for continuing Sevsib through Nizhnevartovsk, Surgut, Khanty-Mansiysk, Priob'e with a subsequent exit through Nyaksimvol to Troitsko-Pechorsk. But the latter option is possible if the project "Ural Industrial - Ural Polar" is implemented.

The Tobolsk option is also attractive because in its area it is possible to create a large transport hub at the intersection of the railway, road and large river artery, which is part of the Obsk water transport system, serving an area of about 3 million km (also in the Tobolsk region towards the European part of Russia a number of main oil and gas pipelines). This option is also preferable because it will create a large transport and logistics center to ensure the "northern delivery" and the Salekhard - Igarka - Norilsk polar highway. Another important point is the liberation of the overloaded section of the Tyumen-Yekaterinburg

railway from the traffic flows of the Khanty-Mansi Autonomous Okrug.

Belkomur or Barentskomur?

The western part of the North-Russian Eurasian railway line assumes access to seaports in two directions: Belkomur - to the port of Arkhangelsk and Barentskomur - to the port of Indiga.

There is a long-standing struggle between these areas, today it is unfolding for state investments in projects: in the first case - for the modernization of the Arkhangelsk port complex with the construction of a new large port area (the Dry Sea) and a railway to it with a length of 1251 km (Belkomur project), the second case - on the creation of a new port of Indiga and the construction of two sections of the railway to it, 612 km and 412 km, respectively (the Barentskomur project).

Also, such cities as Yakutsk, Megino-Andan, Ust-Nera, Moma, Ugolnoe, Ust-Oloy, Dachny, Anyui, Amguzma, Ionivey, Uzlen and others. These cities have a huge potential for the production of products in demand for the inhabitants of the Arctic zone. This railway branch will ensure the sustainable development of industrial growth of these cities and regions in which they are located, and this will be followed by the solution of social problems. Presented in Figure 2

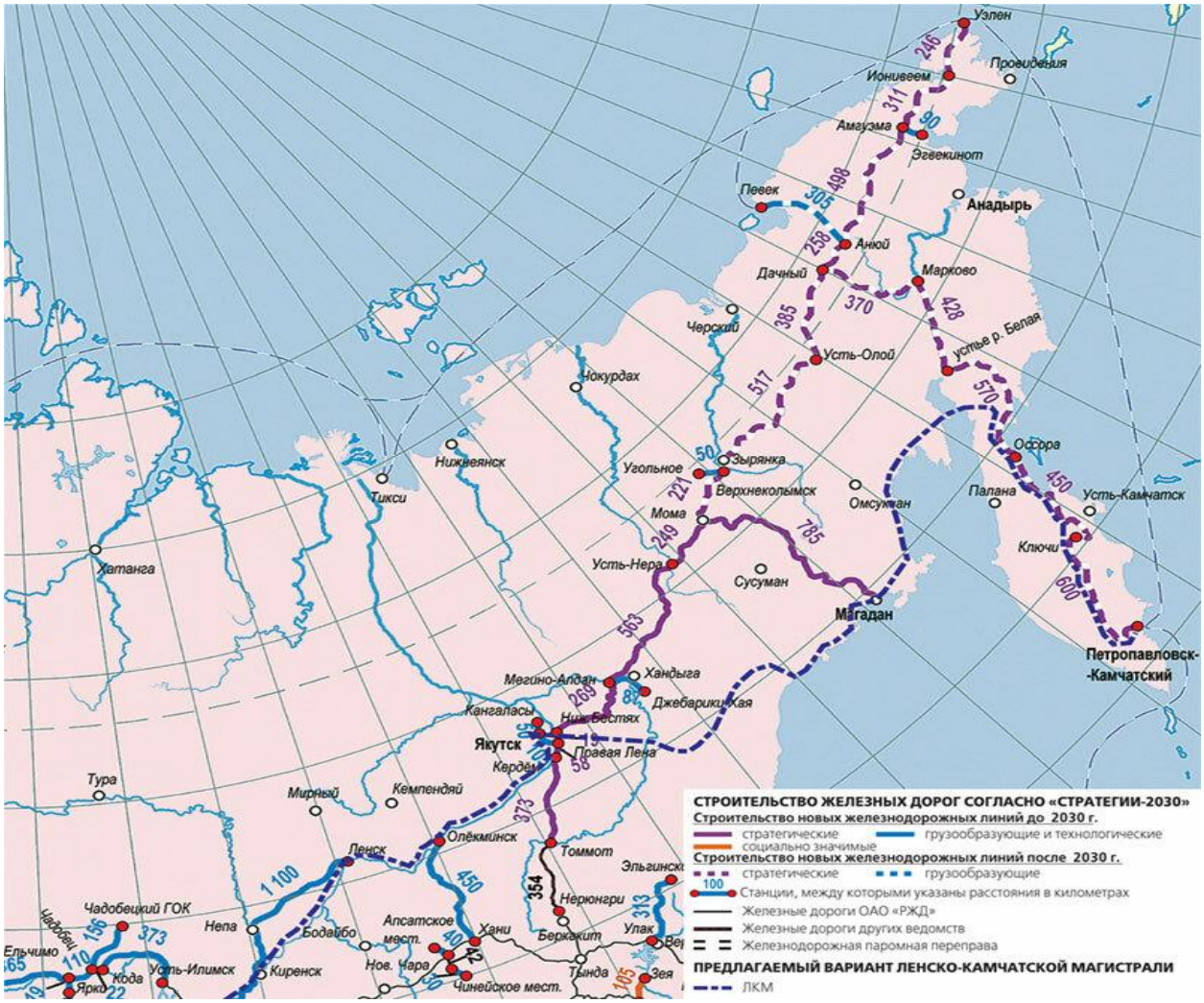

Figure 3 - Construction of railways according to the "strategy 2035"

Which of the projects is the most profitable and promising?

The large-scale development of the Arkhangelsk seaport is hampered by many circumstances. First of all, this is the shallow water of the mouth of the Severnaya Dvina River, in which the port complex is located, which makes it necessary to constantly carry out a large amount of dredging work to maintain fairways and berths. Also, there is practically no possibility of increasing the carrying capacity of accepted vessels - the deadweight limit is 10-12 thousand tons. Although in the planned new area of the port (the Dry Sea), located at the exit from the mouth 60 km from the city, it is possible to

accommodate vessels with a larger carrying capacity - up to 150 thousand tons, but this is associated with large dredging works and the construction of additional transport infrastructure connecting the port with the city.

Another negative factor hindering the significant development of the Arkhangelsk port is the need to provide icebreaker assistance for ships most of the year. The situation is aggravated by the fact that the throat of the passage from the White Sea to the Barents Sea between the Kola Peninsula and the Big Land is filled with ice for most of the year, driven by currents and pushed out from northern rivers. Due to only these two circumstances, the costs of maintaining normal navigation in the Arkhangelsk port are estimated several times higher than in Murmansk and even in the supposed more northern port of Indiga, not to mention the fact that the distance of ice escort from the Arkhangelsk port is about 4 times longer. than from Indiga (about 800 km versus 200 km).

In addition, the development of the Arkhangelsk port is counterproductive for the organization of transportation to the East.

Vice-President of the Komi Republican Association of Independent Experts Vladimir Andrianov, having been engaged in substantiating the logistics of the development of main railways in the European North of Russia since 1971, in co-authorship with well-known transport specialists in the article "Geography to be a strategy" ("Transport of Russia" magazine, April 2009 .) in relation to the Belkomur project, in particular, indicates the following:

“A significant drawback (minus) in the emphasis on the use of Belkomur appears after the revision of the technical condition of the existing railways in the zones Arkhangelsk - Grigorievskaya (Gorkovskaya railway) and Indiga - Polunochnoye. The creators of Belkomur either do not have reliable and complete information, or they deliberately keep silent about some facts. Let's consider them specifically.

The railway line from Arkhangelsk to Karpogory was built as a deliberately low-loaded, dead-end timber transport line. The construction technology and the equipment used at the end of the 40s do not allow using it without cardinal reconstruction. From this it follows that this section of the new railway will have to be built practically from scratch, since over 70 years of its operation, the technical conditions of the main railway construction and operation have radically changed.

Approximately the same obsolete in technical terms are the railway tracks from Vendinga (Ertom), located on the border of the Komi Republic and the Arkhangelsk region, to Mikun station and further to Syktyvkar. These are also dead-end, lightly loaded and technically outdated railways with an undeveloped production infrastructure. In fact, these sites will also have to be rebuilt. "

As a result of the above reasons, the capital investments in the construction of the highway, interpreted by the present developers of the Belkomur project, should be increased by two or three times compared to those currently presented.

Now let's look at the same indicators of the Barentskomur project. In terms of depths, the situation in Indiga Bay is even better than Murmanskaya - the carrying capacity of ships there will not be limited by depths, and the construction of the port will not require significant dredging.

In addition, a section of the coast from Cape Svyatoy Nos (the mouth of the Indiga River) to Cape Barmin or Bolshoy Rumyanichny, over 40 km long, is completely free and suitable for the construction of a giant port of any capacity with a developed port infrastructure. This section is characterized by the elevation of the coastal strip above sea level by 8-12 m, which guarantees its stable operation when the level of the World Ocean is predicted as a result of global warming. Whereas the Arkhangelsk port, along with St. Petersburg and Ust-Luga, is subject to such a threat.

The analysis of ice maps, carried out by ours since 2000, shows that the movement of vessels without icebreaker escort in the western direction is possible 7-8 months a year, in the eastern direction - 4-5 months. The duration of icebreaker navigation in this area is explained by the influence of the warm Gulf Stream and the systematic destruction of ice in the Indiga Bay by tidal energy.

A big plus in favor of Indiga, as already mentioned, is that the distance of delivery of goods by rail from the Urals, Siberia, Kazakhstan, the Far East to this seaport is 350-400 km shorter than to Arkhangelsk (savings on the construction of the railway roads).

Another significant advantage of the Barentskomur over Belkomur is that the organization of export-import operations through the port of Indiga makes it possible to reduce the sea route of ships by 500-600 km to the west and by more than 1000 km to the east. And this significantly reduces the annual transport costs of cargo owners and reduces the investment return on the project.

It is obvious that, in general, Barentskomur is a more profitable and promising project, which, if not today, then in the future, is destined to become the final link of the railway lines - the meridional West Ural and latitudinal North Russian Eurasian. This will ensure a stable connection between the port of Indiga on the Arctic coast and the port of Vanino in the Pacific, as well as many problem regions of the resource type of the Russian North.

Modernization of BAM and Transsib will pay off with interest

In the coming years, Russia needs to “make a real breakthrough in the development of the country's transport infrastructure. Among the priorities is a

large-scale modernization of the BAM and Transsib, increasing their throughput in 2025 to over 200 million tons of cargo per year. " This task was set by President Vladimir Putin in his address on the occasion of the 45th anniversary of the start of construction of the Baikal-Amur Mainline. He expressed confidence that the current generation of railway workers, builders, workers, engineers will be able to adequately continue the work started by their predecessors.

You will have to prove this in practice right now.

Port capacity surplus and infrastructure deficit

Today BAM is almost 4 thousand km of railway lines from Taishet to Sovetskaya Gavan. The highway has about 200 stations and sidings, crosses 11 large rivers and seven mountain ranges. More than 2 thousand bridges have been erected here, 10 tunnels have been built, including the recently built longest in Russia (more15 km) Severomuisky tunnel. The whole country worked on such a large-scale object. “Builders of the highway, new cities and towns, surveyors, railway workers, bridge builders and tunnellers, volunteers, inspired by a common idea, worked for the future, day after day they accomplished a real feat,” V. Putin emphasized.

The entrance to the Severo-Muisky tunnel provides an increase in freight traffic throughout the country.

Now the country is enjoying the fruits of their labor, loading the Far Eastern ports with Siberian products, the turnover of which is growing by leaps and bounds due to the reorientation of business to the market of the Asia-Pacific Region (APR). Since 2008, “the heavily loaded North-West began to lose traffic volumes, which turned 180 and began to load the Trans-Siberian and BAM. The Far East was not ready for such growth, and in just a few years the throughput and carrying capacity reached maximum limit values,” says Pavel Ivankin, chairman of the expert council of the Institute for the Study of Railway Transport Problems.

From 2004 to 2019, the volume of transshipment in the Far Eastern ports actually increased almost 3 times (from 70 million to 200 million tons), and this is far from the limit. But the problem is that further growth will run into the "bottlenecks" of the railroad. Today “we have a surplus of port capacities and a deficit of infrastructure,” concludes Irina Olkhovskaya, Deputy Director General of the Port Management Company.

2017 was indicative in this regard, when the farmers of Western Siberia reaped a record harvest, but faced difficulties in the export of grain. There were simply not enough wagons. Moreover, there is no objective need to drive Siberian grain far away from the congested Azov-Black Sea or Baltic ports, when the Asia-Pacific region with its largest importers (Indonesia, Japan, China, South Korea) is located nearby. Therefore, "it is very promising for us to increase the volume of traffic [to the Far East] by rail," emphasizes the deputy of the Legislative Assembly of the Novosibirsk region Gleb Popovtsev.

The second tempting prospect is to become a key transit link in the Chinese-European trade by land, which, of course, primarily concerns rail container transportation. So far, the dynamics are good here. “A few years ago, we could only assume that almost 600 thousand containers would travel through the territory of Russia. To date, this result has been achieved. We see an additional 30% increase over the previous year,” said Oleg Belozerov, Chairman of the Board of Russian Railways, speaking at the International Railway Congress in Vienna on March 18.

But we cannot stop there. “It is very important for us now that we make the next decision, go forward, continue construction, develop the BAM and Transsib. This will give us work, make it possible to move faster, give a new impetus to the Russian economy,” said the head of the Ministry of Transport Yevgeny Dietrich. By the way, if the composition from China to the EU is full, then in the opposite direction - half empty, which gives additional opportunities to domestic producers.

Conclusion

Let us recall the boundaries of the large-scale modernization of the BAM and Transsib, which were determined by V. Putin - an increase in their throughput in 2025 to the volume of over 200 million tons of cargo per year. To achieve such a result, it is necessary not only to build additional paths, tunnels and junctions, but also to increase the speed of movement. “Containers will be delivered from Vladivostok to the western border of Russia in 7 days,” the president said in his last year's message to the Federal Assembly, and in a May, decree set the task to increase the volume of transit container traffic by 4 times by 2024. Undoubtedly, it will not be possible to do this without a large-scale modernization of the two Siberian railway arteries, but the investments will pay off with interest.

The first stage of the project (2013-2019) worth 562.4 billion rubles. (reduced as a result of the audit to 520.5 billion rubles) provides for an increase in the carrying capacity of the BAM and Transsib in the direction of seaports and border crossings in the Far East to 124.9 million tons (+66.8 million tons to the level of 2012). This year alone, Russian Railways will spend 30 billion rubles on the development of the Eastern Railway Range.

“To increase cargo traffic, it is planned to commission more than 45 kmnew second tracks on the BAM sections. Open traffic on the tracks Lena Vostochnaya - Predlensky and Delbichinda - Daban. It is also planned to carry out the reconstruction of three stations: Vikhorevka, Byronovka and Meget,”

the press service of the East Siberian Railway (ESSD) notes.

True, it will be difficult to meet the specified deadlines due to the accumulated backlog. “At the end of 2018, Russian Railways did not complete a number of facilities. For example, in accordance with the passport of the project "Development of the BAM and Transsib" in 2018, 11 sidings and 78 km of additional tracks were to be built. At the end of the year, only one object was accepted (reconstruction of the roadbed on the section of the western BAM “Khani - Tynda”), ”the Accounts Chamber concluded following the audit. However, the head of Russian Railways O. Belozerov assures that the project will be completed on time.

At the second stage (2020-2024), you need to build 1310 kmadditional main tracks, 32 sidings and the reconstruction of 29 stations, as a result of which freight traffic on the highways will grow to 182 million tons, and by 2025, according to a new presidential order, up to 200 million tons. In total, it is planned to spend about 493.2 billion rubles for these purposes.

Russian Railways has already begun developing design documentation for the construction and modernization of a total of 84 facilities as part of the second stage of modernization of the BAM and Transsib. Particular attention is paid to the 15-kilometer Severomuisky tunnel. Today it can handle only 16 trains per day (22 including the bypass). With a reduction in the interval and an increase in the traction power supply at the mountain-pass section, 27 pairs of trains weighing up to 6300 tons can be reached. This is the maximum, but it is too little. The introduction of digital technologies, for example, the interval regulation of train traffic, which are successfully used on the Moscow Central Circle, can expand the "bottleneck" of BAM by 15-20%.

But only the construction of a new tunnel can fundamentally solve the problem. Moreover, public finance may not even be needed here. “We intend to implement this project at our own expense, and we take all the risks upon ourselves,” said Mikhail Umrikhin, a representative of the Sibanthracite company, and estimated its cost at 60 billion rubles, and the time frame is 5 years.

One way or another, without modern infrastructure, it will definitely be impossible to "sew" the country, to unlock the economic potential of Siberia and the Far East, or to diversify foreign economic relations. In addition, by increasing the capacity of railways, “we will build the largest transport corridor from the Asia-Pacific countries to the EU. Russia will occupy a key place in world transport flows, "Viktor Zubarev, State Duma deputy from the Krasnoyarsk Territory, reasonably emphasizes.

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