DOI 10.22394/1818-4049-2017-78-1-35-43
УДК 332

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Vanino-Soviet-Gavan transport and industrial node: potential forming of the growth pole

The article analyzes operation of the seaports Vanino and Sovetskaya Gavan as a pole of economic growth for the region. The activity of the sea ports of Vanino and Sovetskaya Gavan in the period from 2005 to 2013 is analyzed. The structure of cargo turnover of the seaports of Vanino and Sovetskaya Gavan is studied. The main problems arising from the operation of seaports of Vanino and Sovetskaya Gavan are discussed. The conditions under which the seaports of Vanino and Sovetskaya Gavan can be a growth pole of the economy of the Khabarovsk territory are shown. The estimation of cargo volume, generated in the economic system of the Khabarovsk territory for processing at the sea ports of Vanino and Sovetskaya Gavan is analyzed. Service area of the hinterland of ports (hinterland ports) is determined. Estimation of the relative efficiency of the port infrastructure of the Khabarovsk territory in terms of the ratio "price - volume" is shown. The estimates of import and export of Vanino - Sovetskaya Gavan transport and industrial hub determined the scope and structure of the current cargo base of the Vanino ports and Sovetskaya Gavan, with the release of cargo generated in the economy of the Khabarovsk territory.

Ванино – Советско-Гаванский транспортно-промышленный узел: потенциал формирования полюса роста

В статье анализируется функционирование морских портов Ванино и Советская Гавань как полюс экономического роста для региона. Исследована деятельность морских портов Ванино и Советская Гавань за период с 2005 по 2013 гг. Изучена структура грузооборота морских портов Ванино и Советская Гавань. Выделены основные проблемы, возникающие при работе морских портов Ванино и Советская Гавань. Выявлены условия, при котором морские порты Ванино и Советская Гавань могут являться полюсом роста экономики Хабаровского края. Выполнена оценка объема грузов, генерируемых в экономической системе Хабаровского края для переработки в морских портах Ванино и Советская Гавань. Определена зона обслуживания внутренних районов (хинтерланд) портов. Выделены основные этапы эволюции портов. Дана оценка сравнительной эффективности функционирования портовой инфраструктуры Хабаровского края с точки зрения соотношения «цена – объем». Получены

оценки ввоза-вывоза Ванино – Советско-Гаванского транспортно-промышленного узла. Определены объем и структура текущей грузовой базы морских портов Ванино и Советская Гавань с выделением грузов, генерируемых в экономике Хабаровского края. Делается вывод, что *порты Ванино и Советская Гавань в настоящее время не являются полюсом роста в экономике Хабаровского края.*

Keywords: *the Khabarovsk territory, seaports, Vanino, Sovetskaya Gavan, growth pole, cargo handling.*

Ключевые слова: *Хабаровский край, морские порты, Ванино, Советская Гавань, полюс роста, грузооборот.*

The relevance of regional studies in the port sector of the Khabarovsk territory is predetermined by the implementation of a post-reform, which involves the involvement of large private investment in this sector of the economy. Further prospects for the development of the seaports of Vanino and Sovetskaya Gavan will primarily be connected with the project "Free Port of Vanino", which will later spread to the port of Sovetskaya Gavan. The main idea of the project is the development of industrial exports based on the potential of the Khabarovsk Territory. It is expected that its implementation will rewrite the economy of the Khabarovsk Territory.

The modern view of the development of seaports is based on the concept that the port is the pole of economic growth for the region in which it is located, which is based on its implementation of an integral logistic and transport-production function in the system "production - transportation - income". There is a close interaction between the port and the region. The seaport is transformed into a transport-industrial hub, forming a port region as a large industrial complex. At the same time, the new concept does not give a detailed answer to the question of the extent to which the development of seaports is the pole of growth in the regional economy [9].

At the same time, the implementation of the project "Free Port of Vanino" meets many difficulties, some of which are related to general macroeconomic and institutional problems in Russia. Do not forget that this kind of project was not realized in the recent past at the seaport of Sovetskaya Gavan (PSEZ Sovetskaya Gavan). Therefore, it is necessary to determine whether there are real prerequisites for the formation of the aforementioned interaction between the port complex and the regional economy, which are objectively capable of giving the desired result in solving the macroeconomic and institutional problems that make up the external background for this project. This will determine the assessment of the feasibility of the development strategy, both Khabarovsk Territory itself and in a large part of the entire Far Eastern region.

All these conditions make it necessary to direct the study to determine the real relationships between the economy of the region and seaports, as well as to find the answer to the question: "Are the seaports of Vanino and Sovetskaya Gavan

the pole of growth in the regional economy?" For this it is necessary to obtain the following estimates:

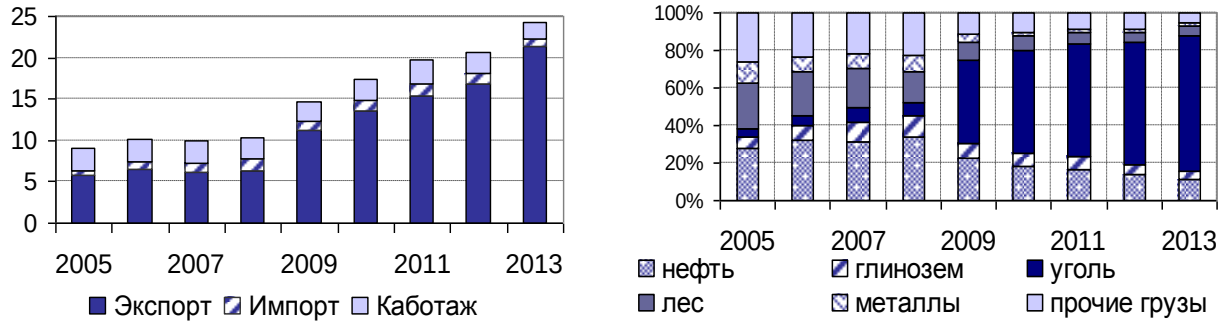
- Evaluate the comparative efficiency of the port infrastructure of the region in terms of price-to-volume ratio;
- Obtain estimates of the import-export of Vanino - the Soviet-Havana transport-industrial hub;
- To determine the volume of cargo generated in the economic system of the Khabarovsk Territory for processing in the seaports of Vanino and Sovetskaya Gavan.

ANALYSIS AND EVALUATION OF THE PRESENT STATE

The study of the real relationships between the economy of the region and the seaports of Vanino and Sovetskaya Gavan is based on an analysis of cargo flows, as it reflects the transport and economic links between industries and regions [6].

The starting point for the study of the modern period should be considered 2005, when the Program for the Complex Development of the Vanino-Soviet-Havana Transport and Industrial Hub (SSGTPU) was established. Its main goal is to increase the competitiveness of the transport system in the region, increase the volume of cargo, as well as the development of infrastructure facilities. The economic of the Khabarovsk Territory at that time was aimed at active involvement in the process of foreign trade cooperation. It was planned to create not only a stable participation in the world economic cooperation with the Northeast Asia and the APR as a whole, but also to support a certain scale of these ties in relation to the general economic potential of the territory economic complex [10].

Under this program, in 2008, a 12 million-ton coal terminal was put into operation in the Vanino seaport. As a result, the cargo turnover of the Vanino and Sovetskaya Gavan ports increased 2.7 times and in 2013 amounted to 24 million tons, figure 1 (a). Thus, there was a refraction of the negative trend of the 1990s, during which the ports lost their turnover annually. But along with the intensive growth of cargo turnover, the structure of export cargoes has changed significantly, figure 1 (b). So, if in 2005 the largest share in exports was made by metals (24%), timber (22%) and petroleum products (18%), then in 2013 - coal (85%).



a) in the direction, mln t

b) export by type of cargo,%

Fig. 1. Dynamics of cargo development in the ports of Vanino and Sovetskaya Gavan

It was assumed that the construction of the coal terminal will ensure the development of the port area, create additional workplaces, as well as improve the competitiveness of the port of Vanino. However, the implementation of the coal project almost immediately reflected the "bottlenecks" - the terminal built in the conditions of a shortage of the railway carrying capacity led to a decrease in cabotage (by 7%), figure 1 (a). In view of the complexity of the passage of goods by rail, inconsistencies between the ports and the railway began to be sent primarily to the contracted supply of coal to the APR countries. Part of the cargo (timber, ore, mineral fertilizers) began to be sent to the seaports of the Primorsk territory. As a result, the "coal curse" of the port of Vanino has made it dependent on changes in the global conjuncture of the fuel and energy resources market. In addition, with the technological development of the port of Vanino, the number of jobs decreased by 33%, and the ecology of the adjoining territory and the water area of the Vanino seaport [11] also deteriorated.

Thus, a situation has developed in which the coal specialization of the Vanino seaport provided a significant increase in freight turnover in physical terms - 2.7 times. At the same time, as experts say, the situation in Russian exports in recent years can be assessed in two ways. On the one hand, there is a positive dynamics of the physical volume of exports, and on the other hand, a reduction in the value of exports [12]. But it is well known that in official statistics there are no value indicators of cargo turnover of seaports [8].

The author of the study performed an assessment of the comparative efficiency of the port infrastructure of the Khabarovsk territory in terms of the "price-to-volume" ratio. A methodical approach to the valuation of the cost parameters of cargo turnover of the seaport was developed [4]. For convenience of calculation the cargo turnover of ports is classified into 4 types: raw materials, materials, semi-finished products and equipment. In the opinion of the author, this classification is closest to the structure of the cargo base Ports. In addition, it is most optimal, because it is characterized by the properties that are manifested in the manufacture and use of goods (raw materials, materials and finished products) [13].

In order to evaluate the cost parameters, all cargoes are listed at 2013 prices. When recalculating prices, the product structure was divided into: mining and processing industries. This makes it possible to compare the volume and dynamics of seaports with similar indicators of other branches of the regional economy and allows us to assess the contribution of the industry to the creation of national income and the aggregate of the social product.

According to the given classification, the cargo turnover of Vanino and Sovetskaya Gavan ports was as follows: raw materials - 78%, materials - 12%, semi-finished products - 3%, equipment - 0.2% and other goods - 2.3% (In 2013), rice-2. The largest growth was made by raw materials - 78% (over the eight-year period their share increased by 49%). At the same time, materials were significantly reduced (36% in 2005, 16% in 2013).

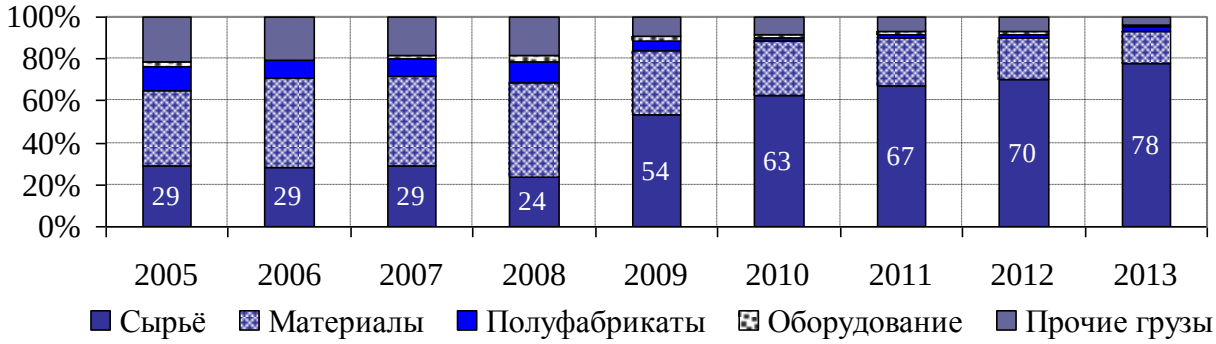


Fig. 2. Structure of cargoes of the sea ports Vanino and Sovetskaya Gavan, million tons

At the same time, the results of the "price-volume" calculations showed the following. Exports are characterized by a 3.1-fold increase in cargoes by natural indicators (2005: 6.5 million tons, 2013: 20.0 million tons) and a slight increase in value indicators, by 1.4 times (2005 - 38.9 billion rubles, 2013 - 52.9 billion rubles.), Table 1. This decline is due to the change in the structure of exports: the growth of coal (raw materials) and simultaneously a decline in metal products (semi-finished products). Exports of Siberian coal increased from 0.2 million tons to 17 million tons, or from 254 million rubles. Up to 16.1 billion rubles.

Imports decreased by 1.9 times in natural and value terms, Table 1. The reason for this reduction is the crisis, which affected individual commodity groups. Thus, in particular, the growth of the dollar to the ruble led to a reduction in equipment. At the same time, the turnover of alumina (materials) remained at the same level, therefore, as the contracted supplies are intended for aluminum plants in the Siberian region (Khakassia and Bratsk factories).

The volume of cabotage cargo in value terms increased by 1.4 times, and in physical terms remained practically unchanged - 0.9 times. At the same time cabotage is characterized by the predominance of transportation of materials and semi-finished products, mainly coming to the regions of Magadan and Kamchatka. Within the framework of the program "Ensuring the North Delivery", supplies of combustive-lubricating materials (materials) were reduced. This state of affairs is explained by the change in the scheme for the rates of fuel and energy cargo.

Table 1

Correlation of the industrial structure of cargoes of the ports of Vanino and Sovetskaya Gavan

Направление / Продукция	**Млн. руб.**				**Тыс. т**			
	2005	**2009**	**2013**	***2013/ 2005***	**2005**	**2009**	**2013**	***2013/ 2005***
ВСЕГО	290 516	4 389 897	515 025	***1,8***	7 937,0	13 410,0	21 811,0	***2,7***
Экспорт	38 903	74 879	52 904	*1,4*	6 532,0	11 791,0	20 037,0	*3,1*
Сырье	4 861	9 274	19 568	***4,0***	2 533,0	7 747,0	18 551,0	***7,3***

Материалы	22 754	57 762	31 100	*1,4*	2 197,0	2 842,0	1 268,0	*0,6*
Полуфабрикаты	11 288	7 843	2 236	*0,2*	1 802,0	1 202,0	218,0	*0,1*
Импорт	224 348	4 273 469	424 351	*1,9*	537,0	1 156,0	997,0	*1,9*
Материалы	200 536	4 264 750	414 831	*2,1*	527,0	1 152,0	994,0	*1,9*
Полуфабрикаты	52	504	0,0	*0,0*	0,1	0,8	0,0	*0,0*
Оборудование	23 760	8 215	9 520	*0,4*	10,0	3,0	3,0	*0,3*
Каботаж	27 265	41 549	37 770	*1,4*	868,0	463,0	777,0	*0,9*
Сырье	90	84	133	*1,5*	105,0	120,0	96,0	*0,9*
Материалы	8 826	11 868	19 546	*2,2*	644,0	253,0	592,0	*0,9*
Полуфабрикаты	1 813	3 429	1 682	*0,9*	101,0	71,2	69,0	*0,7*
Оборудование	16 536	26 168	16 409	*1,0*	18,0	19,0	20,0	*1,1*

Based on the estimates received, the following conclusion can be drawn: the cargo turnover of the Vanino and Sovetskaya Gavan seaports by natural indicators is developing at a more intensive rate (2.7 times) than in value (by 1.7 times). Having put the value and natural indicators of export cargoes, it can be concluded that according to natural indicators, the largest share falls on raw materials (coal), and in terms of value - materials (oil products).

At the same time, according to preliminary calculations, in 2013, one ton of processed cargo in the ports of Vanino and Sovetskaya Gavan generated revenue for: raw materials - 14.6 thousand rubles; Materials - 325.4 thousand rubles; Semiproducts - 58.7 thousand rubles; Equipment

The share - 1,6 thousand rubles. It follows that the most economically effective types of cargo for the sea ports of Vanino and Sovetskaya Gavan are the materials.

At the same time, a significant increase in cargo turnover of ports (2.7 times) did not create the same increase in tax revenues from cargo handling. According to the calculations, for the 8-year period the volume of tax revenues from cargo transshipment increased only 1.6 times (2005 - 31.1 million rubles, 2013 - 55.2 million rubles).

It follows that the construction of the coal terminal ensured a stable loading of the port of Vanino, but at the same time did not create the expected economic effect for the economy of the Khabarovsk Territory.

Combining the received price-volume estimates of the Vanino and Soviet Harbor ports with estimates of the import and export of the Khabarovsk Territory (the work was carried out earlier [5, 3, 7]), estimates were obtained for the import and export of Vanino-Soviet-Havana transport and industrial Node (SAGTU). The results of calculations showed the following. The volume of cargo generated in the VSGTPU system in 2005 amounted to 18.6 million tons (379 billion rubles), in 2013 - 30.2 million tons (674 billion rubles), figure 3. However, in 2013 (8 billion tons) cargo of the Khabarovsk Territory, including: export - 3,7 million tons (50 billion rubles), coastal - 4,9 million tons (28 billion. T), figure 3 (b). While in 2005, the WSSHTU accounted for 10.8 million tons (88 billion rubles.), Of which: export - 8.0 million tons (57 billion rubles), coastal - 2.8 million tons (31 billion tons), figure 3 (a).

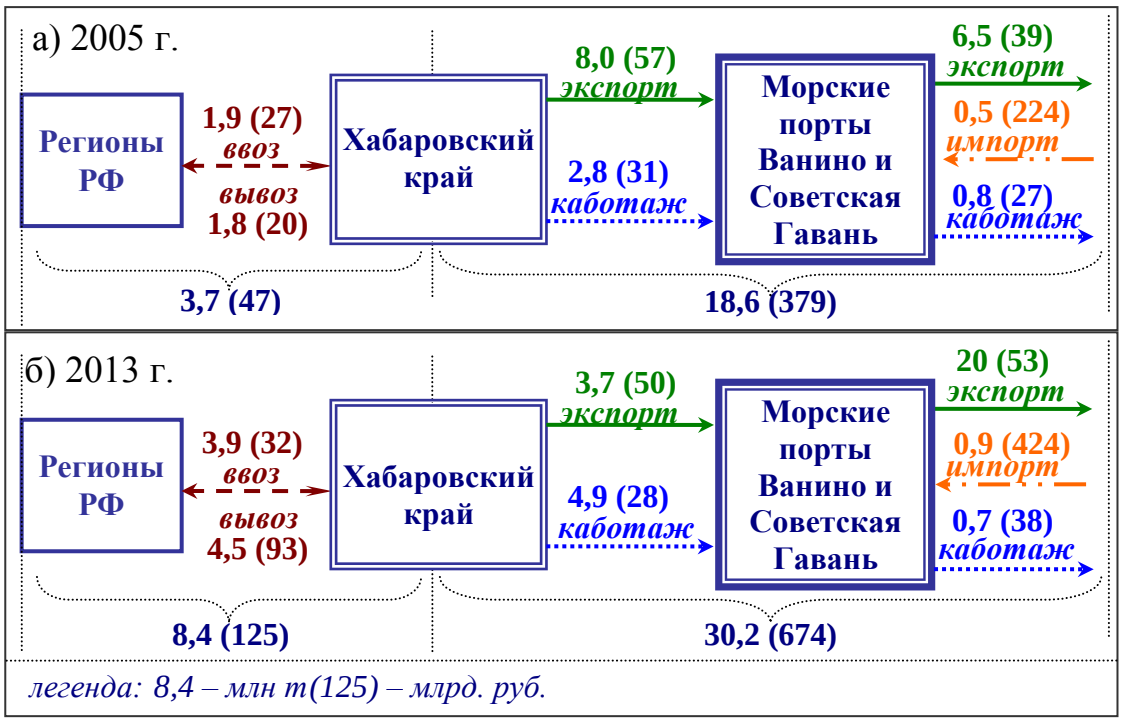
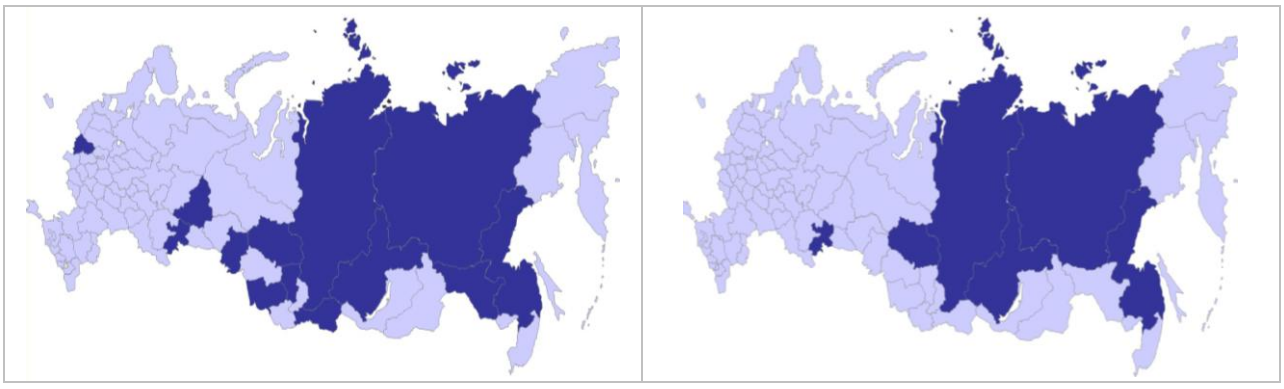


Fig. 3. System of interrelations of the Vanino-Soviet-Gavan transport-industrial unit

An analysis of the service area of the seaports of Vanino and Sovetskaya Gavan showed that the export cargoes are being formed in the regions of Siberia and are directed mainly to China, R. Korea, Japan, Vietnam, Taiwan and the USA. The cabotage cargoes are mainly formed in the Far East and are sent to the Northern macro district of the Khabarovsk Territory. In accordance with the size of the service area are allocated relatively small local areas - Ayano-May, Tuguro-Chumikansky and Okhotsk.

For coastal and export destinations, there is a decrease in the interacting regions, with the seaports of Vanino and Sovetskaya Gavan. So, if in 2005, the formation and dispatch of goods was carried out from ten regions, then in 2013 from seven regions, figure 4. It follows that distance remains a strong factor in the cargo flow of the seaports of Vanino and Sovetskaya Gavan, which contradicts the statement of Klink V. "The boundaries of the seaport are blurred as it develops technologically" [14].



a) Export of 2005	b) Export of 2013
 - the region does not interact with seaports	
 - the region interacts with seaports	

Fig. 4. Geography of export of seaports Vanino and Sovetskaya Gavan

Assessment of the development stages of the ports of Vanino and Sovetskaya Gavan showed the following. The first stage of port development was due to the formation of the Vanino Port in 1943. The structure of the cargo traffic of ports was determined by the economy of the serviced area. The port of Vanino served as the base port for Magadan, Sakhalin, Kamchatka and the Kuril Islands, carrying out the accumulation and shipment of the main bulk cargo. The port point Sovetskaya Gavan at that time had no mechanization-Berths and acted as a transshipment point of local importance. The technological chains of ports are represented by separate transport lines. Technologies for cargo handling in ports have practically not been improved, since port facilities, rather than port functions, have developed. Thus, Vanino and Sovetskaya Gavan correspond to the ports of the 1st generation [2], figure 5.

The second stage in the development of the ports of Vanino and Sovetskaya Gavan was due to the economic development of the BAM zone. As a result, the capacity of the Vanino port was determined by the economy of the Khabarovsk Territory and the economic zone of the Baikal-Amur Mainline. The Vanino-Kholmsk ferry link is added to the main shipping lines of the port. The main functions of the ports of Vanino and Sovetskaya Gavan are added to industrial activities in connection with the construction of shipyards "First" and "North". Thus, in 1990, the ports of Vanino and Sovetskaya Gavan belong to the ports of the second generation. The third stage of the development of ports is connected with the economic transformations of the 1990s. As a result of the systemic crisis in the ports of Vanino and Sovetskaya Gavan, the economic structure deteriorated: the ship repair of the First and Severny enterprises practically disappeared. The lack of stable links affected the work of the ports. Their turnover decreased by 20% and amounted to 9 million tons. Thus, as of 2004, the ports of Vanino and Sovetskaya Gavan corresponded to the ports of the second generation.

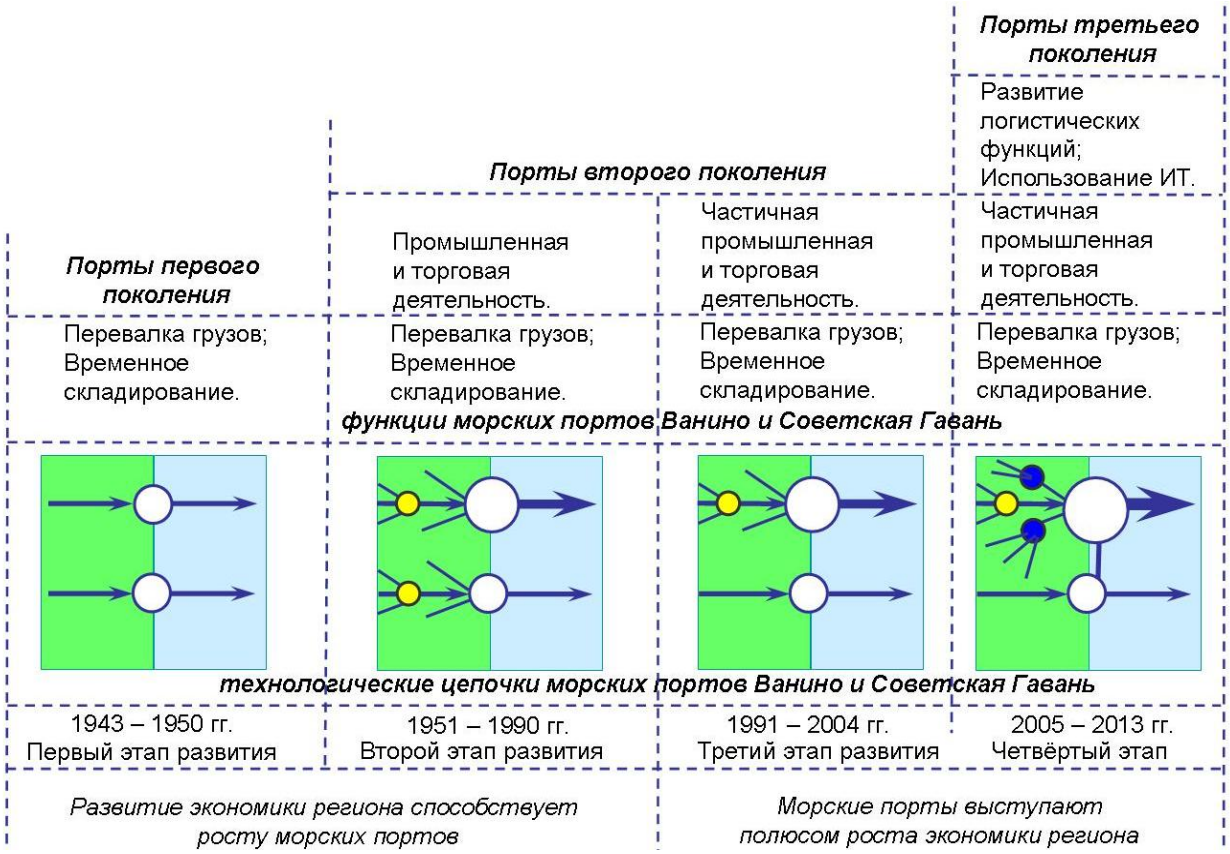


Fig. 5. Stages of development of the ports of Vanino and Sovetskaya Gavan

The fourth stage was marked by the implementation of the HSBCAP project. As a result, there was a break in the negative trend of the 1990s, during which the ports lost their turnover annually. At the same time, the fourth stage from the previous one is distinguished by a change in the structure of the cargo base and a reduction in the distances to the interior of the continent. There is a centralization of port activities in the port of Vanino, which forms a cargo center system. In the port of Vanino, there are enterprises for the production of petroleum products and sawnwood, port technology is being improved through the purchase of imported machinery. The port of Sovetskaya Gavan performs basic functions for transshipment of goods. Thus, the port of Vanino partially belongs to the ports of the third generation, the port of Sovetskaya Gavan to the ports of the 1st generation.

In general, over the 8-year period, the volume of cargo generated in the economic system of the Khabarovsk Territory for processing at the seaports of Vanino and Sovetskaya Gavan increased 1.6 times and in 2013 amounted to 38.6 million tons, which Is 45% of the total volume of transport by all types of transport in the Khabarovsk Territory. Of these, the sea ports of Vanino and Sovetskaya Gavan account for 2/3 of the cargo. In fact, this means that the WSSAU is a medium-sized territorial production complex, while the seaports of Vanino and Sovetskaya Gavan do not belong to the category of cargo centers important in geopolitical terms.

The calculations carried out by the author to determine the volume of cargo generated in the Khabarovsk Krai economic system for processing at the seaports

of Vanino and Sovetskaya Gavan showed the following results. The cargo of the Khabarovsk Territory passing through the seaports of Vanino and Sovetskaya Gavan in 2013 makes up a small share in the GRP of the Khabarovsk Territory - 5.4% and at the same time form an insignificant share in the work of seaports - 7.6%, the table 2. At the same time, since 2005 the share of regional cargo load has decreased from 30% to 8%.

The most profitable types of cargo are materials (oil cargo). Their annual shipments guarantee the loading of the seaports of Vanino and Sovetskaya Gavan and provide a stable income from transshipment. Materials constitute a significant share in value terms (4.1%) and a relatively small share in physical terms - 2.4% of the total volume of processed goods. This circumstance indicates that materials can become the subject of stable links between industrial production and seaports in the Khabarovsk Territory.

Table 2

Share of involvement of seaports in the economy of Khabarovsk Krai

Направление / Продукция	**Доля стоимости отгруженной продукции отраслей в ВРП Хабаровского края, %**			**Доля отгруженной продукции по натуральной величине в общем грузообороте портов, %**		
	2005	**2009**	**2013**	**2005**	**2009**	**2013**
Всего	8,1	6,0	5,4	30,1	13,5	7,6
Лесопродукция (сырье), всего	1,1	0,02	0,7	24,5	9,32	4,5
Нефтепродукты (материалы), всего	2,3	5,2	4,1	5,4	3,4	2,4
Металлопродукция, (полуфабрикаты), всего	0,04	0,8	0,6	0,2	0,8	0,7

Along with this, in the export of cargoes of the Khabarovsk Territory, there is a decrease in the range of products produced (8 products in 2005, 5 in 5 items). While the industrial structure of the Khabarovsk Krai industry totals more than 200 different types of products for the production and technical use of non-food products [1]. From this it follows that the internal growth potential of the cargo of the Khabarovsk Territory, processed in the seaports of Vanino and Sovetskaya Gavan is great, but it is used poorly.

CONCLUSION

Summarizing the estimates obtained, we can draw the following conclusion. Firstly, the cargo turnover of the seaports of Vanino and Sovetskaya Gavan by natural indicators develops more intensively than in the value terms. The largest share in terms of natural indicators falls on raw materials (coal), and in terms of value - materials (oil products). At the same time, the growth of cargo turnover of raw materials in 2.7 times created an increase in tax revenues from cargo handling by only 1.7 times. It follows that the construction of the coal terminal ensured a stable loading of the port of Vanino, but at the same time did not create the expected economic effect for the economy of the Khabarovsk Territory.

Secondly, the volume of cargo generated in the HSGTPU in 2013 amounted to 30 million tons, accounting for 45% of the total transport volume by all types of transport in the Khabarovsk Territory. At the same time, the ports of Vanino and Sovetskaya Gavan account for 2/3 of the cargo passing through the Khabarovsk Territory. In fact, this means that the VSGTPU is the medium-scale territorial production complex of the Khabarovsk Territory, and the seaports of Vanino and Sovetskaya Gavan do not belong to the category of cargo centers of geopolitical importance.

Third, the most profitable marginal goods are materials (oil cargo). Their annual supplies guarantee the loading of the seaports of Vanino and Sovetskaya Gavan and provide a stable income from transshipment. Materials constitute a significant share in value terms (4.1%) and a relatively small share in natural terms - 2.4% of the total volume of processed goods. This circumstance indicates that materials can become the subject of stable links between industrial production and seaports of the Khabarovsk Territory.

Consequently, the seaports of Vanino and Sovetskaya Gavan are not a growth pole in the region's economy.

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