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transit-transport potential; international transport corridor;
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KEY DEVELOPMENT FACTORS OF THE TRANSIT AND TRANSPORT POTENTIAL OF KAZAKHSTAN

Summary. Nowadays, the Republic of Kazakhstan is dynamically forming up its transit policy, improving its directions and the development of new vectors. This article looks into the development of the transit and transport potential of the Republic of Kazakhstan. It presents the main conclusions on the development of a feasibility study for the construction of a logistics terminal in the seaport of Lianyungang (China) as one of the directions of building transit policy, improving its direction and the formation of new vectors. The urgency of building a logistics terminal is conditioned by the necessity for national interests and further expansion of political and economic advantages of Kazakhstan.

КЛЮЧЕВЫЕ ФАКТОРЫ РАЗВИТИЯ ТРАНЗИТНО-ТРАНСПОРТНОГО ПОТЕНЦИАЛА КАЗАХСТАНА

Аннотация. Сегодня Республика Казахстан находится в процессе активного выстраивания своей транзитной политики, совершенствования ее направлений и формирования новых векторов. В статье рассматриваются вопросы развития транзитно-транспортного потенциала Республики Казахстан. Представлены основные выводы по разработке ТЭО строительства логистического терминала в морском порту Ляньюньган (КНР) как одного из направлений выстраивания транзитной политики, совершенствования ее направлений и формирования новых векторов. Актуальность строительства логистического терминала продиктована необходимостью реализации национальных интересов и дальнейшего наращивания политических и экономических преимуществ Казахстана.

1. INTRODUCTION

Transit potential is a combination of internal and external factors and conditions that define the possibility of the state rendering services of international transit through its territory. Kazakhstan's advantageous location in the heart of the Eurasian continent has identified an important course of the country's economic development. Today, the projects aimed at efficient use of the transit and transport potential of the country are successfully implemented by the modernisation and construction of international transit corridors, bringing them into compliance with international standards [1]. One-third of the modern Silk Road, which is a part of the colossal transnational project "Western Europe-

Western China", will be run across the territory of Kazakhstan—almost 3000 kilometres—and promises to become the most important component of the transport infrastructure [2].

Taking into account the advantages of the transit route from China and other South-East Asian (SEA) countries to Europe across Kazakhstan (increase in the travel rate compared to the sea route through the Suez Canal and the reduction in transportation costs compared to air travel), there is a real opportunity to redirect a part of the cargo flow from the sea and air transport to railway transport and to increase the flow through the territory of Kazakhstan.

Before we consider the basic ways of development of the transit and transport potential of Kazakhstan, it is necessary to analyse the current situation in the transport sector and reflect the factors that influence the state of the cargo transportation in transport infrastructure. The transport infrastructure must ensure the necessary conditions for the functioning and development of the basic industries and to ensure the most efficient use of the economic and industrial potential [3].

2. NEW SILK WAY ROAD

The international transport corridor of the Trans-Asian Railway (TARM) operating nowadays passes through the territory of Kazakhstan in the following directions:

-Dostyk-Aktogay-Sayak-Mointy-Astana-Petropavlovsk (Presnogorkovskaya)

-Dostyk/Horgos-Aktogay/Zhetygen-Almaty-Shu-Arys-Saryagash and on.

Particularly, on the territory of the Republic, there are 6 railway, 6 road and 4 air corridors that are defined and recognised by the international community. At the end of 2012, it became possible to transport goods from China, Japan, Korea and South-East Asia to the CIS countries and Europe by the additional route due to the opening of a second border railway crossing, Altynkol-Horgos; the part of that on the territory of Kazakhstan is Altynkol-Almaty-Arys-Kandyagash-Aksaraiskaya (Ozinki). Thus, Dostyk-Alashankou and Altynkol-Horgos crossings, located on the border with China, are currently functioning as parts of the Trans-Asian land transport corridors and service the Europe-China-Southeast Asia, Central Asia-China-Southeast Asia cargo flows.

According to [2], the strategic goals of transit-transport potential include:

- priority development of a transport and communication complex capable of fully meeting the needs of the economy and the population in transport services;
- formation of the most advanced transport system facilitating the effective implementation of the transit possibilities of the country and to minimise transport costs.

Based on these goals, the strategic priorities in the development of the transit-transport potential are:

- creating competitive international transport corridors;
- the growth of the transit potential of Kazakhstan through the effective use of a flexible tariff policy as well as through the improvement of the transportation quality and the provision of a comprehensive package of services for goods transportation;
- more efficient transport use by introducing new resource-saving technologies, the development of safe and human-oriented transport systems, good from an environmental point of view;
- the attraction of investments into the development of alternative routes, the further development of infrastructure, the introduction of new management systems based on the use of information technology;
- strengthening of the position of Kazakhstan in the international scene through bilateral and multilateral agreements in the transport sphere.

3. GOODS TURNOVER

The dynamics of the volumes of transported cargo of the joint stock company (JSC), the National Company Kazakhstan Temir Zholy, through the Dostyk-Alashankou and the Altynkol-Horgos border crossings, are presented in Fig. 1 [2].

A significant part (more than 30%) of the total volume of transported cargo falls in the Chinese direction; export is 11-12% on average of the total volume, import is 16-17%, and transit is about 30%. The current increase in the transportation volume is due to increase in volumes of export and import exchange between the countries of Central Asia and Southeast Asia. The cargo transportation is performed by sea from the ports of Southeast Asia to the ports of China to further way out to the home-base rail network in the Trans-Asian Railway (TARM), beginning on the Pacific coast of China in the Lianyungang port.

This corridor crosses the territory of China in the east-west direction and goes across the rail networks in Kazakhstan, Russia and other CIS countries to come to Europe. The total length of the route from the port of Lianyungang to the West European borders is about 10,000 km, out of which more than 4,000 km is on the territory of China, 2,783 km (through the Altynkol border crossing and junction place with Russia in Iletsk) and 3,025 km (through Dostyk and the Iletsk border crossing) are on the territory of Kazakhstan. The competitiveness of the given route is the fact that it reduces the transportation distance compared to the sea route.

The cargo from Kazakhstan is delivered to the border railway crossings with China (Dostyk-Alashankou and Altynkol-Horgos) where the technological operations of changing from the broad-gauge railway of 1,520 mm to the narrow gauge of 1,435 mm are carried out. After all necessary operations, the cargo follows further by railway on the territory of China to the port of transshipment. The transshipment of goods to and from Southeast Asian countries, Japan, Korea, and Australia are mainly carried out in the Chinese ports of Lianyungang, Tianjin, Qingdao and Shanghai. The largest share of the total cargo flow is accounted for in the port of Lianyungang, which is explained by a relatively unloaded infrastructure. Lianyungang is the first (TEU) among Jiangsu ports, the ninth among the largest ports in China, and the twenty-third among the largest ports in the world. The port of Lianyungang is one of the twelve regional hub ports and one of the three major ports in the port cluster in the Yangtze River Delta [4].

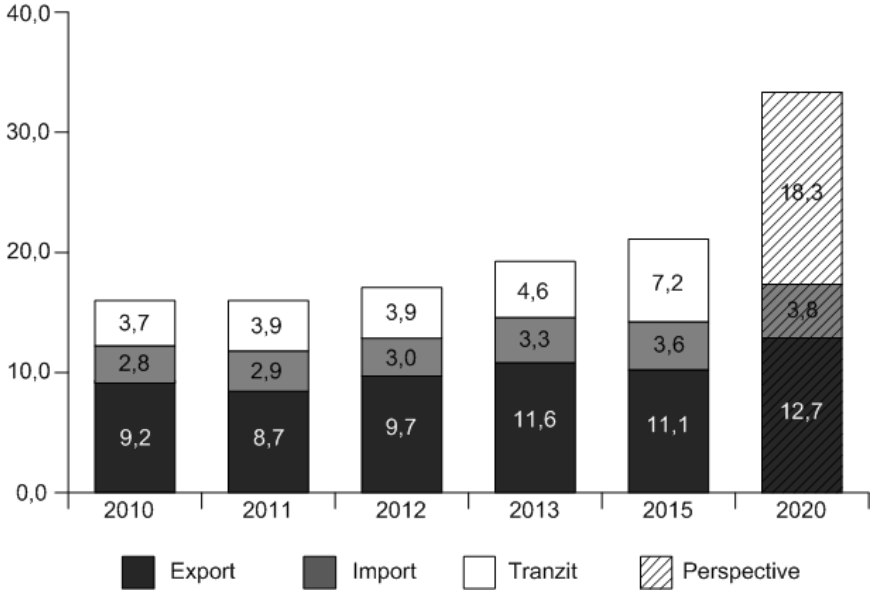

Fig. 1. Dynamics of cargo transportation by railway through Kazakhstani-Chinese Dostyk-Alashankou and Altynkol-Khorgos border crossings on transportation modes, mln. tons

Рис. 1. Динамика железнодорожных перевозок грузов через казахстанско-китайские пограничные переходы Достык-Алашанькоу и Алтынколь-Хоргос по видам сообщения, млн. тонн

Thus far, a lot of work has been done in the development of the transit-transport potential of the Republic of Kazakhstan.

First of all, it is important to mention the beginning of a large-scale project, the New Silk Road. In 2012, at the Foreign Investors Council meeting, the President of the Republic of Kazakhstan, N.A.

Nazarbayev declared, "Kazakhstan must revive its historical role and become the largest business and transit hub of the Central Asian region, a bridge between Europe and Asia." Thus, Kazakhstan by 2020 aims to become a major international transport and logistics hub in the Eurasian territory (Fig. 2) [5, 10].

The improvement of the transport infrastructure of the Trans-Asian route is a real step in the gradual increase of the competitiveness of the transport complex of Kazakhstan in the Eurasian part of the network of international transport routes. The port Lianyungang is linked with a number of the ports of Southeast Asia, Japan, Korea, and the opening of the terminal at the port will help Kazakhstan develop logistics services, consolidate cargo flows to, from and through the Republic of Kazakhstan to and from countries of the Pacific region, and expand its customer base. Having and exploiting its own terminal, Kazakhstan has a chance to make a profit as a transit country between the Pacific region and Western Europe.

In 2013, an agreement was signed between the JSC, NC Kazakhstan Temir Zholy, and the People's Government of Lianyungang on the technical and economic feasibility study for the construction of a logistics terminal in the port of Lianyungang. The feasibility study was developed by Group Ltd. The Third Railway Survey and Design Institute Group Corporation (TSDI) from the Chinese part and the JSC, Kazakh Academy of Transport and Communications, named after M. Tynyshpayev (KazATC) from the Kazakhstani part [2].

The necessity of this project is determined, firstly, by the opportunity it presents to use transit to the fullest extent. Secondly, its location on a "trade artery" is very beneficial for our country. Kazakhstan has all the conditions and prerequisites to replicate the success of this trade route. Of course, the conditions and goods have changed over time, but the requirements for transportation—speed, service, cost, safety and stability—have not changed. Kazakhstan has no access to the open sea, so it is important for the country to have access to a major trade route. As a result of the project implementation by 2020, the transit flows across Kazakhstan from Southeast Asia to the West, and from Europe to Central Asia will almost double.

A key role in the implementation of strategic projects for supply chains involving various modes of transport is assigned to the National Company Kazakhstan Temir Zholy [6]. As the main coordinator of the national transport system development, the NC Kazakhstan Temir Zholy is now working hard to improve the efficiency of the country's transit potential. It is necessary to note the foundation of the company KTZExpress on the basis of NC Kazakhstan Temir Zholy. The task of it is to coordinate the traffic flow at all levels [6]. The market appearance of the company will dramatically change the philosophy of managing the transport business in Kazakhstan from competition between modes of transport within the country to competition with global transportation companies at the international level. The primary role of the new transport and logistics concept is given to railway transport.

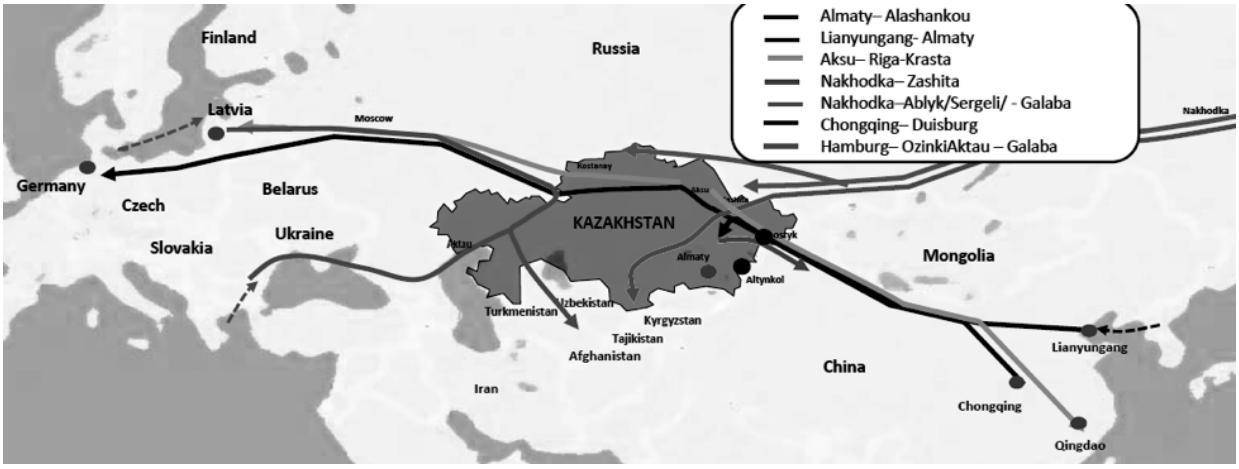

Fig. 2. Map of the strategic positioning of Kazakhstan
Рис. 2. Карта стратегического позиционирования Казахстана

According to the forecasts presented in the feasibility study, cargo flow in the direction to and from Southeast Asian countries through the port of Lianyungang upon the implementation of the construction of the terminal will increase by more than 5 times by 2020 and more than 13 times by 2030 (from the level of 2012). This is graphically presented in Fig. 3 [5].

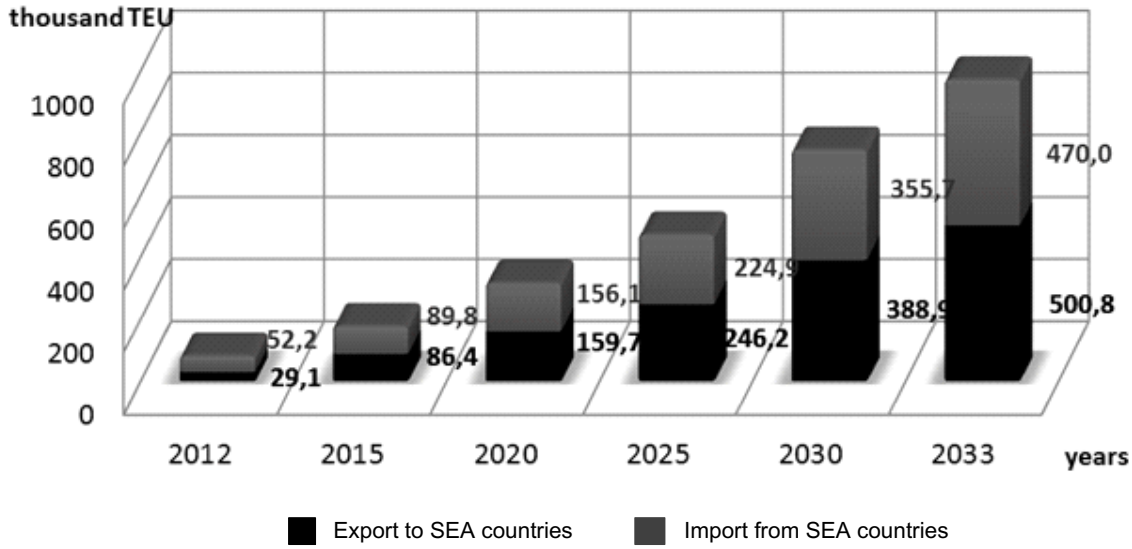

Fig. 3. Estimated volumes of container flow (thousand TEU) through the terminal in the port of Lianyungang by 2033

Рис. 3. Прогнозные значения объемов контейнерного потока (тыс. TEU) через терминал в порту Ляньюньган до 2033 года

Note: Data as of 2012, Committee for Statistics of the Ministry of the National Economy of the Republic of Kazakhstan; as of 2015, taking into account the growth indicator of the World Bank; data for 2020, 2025, 2030 based on approximation realised by LLC "NIC KTP" (logarithmic function of approximation R^2*=0,8202) [2].*

If we consider the traffic volumes data by transportation modes, export from Kazakhstan in the years 2020-2030 will amount to 57.5% and import to Kazakhstan to 42.3% while transit through the territory of Kazakhstan and China will amount to about 0.2%.

In connection with the projected increase in transit cargo flow in June 2013 upon the initiative of the railway administrations of the participating countries of the Customs Union, the United Transport and Logistics Company (UTLC) was established with the aim of combining parts of the assets of the railways of Kazakhstan, Russia and Belarus as part of the formation of a new container transit outfit [6]. The establishment of the UTLC will have a positive impact on the development of Kazakhstan's container market in general and on the activities of private players. The UTLC's main objective is to implement the transit potential of Kazakhstan, Russia and Belarus; that means, first of all, the formation of a competitive transport solution in collaboration with the founders of infrastructure and the harmonisation of infrastructure tariffs for transit transportation, etc.

4. TRANSIT AND TRANSPORT POTENTIAL

The following projects also provide a positive impact on increasing the share of transit transportation through Kazakhstan:

1) The construction of a logistics terminal in the seaport of Lianyungang (China). In 2013, an agreement was signed between NC Kazakhstan Temir Zholy and the People's Government of Lianyungang on the development of a technical and economic feasibility study for the construction

of a logistics terminal in the port of Lianyungang. The logistics terminal in the seaport of Lianyungang will become a powerful logistics and transit base for the Republic of Kazakhstan. The main function of the terminal is the organisation of transportation of foreign trade cargo between the Republic of Kazakhstan, Central Asian countries, Japan, South Korea, Australia, and the countries in Southeast Asia, with the possibility of the formation of ready container trains that will enhance transport efficiency, reduce delivery times, increase trade turnover and reduce logistics costs. The estimated volumes and terminal structure are shown in Fig. 4 [5].

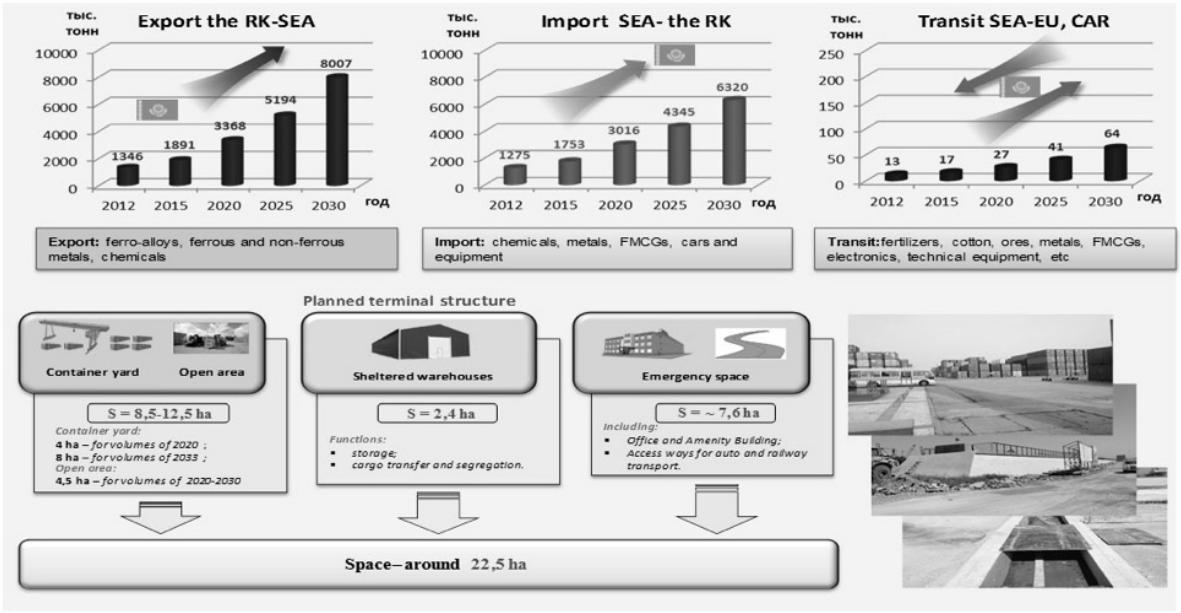

Fig. 4. Estimated volumes and terminal structure in the port of Lianyungang
Рис. 4. Планируемые объемы и структура терминала в порту Ляньюньган

2) The construction of the new railway lines "Almaty-Altynkol", "Uzen-Bolashak", "Zhezkazgan-Saksaulskaya", "Shalkar-Beineu", and "Arkalyk-Shubarkol" (Fig. 5) [5].

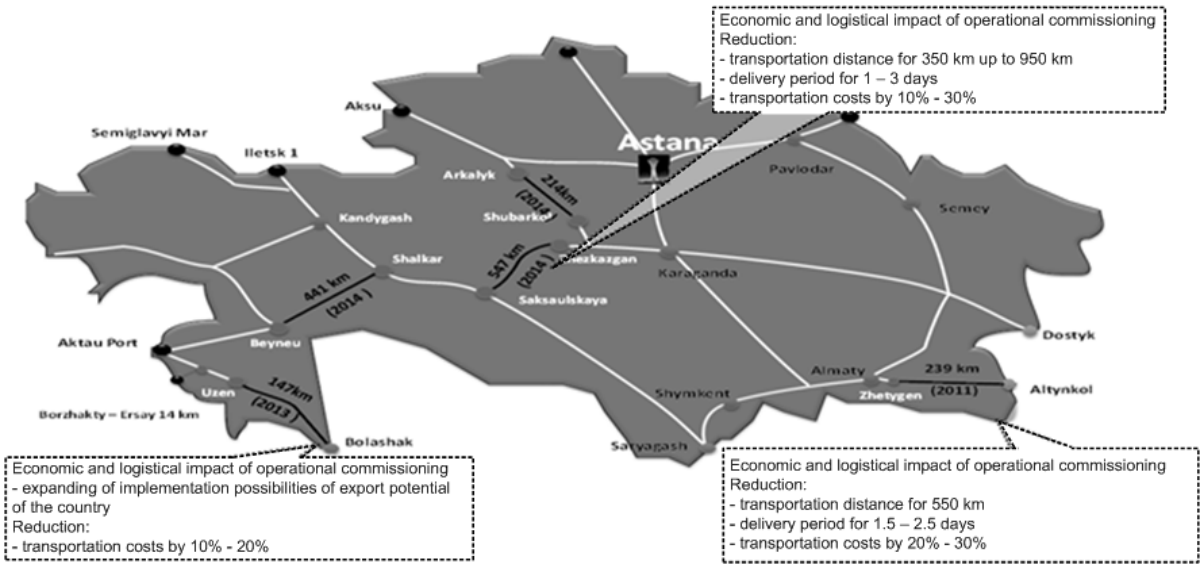

Fig. 5. Operational commissioning of new railway lines in the Republic of Kazakhstan
Рис. 5. Строительство и ввод в эксплуатацию новых железнодорожных линий в Республике Казахстан

3) Operational commissioning of the new railway crossing Altynkol (Kazakhstan)-Khorgos (China). The part of the new crossing on the Kazakhstani territory is a railway line Zhetygen-Altynkol; construction was completed in 2011. Thus, on the railway map of Eurasia, there is an additional transit route from China to Europe via Kazakhstan. It significantly expands the possibilities of transport and logistics in this in-demand direction of continental cargo transportation.
4) The project of SEZ "Khorgos-East Gate" establishment. The airport, dry port, railway Zhetygen-Horgos, highway, and direct connection with Aktau seaport should become the strategic facilities of SEZ, which will serve as a center of international border cooperation between Kazakhstan and China.
5) The opening of a direct rail link (2013) between the countries on the border crossing Bolashak (Kazakhstan) and Serhetyaka (Turkmenistan) followed by the commissioning (2014) of the railway line "Kazakhstan-Turkmenistan-Iran."
6) The "Western Europe-Western China" highway construction. This international transport corridor is the shortest way which links Central Asia with Europe and the countries of South East Asia with Europe. The total length of the corridor is 8,445 km; on the territory of Kazakhstan, it is 2,787 km. The project was completed in 2015.
7) The realisation of activities on increasing the production capacity for the shipment of oil and general cargo by 2.5 million tons, upgrading of existing capacities, increasing productivity, improving the quality of provided services in Aktau port by the automation of production processes, and the introduction of modern technologies.
8) The start-up of the tunnel "Marmaray", which combines both the Eastern and the European parts of Istanbul, the construction of the Akhalkalaki-Kars railway line, and the successful cooperation between Kazakhstan, Azerbaijan and Georgia will enhance the capacity of the trans-Caspian transport corridor which enables the delivery of goods from the Chinese market to Europe.

Further, it should be noted, is the implementation of projects on the development of the transit container transportation from China to Europe via Kazakhstan. Up to date, the travel of container trains is organised in the Asia-Europe direction by such routes as Chongqing-Duisburg, Chengdu-Lodz, Zhengzhou-Hamburg, Wuhan-Lodz, and Pardubice. The main plus of cargo transportation by a container train is the delivery period. The projected size of the transit container transportation across the territory of Kazakhstan in Asia-Europe direction by 2020 will reach 1 million TEU.

Another innovative idea is the launch of scheduled cargo trains implemented in 2013. The scheduled model assumes train departure on a set schedule like a passenger train. The similar experiences in Russia, Canada, the USA, Germany and Sweden prove that the economic impact of this innovation is demonstrated by the reduction of delivery time and the doubling of the rate of the turnover of wagons [7]. The system has already been tested on a railway district, Arys-Kandyagash, of 1,300 km length. The economic effect for 23 experiment days accounts for 40.8 thousand dollars.

5. TRANSIT AND LOGISTICS HUB

The opening of the Kazakhstan terminal in the port of Lianyungang, coupled with the improvement of the legal framework for the transit transportation by the Government of Kazakhstan, systematic program of the transport industry modernisation, as well as the introduction of a more flexible tariff policy for highly-profitable transit transportation in future, will significantly improve the competitiveness of Kazakhstan's railway and attract up to 8% of total transit cargo flow in the Southeast Asian countries to Europe and the CIS direction. This cargo flow can potentially be routed to the port of Lianyungang and, accordingly, to Kazakhstan logistics terminal, which will also help to increase the export and transit potential of the country, promoting the development of industry and development of the country in general [13].

According to the work technology, there are plans, at the terminal, to process the container cargo as well as bulk cargo. For this, there is a container yard, open areas and sheltered warehouses (Fig. 6) [5].

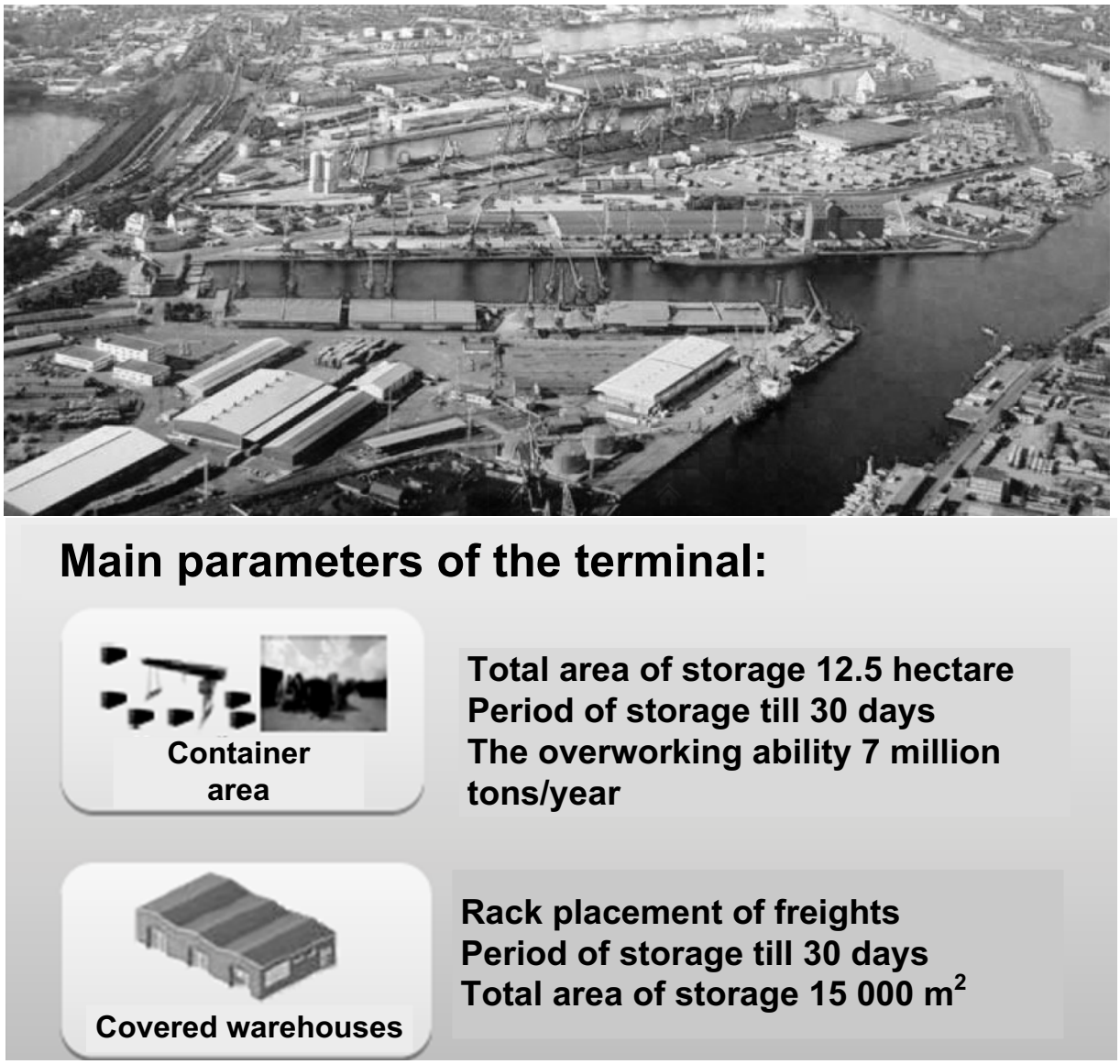

Fig. 6. General view of the logistics terminal in the port of Lianyungang
Рис. 6. Общий вид логистического терминала в порту Ляньюньган

This project is of great interest for the major forwarders who are engaged in transportation between China and Europe. For example, the container transportation issues were highlighted in the article [14]. Kazakhstan believes it is possible to implement the project within a short time and to create a new transport "product" in the East-West direction [8-9]. Thus, the implementation of this project will give Kazakhstan an opportunity to enhance its activities in the eastern Chinese ports and create a hub for cargo which is now transported by railway through China to Europe and back.

The estimated cost of capital investments in the construction of the terminal is about 606 million yuans or 100 million US dollars, with a simple payback period of 7.33 years.

Currently, there is an objective need to improve the set of practical measures aimed at the development of the transit or transport potential of Kazakhstan. This set of measures is to integrate the economic, technological, industrial, transport, information and foreign policies of Kazakhstan. In this context, the following directions of further development of the transit and transport potential of Kazakhstan, discussed earlier in works [4, 9], are seen as still relevant:

- reducing the physical and non-physical barriers to the promotion of transit flows through the territory of Kazakhstan, which requires further analysis of the technical condition of the main networks and crossings on the borders of the Republic of Kazakhstan, to identify narrow places that reduce the capacity and speed of the vehicles, their conformity to international standards and requirements, the need to introduce new technologies, modernisation and subsequent maintenance [13, 15];
- improvement of the transport investment system which will enable the creation of favourable conditions for the participation of investors in projects for the maintenance, renewal and expansion of the transport infrastructure;
- acceleration of the modernisation of the transport infrastructure that requires the development of measures to support domestic transport organisations to stimulate the renovation of vehicles;
- forecasting the development of the transport network is also important. The methods outlined in the article [16] could be used for this purpose;
- coordination of the principles of the tariff, tax and customs policies of the states in the transport sphere for the formation of a common transport space and a common market for transport services;
- regular study of traffic flow to stabilise and increase transit cargo flow through the territory of Kazakhstan and assessment of the potential transit through the territory of Kazakhstan to develop measures to attract it;
- improvement of transport safety system.

6. CONCLUSIONS

1. The realised project of the reconstruction of the international transit corridor, "the Western China-Western Europe", repeating outlines of an ancient silk way, contributed to familiarizing of Kazakhstan to the community of advanced economical countries. Today the average duration of stay in transit for sea vessels is 30-35 days, whereas along the corridor of Western Europe-Western China it is reduced to 10-12 days. Construction and reconstruction of the international transit corridor, the "Western Europe-Western China" allowed the consideration reduction in time of delivery of freight from China to Europe.
2. Development of the transport and communication complex of the Republic of Kazakhstan promotes creation in the country of high-tech and competitive transport infrastructure. The countries which the transit follows today, by estimates of the international experts, receive annually over 1 trillion dollars. It will enable Kazakhstan to become an integrated state and to earn revenue on the transit of freights, which is important.
3. Reconstruction of the international transit corridor is the necessary step directed at the solution of a specific economic problem. The shortest way from China to Europe is Europe-Russia-Kazakhstan-China, which has the minimum quantity of countries and borders. These competitive advantages made the project have good prospects. The opening of the terminal in the port of Lianyungang allowed a considerable increase in the competitiveness of the Republic of Kazakhstan and it attracted 8% of the total amount of the freight traffic in the direction of the countries of Southeast Asia to Europe and the CIS.

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