

Improvement of Economic Efficiency of Development of Railway

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Abstract: This article explores the pros and cons of rail transport, the transit potential of the country, the problems in the railway system, and the shipping calculations. By the author was proposed calculation formulas for the delivery of goods by types of transport.

Keywords: Railway system, shipping, transport, transport system, logistics companies,

I. INTRODUCTION

The development of the transport system in the global integration processes contributes to the development of other sectors of the economy. In this regard, the transport system plays a key role in stabilizing the country's economy. According to international experience, effective development of the transport network will increase export of goods. In this regard, international cargo transportation requires optimal routes, the use of modern types of transportation and effective use of logistics potential.

Today, the share of the transport sector in the country's GDP is 11%. This, in turn, demonstrates its large network, as an infrastructure sector with a high impact on the development of other sectors. Rail transport is the leading transportation system in the country, accounting for 93% of total transit freight and 98% of passenger transportation. [1] Wide-ranging and targeted programmatic measures for the qualitative development of the transport and logistics sectors are being implemented as an important sector of the country's economy and an important factor for integrating the national economy into the global economy.

In this regard, the launch of the Hairaton-Mazar-e-Sharif and Angren-Pap railways and the establishment of logistics centers in the country have not only boosted domestic traffic but also improved the transit potential of Uzbekistan. In the Strategy of actions on five priority directions of development of the Republic of Uzbekistan in 2017-2021 "Increase of competition between national transport logistics companies" [2] and "On measures for radical improvement of public administration system in transport" dated February 1, 2019. This Decision will serve to some extent in the implementation of the objectives set out in the Decrees and other normative legal acts in this area.

II. ANALYSIS AND RESULTS

The condition and development of the transport system are of great importance for the Republic of Uzbekistan, as it, along with other infrastructure sectors, provides the basic conditions for the functioning of the society and serves as an important element in achieving the socio-economic and foreign policy goals. Sustainable and effective operation of the rail network is a prerequisite for securing the unified economic space of the Republic of Uzbekistan, further development of various sectors of industry and agriculture, improving the living standards and living conditions of the population, and mobilizing the citizens of Uzbekistan.

To assess the role of the railway network in the economy of the country, to study the prospects and trends of the sector development, to carry out research on forecasting, to develop material and technical resources, labor and financial status, directly influencing the medium and long-term strategy, the current policy. and developing a long-term strategy.

Therefore, the main issue today is to study the performance of the railway transport system, the stages of development of the transport and logistics infrastructure, and to make recommendations to address the existing problems in the system. Table 1 presents data on freight turnover and volume of transportation by types of transport in 2012-2017.

Table 1: Freight turnover by types of transport in 2012-2017 and shipping [3]

	2012 y.	2013 y.	2014 y.	2015 y.	2016 y.	2017 y.	2018 y.
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Transport types	million t.	Thous.km												
Including transport														
Railway	61,5	22,7	63,7	22,8	65,7	22,9	67,2	22,9	67,6	23	68,1	22,9	68,4	23,1
Automotive	1203,2	27,5	1258,3	29,2	1327,4	31,5	1399,8	33,9	1473,7	13,3	1013,1	13,9	1015,5	14,1
Pipe	64,5	33,0	65,0	31,5	65,8	31,2	60,0	30,0	62,2	28,9	30,2	65,1	31,2	65,9
Air	24,0	121,9	22,2	116,3	23,0	125,1	24,6	131	26,5	132,2	156,9	26,4	157,2	27,1
Total	1329,3	83,4	1387,1	83,7	1458,9	85,7	1527,0	86,9	1603	88,0	1146,2	66,9	115,2	67,1

We can see that the total volume of railway transportation in 2012-2018 increased by 1.6 times compared to 2000, and the total passenger traffic by 1.3 times. In total, by 2018, railroad transport will reach 68.4 million tonnes. The freight traffic testifies to the development of this sector from year to year in our country. As a result of the measures taken, in 2017 the volume of freight increased by 42% compared to 2012, including by 44% on automobile and by 73% on air transport. The total freight turnover in 2017 was 66.9 million ton-km. The highest share in total freight turnover is occupied by road transport (40.11%), pipeline transport (34.96%) and railway transport (25.5%) [4].

If the internal competition between transport types of the country is analyzed, the highest share in freight traffic falls on road transport. In the market of transport services it is possible to distinguish such features as automobile transport, high-speed freight and cargo-to-door delivery, accurate delivery time, relatively simple organization of the transportation process and small-size freight transportation.]. At the same time, we can see the decrease in freight traffic by rail.

One of the main disadvantages is that railroad is not able to provide services at the level of road transport when delivering goods to the end point, ie to the consumer. However, as mentioned above, there is no form of transportation competing with the delivery of large volumes of goods to far distances at relatively low cost. Taking into account the special importance of rail transport in ensuring socio-economic stability and economic growth, the priority is to ensure continuous, safe and effective operation of the network based on the principles of unity and coordination of activities of the Government of the Republic of Uzbekistan, regional and local authorities, enterprises and railways enterprises. . The advantages and disadvantages of rail transport in relation to other types of transport, given its increasing competitiveness, technical feasibility and economic characteristics, are illustrated in Figure 1.

Taking into account the growing role of Uzbekistan in the context of globalization, the railway network of the country is an important political and geo-economic resource of the state. In our opinion, in the near future it is necessary to consider the international involvement of the railway and export-import goods, including the national projects on modernization of economy and social life as an element of further involvement of the country, especially in the world economy.

In the transport network, rail transport is a unique system, and as we examine issues related to the effective management of its operations, we have a hierarchical vision of the existing problems in the sector. It is well known that under the hierarchy law, each step in the system acts as a controlling and controlling entity with its downstream and upstream. Recognizing that hierarchical approach is also the best option for effective transport system management, it is relevant today.

It is natural for a hierarchical system to have functional and structural differentiation in terms of the specific task at each stage. It is desirable to have a hierarchical structure in terms of the large amounts of data received, processed and used in the system. This provides general information for the lower stages [5].

Existing problems in the railway transport system are the major constraints to economic growth. Therefore, it

is advisable to consider these problems separately:

- meeting the growing needs of the economy and expanding its population;
- Providing high quality services to meet consumer needs;
- elaboration of measures to minimize transportation costs in the product line;
- High efficiency of the transport system.

Based on the foregoing considerations, the present study on the effective management of the railway network suggested the following areas:

- organization of scientific and technical capabilities and effective use of production resources;
- Improving the system of vehicle maintenance based on modern technologies;
- the continuous increase in costs for modern infrastructure and the search for new sources of revenue to meet this demand;
- Interaction between the participants in the railway transport market will lead to a decline in economic and technological efficiency, which will result in increased costs for the transport of goods by rail across the network;
- Reduction of the established level of payment and tariffs for economic crisis and access to infrastructure services, which may require additional government subsidies;
- Improvement of the system of public administration and regulation, with an increase in regulatory areas and facilities, including the legal use of infrastructure services;
- sharing of responsibilities and responsibilities for technology and operation companies and infrastructure in the operation of the economy and transport safety systems.

In the global transport market there is a need for deep structural changes based on modern logistics approaches. Nowadays, according to domestic and foreign experience, there is a need to create a unified transport system with competitive joint control, including an integrated control center [6]. Delivery terms are defined by the formulas given in Table 2.

Table 2 Calculation formulas for the delivery of goods by types of transport [6]

Types of transport	Delivery time calculation formulas	
Railway	$T_T = t_{\text{бТ}} + \frac{L}{V_y^j} + t_{\text{кѳш}}^j; \quad T_M + \frac{L}{\text{ТИЖ}}$	(1)
Pipe	$V_{\text{ТИЖ}} = \frac{l}{\frac{l}{V_{\text{КУН}}} + \frac{2\alpha D_r}{M} + t_{\text{кѳш}}^M}$	(2)
Air transport	$T_x = t_{\text{бТ}} + \frac{l}{V_H^p} + t_{\text{кѳш}}^p$	(3)
Automotive	$T_a = t_{\text{бТ}} + \frac{l}{V_{\text{ЭК}}}$	(4)

here:

$t_{\text{бТ}}$ – time, days, for start-and-finish operations. (k);

l – transportation distance, km;

V_y^j, V_H^p – Daily traffic of vehicles, km;

$t_{\text{кѳш}}^j, t_{\text{кѳш}}^M, t_{\text{кѳш}}^p$ – time, days, for rail, road and air transport operations;

$V_{\text{ЭК}}$ – operating speed, km / h;

$V_{\text{ТИЖ}}$ – commercial speed, km / day;

$V_{\text{КУН}}$ – Operating speed of vehicles operating in this corridor, km / day;

α – load-bearing capacity;

D_r – Carrying capacity of railcars, railways;

M – One-day average rate for additional operations in the ports of access and adoption;

t – Take the time to cover up the beads, beard and jeans.

The range of transport and logistics services can be used to identify a number of factors that can improve the quality of the kangaroo range, the competitiveness of services and the cost of services, which can change the quality of packaging and the quality of services. as required [7]. A comparative analysis of transportation costs is provided in

Table 3 Comparative analysis of transport costs on freights

Cargo cost of 20 tonnes per 1km (textile products)				
Uzbekistan	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan
2,45 \$	1,70 \$	1,55 \$	1,35 \$	0,92 \$
Cost of transportation of one standard wagon for 1 km (up to 100 km)				

Uzbekistan	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan
7,29 \$	4,24 \$	2,65 \$	6,83 \$	2,65 \$
The number of required procedural documents for export and import				
10/11	10/12	9/10	11/12	6/5

According to the analysis, changes in the principles of tariff setting and gradual transition to a new tariff system, reduction of correction coefficients, reduction of various types of financing for rail transportation, establishment of private companies for railroad cars with their own locomotives and wagons. To create a competitive environment in the sphere of rail freight transportation, to create the conditions for this electric power is supplied with 55 per cent share of the railways [8,9]. This requires an average of 168 km of railroads annually, with an investment of \$ 5.34 billion. dollars. \$ 1.2 billion to upgrade locomotives and wagons by 2030. It is necessary to increase the volume of container transportation by 25-30% to reduce shipping costs by 10%.

III. CONCLUSIONS AND SUGGESTIONS

To summarize, addressing the aforementioned problems, freight, integrated and integrated legal and regulatory framework, technical and technological regulations and standards for intermodal and multimodal transportation, logistics centers, and freight forwarding activities in line with international standards are integrated to ensure multimodal transportation efficiency. organization of information system, formation of national network of customs logistics centers, transport and logistics operations, etc. Midas 3PL must maintain a high level. Thus, effective management of the integrated transport and logistics system will result in the provision of entire production and material resources, accelerated production, reduced transportation costs and economic sectors.

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