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IMPROVEMENT OF CONTAINER TRANSPORTATION OF RAILWAY STATIONS OF THE REGIONAL RAILWAY HUB OF BUKHARA

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Art	ticle history:	Abstract:			
Received:	20 th March 2024	The purpose of this work is to determine the possibilities of performing			
Accepted:	10 th April 2024	cargo and commercial work in the organization of cargo transportation by container shipments, increasing their efficiency at the railway landfill of the Bukhara Regional Railway hub. Methods: Methods of system analysis are used. Results: Cargo and commercial operations performed by stations of the Regional railway hub of Bukhara are analyzed. Practical significance: The proposed mobile brigade creates favorable conditions for increasing local and foreign trade cargo flows in Uzbekistan. Organizing the work of such teams will increase the multimodality of the transport system of Uzbekistan and reduce traffic jams on highways, especially in large cities of Uzbekistan (improving the ecology of megacities).			

Keywords: railway freight station, cargo flow, container, container acceptance and delivery, small shipment, low-tonnage cargo, container shipment.

INTRODUCTION

In the modern world, against the background of globalization, there is a rapid process of containerization in the transportation of goods in supply chains. At the same time, Uzbekistan is also not excluded. In addition, the number of supervised container block trains is increasing both in the world and in Uzbekistan. In addition, the container is a universal unit for multimodal and intermodal transportation of goods with different railway tracks and different modes of transport. Therefore, it is considered relevant in Uzbekistan to study and analyze the performance of cargo and commercial work with containers. There are 500 units of 5-tonnage and 550 units of 20-foot containers in the container fleet of Uzbekistan railways, which can be transported by fitting platforms and gondola wagons[1,2,10,11]. It is known that the country's railway network consists of six regional railway hubs (hereinafter referred to as RRU). The article examines and analyzes the operations performed at the RRU - Bukhara stations.

METHODS AND MATERIALS

Currently, the RRU Bukhara comprises 1,314 km of railway lines, of which 438 km is located in the Bukhara region, 586 km in the Navoi region, 290 km in the Samarkand region. 45 railway stations are in common use and serve (Fig.1,2,3). The railway network of RRU Bukhara borders with RRU Kungrad in the northwest, with RRU Tashkent in the northeast, with RRU Karshi in the southeast, and with the railway network of Turkmenistan in the southwest. RRU serves enterprises and organizations of shippers and consignees, such as the Kandym Gas Processing Complex, the Bukhara Oil Processing Plant, the Navoi Mining and Metallurgical Combine and the Navoi Free Economic Zone. Figures 1,2,3 show that container operations are carried out in the Bukhara region at the Bukhara-2 and Karakul stations, and container operations are carried out in the Navoi region at the Karmana, Tinchlik stations and in the Samarkand region at the Ulugbek and Jambai stations.

The analysis shows that, out of 45 stations, container transportation is carried out only at 6 stations. This is 13% of the total number of RRU stations in Bukhara. Of these, two stations, that is, Karakul and Jambai stations serve containers in places of non-public use, and at Karmana, Bukhara-2 and Ulugbek stations container transportation is performed in places of common use. These figures represent 4 and 6% of the total number of freight stations, respectively. And only at the Tinchlik station, containers are loaded and unloaded in public and non-public areas. This is only 2% of the total number of stations in Bukhara. But an in-depth study and analysis (with the help of Yandex maps, google maps and openrailwaymaps) all stations located on the territory of the trail of Bukhara, shows that at the other stations can also perform grottaperfetta container operations [2,3,4].

Therefore, in order to improve the transportation conditions for small shipments, medium–tonnage and 20,



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40-foot containers at the stations of the Bukhara rye, it is proposed to organize mobile brigades. At the same

time, each mobile brigade will have a mobile track and a truck equipped with a multi-lift.



Fig.1. The scheme of the railway line and the location of stations on the region of RRU Bukhara



Fig.2. Diagram of the Navoi part of the railway line and stations of the RRU of Bukhara



Fig. 3. Diagram of the Samarkand part of the railway line and stations of the RRU of Bukhara Table 1. Analysis of the operations performed by the stations of the RRU of Bukhara



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Note: P -	Nº	Station names	The work performed according to paragraphs of the Tariff Manual No. 4, book 2	Nō	Station names	The work performed according to paragraphs of the Tariff Manual No. 4, book 2	gross
	1	Sangzar	S	24	Buxara II	1,2,4,5,8,9,10	
	2	Gallyaaral	P 3	25	Mustakillik	B 3	
	3	Nurlidon	S 3	26	Karaulbazar	B 1,3	
	4	Marjonbulak	P 1,3,4	27	Murgak	B 3	
	5	Bulungur	B 1,3,4	28	Yakkatut	P 3	
	6	Djambay	S 3,8n,10n	29	Karakul	P 1,3,8n,10n	
	7	Zarafshan	P 1,3	30	Alat	B 3	
	8	Samarkand	P 3,4	31	Karmana	3,8,10	
	9	Ulugbek	S 1,3,5,8,9,10	32	Kiziltepa	P 1,3	
	10	Marakand	P 3	33	Navbaxor	S 3	
	11	Djuma	P 2,3	34	Binakor	S 3	
	12	Nurbulak	P 3	35	Navoi	P 1,3,4	
	13	Nurota	3	36	Tinchlik	S,2,3,5,8,8n,10n,11n	
	14	Kattakurgan	P 1,2,3,4	37	Kanimex	1,3	
	15	Soxibkor	S 1	38	Zafarabad	3	
	16	Zrabulak	P 1,3	39	Karakata	S 1	
	17	Ziyaviddin	P 3	40	Kizilkuduk	S 1,3	
	18	Okjar	1,2,3	41	Muruntauv	S 3	
	19	Xizirbobo	S 3	42	Uchkuduk I	P,3,8n,10n,11n	
	20	Korli tog	S 3	43	Uchkuduk II	S 3	
	21	Yaxshilik	S 3	44	Maylisay	S 3	
	22	Yangiabad	S 3	45	Adjibugut	S 3	
	23	Bukhara I	P 1,2,3,4,9				

Ticket sales for all passenger trains. Baggage collection and delivery; S - Boarding and disembarking of passengers on suburban and local trains. Reception and delivery of baggage is not performed; X - Cargo and commercial operations are not performed; 1 - Reception and delivery of goods allowed for storage in open areas of common areas of stations; 2 - Reception and delivery of small shipments of goods in common areas of stations; 3 - Reception and delivery of goods on access roads (non-public roads use) and places of non-public use; 4 -Reception and delivery of cargo loaded into a wagon requiring storage in covered warehouses of stations; 5 -Reception and delivery of medium-tonnage containers with a gross weight of 3.3 (5) and 5.5 (6) tons at stations; 6 - Reception and delivery of medium-tonnage containers with a gross weight of 3.3 (5) and 5.5 (6) tons at stations access roads (non-public roads); 8 - Reception and delivery of large-capacity 20-foot containers with a

weight of up to 24 tons inclusive at stations; 8n -Reception and delivery of large-capacity 20-foot containers with a gross weight of up to 24 tons inclusive on access roads (non-public roads); 9 – Reserved [6,7].

The main task of these teams is to promptly organize shunting and loading and unloading operations at the stations. And if necessary, deliver these containers to the dispatch station [8-11].

The mobile team performs the following works:

1) Loading and unloading operations;

2) Registration and crediting of transportation documents;

3) Forwarding services;

4) Delivery and cleaning of freight wagons.

To manage and organize mobile teams, it is necessary to solve the following tasks:

1. The list of goods and the amount of work (productivity) performed by one mobile team;

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2. The number of mobile teams to ensure the scope of work of the studied landfill;

3. Determining the optimal locations for mobile teams at the test site;

At the same time, the mathematical formulation of multi-criteria optimization has the following form:

 $Y = F(\alpha_i, f_i, N, Q_T, q_t, S, L_s, v_s, t) \to \min$ (1)

Y - a general-purpose function (scalar value), a generalizing vector of all criteria, when organizing the work of mobile teams;

The function consists of the following arguments:

 f_i, α_i – objective functions of the *i* - th criterion and

their weight coefficients; N - the required number of mobile teams at the test site. Q_T - expected cargo flow; T - the period in this territory; q_t - the amount of work performed by one team during time (t); S - the area of the studied polygon; L_s - average route length; v_{s_r} t - average speed and working time of mobile teams; **CONCLUSION**

Based on the above analyses, it can be concluded that in order to improve container transportation to Bukhara, it is proposed to organize mobile teams, which each will have a mobile track and a truck equipped with a multi-lift. At the same time, mobilrek will perform shunting and loading and unloading operations, and a multi-lift truck will deliver the above types of containers.

The above proposal and work will lead to the following:

- increase the volume of freight transportation by rail;

- ieduce the cost of cargo transportation in local, export and import communications;

- reduce traffic jams on highways, especially in large cities of Uzbekistan (improving the ecology of megacities);

- improve the quality of road coverage due to reduced congestion of road transport;

- to increase the multimodality of the transport system of Uzbekistan.

Real calculations on the problem under study will be carried out in subsequent scientific papers.

REFERENCES

- M. Saburov, D. Butunov, S. Khudayberganov and M. Akhmedova. Optimization of operator companies on Uzbekistan railways. AIP Conference Proceedings 2612, 060008 (2023). 060008-1-060008-9. DOI: https://doi.org/10.1063/5.0131055
- [2] Официальная статистика. Официальный сайт Акционерного общеста Узбекской железной

дороги – URL: https://railway.uz/ru/proekty/9018/ (дата обращения 12.02.2024 г.).

- [3] https://www.google.ru/maps
- [4] <u>https://www.openrailwaymap.org/</u>
- [5] https://yandex.uz/maps/
- [6] Тарифное руководство N 4 (ред. от 08.06.2021) Книга 2 Часть 1. Алфавитный список железнодорожных станций (утв. Советом по железнодорожному транспорту государств участников Содружества).
- [7] Сабуров М.Б. Оценка факторов, влияющих на экспортный потенциал Республики Узбекистан/ Е.К.Коровяковский, М.Б.Сабуров, Ш.Х.Султонов//Известия ПГУПС - 2021. №1(18). – С. 132-142с.
- [8] Сабуров М.Б. Пути повышения эффективности деятельности логистического обеспечения международной транспортной системы «Агроэкспресс» на основе инструментария однокритериальной оптимизации Е.К.Коровяковский, М.Б.Сабуров //Известия ПГУПС - 2022. №2(19). – С. 276-286с.
- [9] Mardonbek Saburov, Dilmurod Butunov, Sokijon Khudayberganov, Sunnatillo Boltaev, Muslima Akhmedova, Mukhamedjan Musaev. Determination of the optimal requirement of the number of freight wagons. AIP Conference Proceedings 2432, 030091 (2022). 030091-1-030091-5. DOI: https://doi.org/10.1063/5.0090343
- [10] Mukhamedova, Z., Ibragimova, G., Tulayev, A., & Kayumov, S. (2023). Analysis of the Market Development of Transport and Cargo-Carrying Services in The Republic of Uzbekistan. In E3S Web of Conferences (Vol. 449, p. 02006). EDP Sciences.
- [11] Mukhamedova, Z., Ibragimova, G., Khudayberganov, S., Bashirova, A., & Kayumov, S. (2023). Creation of transport and logistics clusters on railway networks. In E3S Web of Conferences (Vol. 401, p. 03042). EDP Sciences.