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PROBLEMS OF AND PROSPECTS FOR THE DEVELOPMENT OF RAILWAY INFRASTRUCTURE IN KAZAKHSTAN

Abstract. The rail transport remains and will in the foreseeable future remain the main mode of transport in Kazakhstan. Its importance is enhanced by the growing transit rail traffic between China and the European Union as well as between the Central Asian countries and Russia, by the fact that Kazakhstan is a landlocked country and by an active development of the Chinese Belt and Road Initiative. This is why it is so important to consider the problems of and prospects for the development of railway infrastructure in the country. The study is based on the relevant literature review and interviews with representatives of major market players and academia.

Keywords: Railway transport, railway traffic, problems and prospects, infrastructure.

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ҚАЗАҚСТАНДА ТЕМІР ЖОЛ ИНФРАҚҰРЫЛЫМЫНЫҢ ДАМУ МӘСЕЛЕЛЕРІ МЕН БОЛАШАҒЫ

Аннотация. Теміржол көлігі Қазақстандағы жақын болашақта негізгі көлік түрі болып қала береді және болып қала береді. Оның маңыздылығы Қытай мен Еуропалық Одақ, сондай-ақ Орталық Азия елдері мен Ресей арасындағы транзиттік теміржол тасымалының өсуімен, Қазақстанның теңізге шыға алмайтындығымен және Қытайдың «Бір белдеу, бір жол» бастамасының белсенді дамуымен арта түседі. Сондықтан еліміздегі теміржол инфрақұрылымын дамытудың проблемалары мен перспективаларын қарастыру өте маңызды. Зерттеу тиісті әдебиеттерді шолуға және нарықтың негізгі ойыншылары мен академиялық орта өкілдерімен сұхбаттарға негізделген.

Түйінді сөздер: Темір жол көлігі, темір жол көлігі, проблемалары мен болашағы, инфрақұрылым.

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ПРОБЛЕМЫ И ПЕРСПЕКТИВЫ РАЗВИТИЯ ЖЕЛЕЗНОДОРОЖНОЙ ИНФРАСТРУКТУРЫ В КАЗАХСТАНЕ

Аннотация. Железнодорожный транспорт остается и в обозримом будущем останется основным видом транспорта в Казахстане. Его значение усиливается растущими транзитными железнодорожными перевозками между Китаем и Европейским Союзом, а также между странами Центральной Азии и Россией, тем, что Казахстан не имеет выхода к морю, а также активным развитием китайской инициативы «Пояс и путь». Именно поэтому

так важно рассмотреть проблемы и перспективы развития железнодорожной инфраструктуры в стране. Исследование основано на обзоре соответствующей литературы и интервью с представителями основных игроков рынка и научных кругов.

Ключевые слова: Железнодорожный транспорт, железнодорожные перевозками, проблемы и перспективы, инфраструктура.

1. Introduction

Discussing the importance of railway infrastructure for Kazakhstan, we should consider the following:

a. The regional rail infrastructure requires substantial improvements. This is stipulated by: - Changed economic and political context after the collapse of the former Soviet Union. This changed context requires new transportation routes. - The need to improve the existing infrastructure, which was largely built during the Soviet period. In [16] it is advised that “Transportation infrastructure in Kazakhstan lags behind in the use of modern transport technologies and calls for technological upgrading.”; and - Growing cargo traffic between China and the European Union as well as between the Central Asia countries and Russia. Kazakhstan plays an important role as a transit hub for such shipments. The growth of Asia-EU-Asia transit container traffic via Kazakhstan shown on Figure 1 below is a good illustration to this situation.

b. The country’s landlocked position. Such a position creates significant additional challenges. As [22] mentions: “Lack of territorial access to the sea, isolation from world markets and high transit costs continue to impose serious constraints on the overall socio-economic development of Landlocked Developing Countries (LLDCs)”. The same source mentions that “On average, LLDCs pay more than double what the transit countries (countries through which exports flow) incur in transport costs and take a longer time to send and receive merchandise from overseas markets.” This circumstance adds additional importance to the regional railway infrastructure. c. The country’s lies in the heart of the Chinese Belt and Road Initiative (formerly known as One-Belt-One-Road initiative). And it is not a coincidence that this initiative was first announced by President Xi Jinping in Kazakhstan in 2013. Major trans-Eurasian rail corridors developed within the Belt and Road Initiative framework are shown on Figure 2 below.

However, there are many problems which require special attention. They include the deterioration of most of the rail infrastructure mostly built during the Soviet times, lack of investment, discrepancy between the location of existing railways, again mostly built in Soviet times, and new economic realities, lack of qualified personnel and poor management, political tensions and corruption. This leads to a decrease in revenues, safety of operations, loss of transit traffic volumes, transition of shippers to other modes of transport, decreased competitiveness of local products. On a large scale, these problems negatively influence the economic development of this country and its transport connectivity.

2 Literature review

Unfortunately, topics related to Kazakhstan do not attract much attention of the scientific community. However, the author managed to gather several literature sources related to the current research. Keeping this circumstance in mind, the author used several working paper and reports prepared by international organizations working in the region.

2.1 Rail infrastructure development in Kazakhstan There are several authors who researched this topic, though most of them studied transportation infrastructure in general. However, even such studies provide a substantial amount of information. In this context it is worth mentioning such works as [9, 21, 6] etc. At the same time, there are studies, which considered the rail infrastructure, including [20, 7, 15] and others. Rightly points out that “the mainline railway network is Kazakhstan’s strategic asset” [20]. Advised that “Kazakhstan has spent nearly USD 3.2 billion in upgrading its rail lines and rolling stock since 2011 to accommodate the growing demand for rail freight. This has resulted in 500,000 tons of rail freight movement in 2016 between the two regions” [18].

2.2 Development of Kazakhstan’s transit potential The topic is becoming increasingly critical, and this is reflected in various literature sources. Here, it is worth mentioning such studies as [24, 16, 1, 4, 14], and many others An important recommendation was made in [24]: “Capital investment... should be complemented with a wider set of intertwined measures, including government regulations, sector policies and necessary reforms. A stepwise approach should be employed to develop such non-physical measures, which include enhancing the market environment for private sector participation and sustaining transport finance with dedicated transport sector revenue”. Support this recommendation pointing at the need to enhance institutional development [14].

2.3 Growing rail traffic between China and the European Union The topic is closely connected with the previous one and is covered in literature. Studied it and provided a valuable insight on one of the reasons for its increase: “Owing to the rising capital costs and wages in coastal areas, many manufacturing and production companies are relocating their plants to inland cities in China, which are far away from the Chinese commercial coastal lines [18]. The companies like HP find it difficult to export products to Europe since the commodities have to travel thousands of kilometers east to the seaports and ship them back to the west of Europe. The development of railroads has offered the companies in reducing transit times and shipping of the goods from the production site 3 E3S Web of Conferences 471, 02006 (2024) <https://doi.org/10.1051/e3sconf/202447102006> TITDS-XIV-2023 directly to the Countries in the Europe.” The same source also indicated that though “Westbound traffic between China and Europe had traditionally accounted for the majority of the volumes transported...”, the situation has changed and “Rail freight traffic from Europe to Chongqing in China exceeded the traffic in westbound direction for the first time, in 2018.” There are several other sources like the above-mentioned [13], which addressed this topic. “The Russian Railways cargo route remains crucial for European industry, and the

EU published guidance in July (2023) clarifying goods transiting the country aren't subject to sanctions” [5].

3 Methodology

This research is based on the data collected through: 1. Reviewing different literature sources. 2. Interviews with representatives of transport companies and academia. Their list is given in the Appendix. The criteria for including studies into consideration were their relevance to the topic, reliability and objectivity. The same principles were applied while gathering information from market players and academia representatives. To minimise the risk of bias, the information gathered was cross-checked. Clarification calls were made when necessary. The analytical part of this paper was initially discussed with the respondents and then presented at the XIV International Conference on Transport Infrastructure (TITDS-XIV4 E3S Web of Conferences 471, 02006 (2024) <https://doi.org/10.1051/e3sconf/202447102006> TITDS-XIV-2023 2023). Comments and recommendations received helped to improve the quality of this article. The respondents whom the author discussed the content of this work with agreed that the selected methodological approach is suitable for the research questions mentioned above. The number of interviewees is small. As such, there are not many people knowledgeable in this topic. Initially, the author contacted 81 transport professionals and people from academia, paying attention to the selection of potential respondents (the words “interviewee” and “respondent” are used interchangeably in this text). However, most of the contacted people either refused to talk or revealed very limited knowledge. Eventually, the author interviewed 18 individuals. Every endeavor was made to ensure that the collected information is unbiased and comprehensive. 11 out of 18 interviews were conducted offline. The other 7 were conducted online. The author could not provide much information on interviewees’ profiles as some of them strongly insisted on confidentiality. He did not intend to transform the collected information into quantitative measures. Statistical analyses are not applicable in this situation because of the small number of respondents. And most of them are mid- or high-level professionals. It was expected and this was later confirmed that approaching such individuals with questionnaires is counterproductive and can be perceived as an annoyance.

4 Results and discussion

Below is the list of problems and their potential solutions, which was prepared based on interviews. 1. Problem: The existing railway infrastructure requires substantial upgrade. Solution: The respondents acknowledged the problem though admitted the substantial progress achieved during the last years. They pointed out that high dependence of the Kazakhstan’s economy on this mode of transport and the growing rail traffic make the solution of this problem unavoidable. So, a new government policy aimed at improving the existing infrastructure and backed by sufficient financing is required. They are also of the view that more cooperation between the governments of the neighboring countries is required. 2. Problem: There is a big need to build new infrastructure. Solution: Again, the respondents acknowledged the problem and, again, admitted the substantial progress achieved during the last years. They advised that in general

this problem is less severe than the previous one and the national government pays proper attention to the construction of new railways. However, they advised that the selection of new projects has to be more open and involve representatives of freightforwarding companies, representatives of foreign transportation companies and other interested parties usually excluded from such discussions. 3. Problem: Insufficient financing of rail infrastructure projects. Solution: Interviewees suggested the following measures: - Overall strengthening of order and discipline and fighting corruption, - Attracting foreign financing and - Using prepayments from big shippers for the improvement of rail infrastructure. Kazakhstan Temir Zholy, the national railway company of Kazakhstan has been practicing this method for several years already. 4. Problem: Lack of qualified personnel. Solution: The respondents agreed that the problem is mostly caused by low salaries. They supported a proposal to increase salaries of rail professionals, especially those working in remote areas, with one voice. They fully understand that this situation compromises the future of the rail transport in the country. They also underlined the 5 E3S Web of Conferences 471, 02006 (2024) <https://doi.org/10.1051/e3sconf/202447102006> TITDS-XIV-2023 importance of improving the quality of higher and vocational education for rail professionals. Some of respondents advised that returning to the Soviet system when a significant promotion could happen only after obtaining work experience in a remote area can help. 5. Problem: Improper management of the rail infrastructure. Solution: The interviewees are of the view that the problem is caused by (i) overall decline of the managerial level in the country, (ii) corruption and (iii) the abovementioned lack of qualified personnel. To address these causes, they suggested to: - undertake several public legal trials against corrupt officials, - undertake privatization (at least partial) of Kazakhstan Temir Zholy (national rail company), - attract an external, preferably foreign, management to Kazakhstan Temir Zholy, ensure support from government bodies. Some of interviewees pointed out that the passive position of shippers who are afraid to annoy the government bodies concerned and the railway administration is counterproductive. This problem was also addressed in [3]. The interviewees then indicated that the national government should understand that the danger of collapse of Kazakhstan Temir Zholy, which is not just a commercial company (though its commercial significance is enormous). It also ensures the overall country's connectivity and plays a great social role as the biggest employer, especially in remote areas. This problem generated the most conflicting suggestions. 6. Problem: Different rail gauges in Kazakhstan and some neighboring countries. While Kazakhstan and other post-Soviet countries use the Russian gauge of 1520 mm, most of other countries use the European gauge of 1435 mm. This requires a bogie change at the borders between China and Kazakhstan. If wagons travel further and enter the territories with the European gauge (the EU or Iran) they have to change bogies again. Solution: The respondents are of the view that the costs associated with bogie exchange as unavoidable. To counter them, some of the biggest shippers plan and/or implement various projects, which can reduce such costs.

5 Conclusion

Despite all the problems mentioned above, rail transport remains and will remain the main mode of transport for the country in the foreseeable future. The importance of railways for the economic and social development of Kazakhstan enhances the need to upgrade the existing and to build new rail infrastructure. The country has already become a major Eurasian transit hub and a growing volume of transit rail traffic is expected. This creates additional development opportunities for the country. It is necessary to organize an extensive in-depth discussion of the recommendations above. The approved ones to be implemented. This topic is significant for the country because the full utilization of its transport and transit potential will support the overall national development.

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