The Effectiveness Evaluation of International Railway Transportation in the Direction of "Ukraine – European Union"

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Abstract

The paper presents results of a study concerning the development of railway transit traffic in international transport. It identifies problematic issues at the border crossing in the direction of "Ukraine–European Union" and ways to eliminate them. During the research methods of analysis and synthesis were used to study statistical materials and the main provisions of scientific papers about the state and prospects for the development of European and domestic systems of international railway transportation. In order to predict the volume of international transportation, the experience of creating, operating and optimizing systems including international transport corridors, rolling stock and border station technology at the rail gauge joint of different standards (1435/1520 mm) are taken into account.
KEY WORDS: *international railway transportation, transport corridors, track gauge change, dual gauge*

1. Introduction

The economic development of each state largely depends on the operation of the transport system, which should ensure reliable, safe and efficient operation of freight transport both inside the country and abroad. How relevant issues of interstate transportation one can judge from the materials published by the Committee of Organization for the Collaboration of Railways. The OSJD Journal [1] discussed such issues as facilitation of border crossing procedures by railway transport, the experience of railways in accelerating the passing of borders during international railway transportation in the Eurasian space, and others.

The geographic scope of the OSJD covers more than 280 thousand km of railway lines from 28 countries of the world, on the railways of which about 6 billion tons of cargo and more than 4 billion passengers are transported annually. Naturally, on this space, the improvement of international railway transportation plays a not insignificant role for the successful providing of railway transportation with a focus on reducing the time for passing trains through interstate borders.

The possibilities of railway transport for the organization of transportation between the countries of the European Union (EU) and Ukraine are not fully exploited, since there are a number of technical reasons for the incompatibility of transport systems, namely: different wheel gauge, rolling stock characteristics, type of signaling arrangement (SA), voltage in the contact network, dimensions and suchlike.

Future prospects for the integration of Ukraine's railways into the European transport network will depend on how successfully the tasks on the actual development of international transport corridors (ITC) will be solved, on the availability of rolling stock ready to provide transport with governed speeds [2, 3], on political-economic and technical-technological problems of passenger turnover [4] and truck turn-around between Ukraine and Europe.

Cargo transportation via the ITC can be carried out both with the use of one mode of transport (unimodal transportation) or various types (multimodal transportation).

The main vectors of modern geospatial relations of Ukraine: Poland - the EU countries; Belarus - the Baltic countries; Georgia - the countries of Central Asia and Transcaucasia; Turkey - the countries of the eastern Mediterranean, etc. The growth of EU trade with China, India and other countries contributes to the sustainable development, first of all, railway transportation in the international communication "Ukraine-EU".

In connection with the intensive development of the Ukraine's railway transport integration processes in the European transport system, the following issues are of great importance: the functioning of international transport corridors (ITC), the introduction of specialized rolling stock into the turnover that would allow operation both on the European gauge track of 1435 mm and on Wide-gauge track of 1520 mm, that is, the application of European ASCS-technologies based on automated track joint systems of 1520/1435 mm, creating the "East-West" cars for transferring goods without any transshipment by railways of different standards.

2. Options of Cargo Delivery in International Traffic

The rolling stock, used for international transportation, has a principal role in ensuring the technical and technological transportation of passengers and cargoes by international transport corridors via division points of railways,

large investments in infrastructure, and their effectiveness can be confirmed with sufficiently high traffic volumes of transportations (not less than 15-20 million tons per year at a unit cost of 1 km of rail roads 10 million euros, 25-30 million tons/year at a cost of 1 km road 15 million euros and 30-40 million tons/year at a cost of 1 km 20 million euros). The type of cargo and terms of delivery can become decisive. For example, for long terms of cargo delivery to the consignee, rail transportations can become not competitive to automobile transport.

Undoubtedly, not only economic but also social factors must be taken into account for the final decision, as well as the reliability (non-failure operation) of a particular cargo transportation system. This issue is subject to additional research, but even now one can say that the greatest reliability and small delays at the border are provided by options for constructing the wide gauge railroad or European gauge to the appropriate terminals or ports.

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