

THE IMPACT OF THE WAR IN UKRAINE ON INTERNATIONAL TRANSPORTATION: CURRENT STATUS, LOSSES AND DEVELOPMENT TRENDS

The full-scale invasion by the Russian Federation in 2022 caused massive disruptions to Ukraine's traditional logistics chains and led to a significant reduction in international transport volumes. In the context of armed aggression, logistics faced the need for rapid adaptation, the search for alternative routes, and changes in the structure of cargo flows.

In this context, it is essential to outline the main types of international transport:

- *road transport* is the most practical mode, enabling delivery to virtually any location, especially where rail, air, or sea access is unavailable. It offers advantages thanks to route flexibility;
- *air transport* is the fastest but most expensive mode, offering the highest level of security;
- *sea transport* enables carriage of large volumes of cargo at low cost;
- *rail transport* is considered the most reliable and cost-effective mode for transporting large volumes over long distances.

In peacetime, these modes of transport are characterized by stability and predictability. However, the war has significantly changed the structure and volume of international transport.

Freight transport volumes in Ukraine (2020–2022) are presented in Table 1.

Table 1. Dynamics of freight transport volumes in Ukraine in 2020–2022

Type of transport	Years			Deviation in 2022 from 2021
	2020	2021	2022	
Total volume	599,9	619,9	317,2	-49,8%
Road	191,5*	226,6	175	22%
Air	≈100*	100*	15	-85%
Sea	≈150*	151,3 *	59	-61%
Rail	305,4 *	314,3	150	-52,1%

Source: based on the data of the SE Derzhzovnishinform [1]. Indicators marked with * are based on the author's own calculations.

As shown in Table 1, all modes of transport experienced a significant decline in 2022. The largest decline was in air transport (-85%), due to the complete closure of Ukraine's airspace. Losses in the aviation industry as of November 2024 are estimated at \$2 billion [3]. Port transshipment volumes decreased by 61% due to the blockade of the main Black Sea ports and the partial destruction of port infrastructure, resulting in losses of \$0.85 billion. Some cargo was redirected to the Danube ports (Izmail and Reni).

In 2022–2023, cargo turnover at Danube ports increased almost sixfold compared to the pre-war period, enabling partial support for exports via routes to EU ports and to Constanta, Romania. However, with the resumption of the maritime corridor through the deep-water ports of Greater Odesa in 2024, transshipment volumes on the Danube decreased by 45.9% to 17.3 million tons [2].

Rail transport decreased by 52.1% due to damage to tracks and infrastructure, and increased evacuation and humanitarian traffic. The losses are estimated at \$4.3 billion [3].

Road transport decreased by 22%. This decline resulted from the destruction of over 26,000 kilometres of roads, estimated at \$28.3 billion [3], as well as higher logistics costs and border-crossing complications.

According to the president of the Association of International Freight Forwarders of Ukraine, "business has adapted and reoriented itself and has begun to develop new export routes. In particular, land corridors through European countries, which can be divided into two global directions: the western transport corridor to Poland, Germany, and the Baltic countries, and the southern transport corridor mainly to Romania" [1].

The war in Ukraine has caused profound disruptions to logistics chains, significant losses to transport infrastructure, and a reduction in all types of international transport. Overcoming these consequences requires modernizing port, railway, and road infrastructure, expanding transport corridors across EU countries, strengthening the role of Danube ports, and introducing digital solutions into logistics processes. In the post-war period, the stability and development of international transport will depend on the restoration of sea routes, deeper integration into European transport networks, and diversification of logistics routes.

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