

**INFLUENCE OF THE INTERNATIONAL NORTH-SOUTH TRANSPORT  
CORRIDOR ON THE DEVELOPMENT OF LOGISTICS IN THE CASPIAN  
REGIONS OF THE SOUTHERN FEDERAL DISTRICT OF RUSSIA**

**INFLUÊNCIA DO CORREDOR DE TRANSPORTE INTERNACIONAL NORTE-  
SUL NO DESENVOLVIMENTO DA LOGÍSTICA NAS REGIÕES DO CÁSPIO DO  
DISTRITO FEDERAL DO SUL DA RÚSSIA**

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**ABSTRACT**

**Objective:** This study assesses the impact of the International North-South Transport Corridor (INSTC) on logistics operations within the Caspian regions of the Southern Federal District of Russia, focusing on the challenges and solutions related to organizational and technical issues that hinder the development of cargo turnover.

**Methods:** The research methodology is grounded in a combination of theoretical analysis of scientific literature and practical assessment through analysis of internet media, online periodicals, expert opinions, and statistical data. Content analysis of official websites and government documents was also conducted to understand the historical and current operational scope of the INSTC.

**Results:** The findings indicate that unresolved organizational and technical issues, coupled with high interregional competition for budget funds, significantly affect the operational efficiency and development of the INSTC. Despite these challenges, the cargo turnover statistics do not show any significant problems, suggesting discrepancies between reported data and on-ground realities.

**Conclusions:** The study concludes that while the INSTC has potential to transform regional logistics by offering a cost-effective and efficient alternative to traditional routes, its success is heavily dependent on resolving existing organizational and technical challenges and ensuring better federal and regional cooperation.

**Keywords:** Cargo turnover. Logistics. Transport. Caspian regions. Multimodal transportation. Transport infrastructure. Transport corridor.

## RESUMO

**Objetivo:** Este estudo avalia o impacto do Corredor de Transporte Internacional Norte-Sul (INSTC) nas operações logísticas dentro das regiões do Cáspio do Distrito Federal do Sul da Rússia, concentrando-se nos desafios e soluções relacionados a questões organizacionais e técnicas que impedem o desenvolvimento do volume de carga.

**Métodos:** A metodologia de pesquisa baseia-se em uma combinação de análise teórica da literatura científica e avaliação prática através da análise de mídia na internet, periódicos online, opiniões de especialistas e dados estatísticos. Análise de conteúdo de sites oficiais e documentos governamentais também foi conduzida para entender o escopo operacional histórico e atual do INSTC.

**Resultados:** Os resultados indicam que problemas organizacionais e técnicos não resolvidos, juntamente com uma alta competição inter-regional por fundos orçamentários, afetam significativamente a eficiência operacional e o desenvolvimento do INSTC. Apesar desses desafios, as estatísticas de volume de carga não mostram problemas significativos, sugerindo discrepâncias entre os dados relatados e as realidades no campo.

**Conclusões:** O estudo conclui que, embora o INSTC tenha potencial para transformar a logística regional oferecendo uma alternativa custo-efetiva e eficiente às rotas tradicionais, seu sucesso depende muito da resolução dos desafios organizacionais e técnicos existentes e de garantir uma melhor cooperação federal e regional.

**Palavras-chave:** Corredor de Transporte Internacional Norte-Sul. Desenvolvimento logístico. Regiões do Cáspio. Volume de carga. Desafios organizacionais. Problemas técnicos.

## INTRODUCTION

The implementation of various forms of sanctions and political pressure by "unfriendly states" against the Russian Federation in 2021-2023 has fundamentally changed the principles of the formation of the macro-regional and international global market space. The stable operation of these markets for a long time supported sustainable economic, energy, and food security of the Russian Federation and a group of Asian, African, and Latin American countries.

These trends have also affected the transportation and logistics services markets of the UN countries and the USA, which are no longer accessible to Russian transportation carriers. Russian export also experiences the impact of the restrictions. Global leaders in container shipping have ceased their cooperation with Russia. A naval blockade has further aggravated the situation of Russian sea carriers. Global export and import chains have thus been blocked.

For a long time, the port infrastructure of the Black and Caspian seas served export-import operations on the Black Sea-Mediterranean and Baltic-Atlantic transport and logistics corridors (Mityakov et al., 2023; Trukhachev et al., 2022). Today, however, there are increasing political and economic risks that disrupt the normal maintenance of transportation and logistics operations in the Black Sea, the Baltic Sea, and the Suez Canal (Ragimkhanov & Zhukovskaya, 2023). This includes growing prices for the pilotage of vessels (Levchenko et al., 2023), route overload, and hostilities in the Suez Canal.

These actions have resulted in an unprecedented surge in prices in global food markets observed since 2020 and continuing today (Gu et al., 2020; Khoruzhy et al., 2022). The sanctions hit logistics chains tied to the agricultural sector, the disruption of which caused temporary shortages and price increases for semi-finished products, seeds, fertilizers, finished products, agricultural products, pharmacological products, and other groups of goods (Roscongress, 2024).

The current circumstances open up prospects for forming international transport and logistics and export markets without economic entities from the list of "unfriendly states". The task at hand is to create alternative logistics routes (Abramova et al., 2023; Xue & Han, 2023). Given the current conditions, good prospects for the organization of economic relations and the formation of a common market space are offered by the organization of operations through the International North-South Transport Corridor (INSTC), which began operating in 2023 (Ignatieva et al., 2023). States of the Caspian transboundary region and Central Asia are showing great interest in the operation of this corridor and putting in their efforts. The significance of the INSTC is openly highlighted by countries within the economic space of the

Indian Ocean region, the Persian Gulf, the Middle East, and East and South Africa. Finally, the great promise of this project is noticed by countries of the Shanghai Cooperation Organization and the BRICS countries. Common markets and market spaces can be built with each of these blocks based on the satisfaction of economic interests and demand (Mikhaylov, 2023).

The new context around the opening of the INSTC calls for government institutions to develop mechanisms to integrate this corridor with the transportation and logistics infrastructure of the Russian regions. This concerns, first and foremost, the role of regions of the Southern Federal District in changing the geography of Russian foreign trade (Panassenko et al., 2022). It is becoming clear that their transport and logistics potential needs to be expanded and the capacity, load, and throughput of transport infrastructure increased. The climate factor also plays a prominent role in this issue due to its impact on the throughput capacity of port infrastructure in winter. The issue addressed in this paper is especially topical with respect to resolving the tasks of Russia's sustainable socioeconomic development because it can break the monopoly of Western countries on trade and logistics. Analysis of the geographic pattern of traffic through the INSTC shows that at this point it has more of a cross-border-regional significance than a global one.

**The goal of the study** is to analyze the impact of the INSTC on the development of logistics in the regions of the Southern Federal District.

## METHODS

The reliability and validity of findings are ensured by a theoretical analysis of scientific literature and analysis of Internet media, online periodicals, expert opinions, statistical data, official websites of government agencies, and relevant documents.

Consideration is given to historical studies disclosing the specifics of the development of the INSTC.

## RESULTS AND DISCUSSION

The problem addressed in this paper is of scientific interest to researchers, particularly historians, who testify that the ideas of such projects have been realized since antiquity and the early Middle Ages. The city of Astrakhan was taken under Russian control in the 16th century, and up until the 19th century, foreign diasporas of merchants from different countries were active in the Caspian territories (Markelov, 2022). Thus, trade export-import relations have historically been a catalyst for geopolitical changes since 1999, when an agreement was signed on the initiative of Russian, Indian, and Iranian transport and logistics companies to transport

containers along the well-known route. In 2000, an agreement was signed between these countries to organize an international multimodal transport route, including Russian transport communications. In 2003, the invasion of Iraq by the USA disrupted stability in the Caspian region, which froze the project.

At present, the main argument in favor of the INSTC is the geographical one. Compared to the Southern Sea Route transport corridor from Europe through the Suez Canal (1 bln t of cargo annually, amounting to 7 bln USD), which spans 16,000 km and takes 30-45 days for ships to pass through, the INSTC is only 7,200 km long and takes 15-24 days to pass (experimental shipment of a train from Finland to Iran through Russia took 10 days). The route is multimodal, accommodating the capacities of different modes of transportation. The argument in favor of the Russian transport corridor is strengthened by the possibility of organizing two more branches of routes in this direction: 1) the trans-Caspian route through the Caspian Sea – 4,900 km; 2) the eastern route through Iran, the Caspian Sea, Turkmenistan, and Kazakhstan – 6,100 km. There are also plans to organize another route through the Caucasus countries, which would be even shorter (however, the Karabakh military conflict hinders this initiative). An important circumstance is that most of the Russian section of the transport corridor is serviced by railway transport, which accounts for 33-53% of the overland route, depending on the destination. These factors majorly decrease the costs of goods and cargo shipment. Accordingly, the demand for this route is expected to rise, since imported products become 30% cheaper, bringing commensurate losses to other international transport corridors. Calculations in regional currencies, i.e., de-dollarization, can contribute to the neutralization of sanctions policies against competitors. This statement is supported by statistics, which show an increase in cargo turnover: 2021 – 13.8 mln t; 2022 – 14.5 mln t; 2023 – over 20 mln t. An important factor favoring the Russian route is its relative remoteness from zones of armed conflict (Ukraine, Israel, Yemen). Hostilities cause the costs of shipment to climb since high risks begin to influence price formation and the value of goods. There is also a rise in the costs of security, which can be provided by Russian military bases, making this route a demilitarized zone.

It should be separately emphasized that in the Russian domestic market of transport and logistics services, such competing directions as the Eastern and Azov-Black Sea corridors are currently overloaded.

Considering the above, the Caspian regions of the Southern Federal District (the Astrakhan region, the Republic of Kalmykia, and the Republic of Dagestan) gain an increasing

economic role. For geographical and political reasons, the most favorable position as a transportation and logistics link of the INSTC is held by the Astrakhan region, which can receive both sea and river cargoes and land cargoes. In addition, the region has two special economic zones specializing in industrial production and the port industry. A container terminal is scheduled to be launched in 2024. Two ports operate in the region – Astrakhan and Olya. This is confirmed by statistics: the growth of cargo transportation in 2022 compared to 2021 was more than 202% at the Astrakhan port (270 ths t) and almost 207% at the Olya port (128 ths t) (Vydashenko & Vydashenko, 2023). Experts estimate that to ensure full-fledged development of the trans-Caspian route and uninterrupted operation of the INSTC through ports in the Astrakhan region, it is necessary to build 45 container ships and spend over 3 bln rubles to develop the route itself (RBC, 2023a). At present, the portfolio of orders for the construction of vessels of different specializations is 130 vessels (dry bulk carriers, chemical tankers, river-sea tankers, etc.), including those from abroad. The prospects of creating a state-owned shipping company to operate the INSTC are being discussed. Experts estimate that 50% (or 125) of Russian vessels in the Caspian Sea will reach the end of their service life by 2035. Experts conclude that shipbuilding companies from the Astrakhan region could take over the maintenance of the canal, yet they are blocked by the position of the federal holding United Shipbuilding Company, which controls 80% of the shipbuilding industry in the country. However, experts believe that this federal structure is currently unable to handle the challenges faced by the Russian section of the INSTC. Cargo turnover will not increase unless this problem is resolved. Another problem to be solved is dredging in the Volga River delta (due to sand and river sediments) (Morskije vesti Rossii, 2023). In winter, a seasonal obstacle is the freezing of water in ports. In addition, the customs regime at the border increases the downtime of maritime transport in the trans-Caspian corridor by 40% (Nikitin, 2023).

The current capacity of the transport corridor in the Republic of Dagestan is estimated to be more modest due to unresolved organizational and technical issues related to the construction of the railroad section between Azerbaijan and Iran. Nevertheless, the transport and logistics complex of the region as of 2023 is represented by a commercial port (Makhachkala), a network of railroads, as well as a network of federal and highway routes (Peshkov, 2023). Compared to 2021, cargo transportation grew by more than 55.2% in 2022 (6.2 mln tons) (Vydashenko & Vydashenko, 2023). It is planned to build a cargo terminal at the port. The construction of a railroad line between Iran and Azerbaijan (160 km) will increase cargo turnover by 3-10 mln t a year. Without this, the time and cost of cargo delivery will be higher. Dagestan still has many bottlenecks holding back traffic flow. The capacity of this

region cannot accommodate the growing traffic flow without investment in infrastructure. This circumstance makes the port industry of Dagestan dependent on the condition of road infrastructure (RBC, 2023b). Cargo transit by sea is the most expensive in terms of logistics, as the pricing considers freight services and additional stages of cargo handling. Therefore, it can be assumed that Dagestan does not lose much ground to the Astrakhan region. Nevertheless, the transport system of this region needs optimization (road and railway construction), because the port industry is dependent on them. We can assume that the republic has potential opportunities to enhance the competitiveness of its territory by organizing railway transportation of foreign cargoes.

Special mention should be made of the transportation and logistics system of the Republic of Kalmykia, which is of alternative importance for the development of the INSTC. Despite its favorable geographic position, the problem of transport accessibility in this territory is still acute. Rosmorrechflot is planning to build an ice-free seaport Ladoga in the region to integrate it into the global transport system. The project envisions the construction of freight, oil, and container terminals with a total capacity of 22.5 mln t. This project is in the sphere of interest of China, which lobbies this project ("Eurasia") in Kalmykia, expecting to secure access to the Azov-Black Sea basin. However, experts argue that this project is fraught with environmental risks. The Lagan port has no access to the railroad (unlike the Astrakhan and Olya ports), and it has not been envisioned for a long time. Since 2024, however, it has been planned to build a railroad line spanning from Kalmykia to the Rostov region, starting from the Lagal port (Government of the Russian Federation, 2020). The advantage of this port is that its waters do not freeze in winter. The official position of Rosmorrechflot is that the Lagan port should not compete with the others in the Astrakhan region. Another unfavorable point is the lack of transit orders for the only port in the region. None of the neighbors are willing to confirm the volume of the base of cargo to pass through this logistics channel (Maksimov, 2020). Experts point out potential interest in this project on the part of neighboring regions within the Russian Federation. Additionally, it is important to note that the yet-non-existing port lags behind competing port terminals in Kazakhstan in terms of capacity. Thus, the potential of this territory for the organization of spatial economics is utilized inefficiently.

## CONCLUSIONS

The findings suggest that in the regions of the Southern Federal District, it is particularly important to overcome infrastructural constraints for the growth of cargo turnover through the

INSTC. Russian transportation and logistics businesses are stakeholders in these changes. However, even under these circumstances, we can conclude that the transport corridor has an impact on the economies of the Southern Federal District regions. Infrastructure development is of great intra-industry importance for the transport sector, as the uneven development of road and port infrastructure in the Caspian regions of the Southern Federal District hinders the proper organization of multimodal cargo transportation and satisfaction of the existing demand for this type of services.

The development of the INSTC is complicated by intra-regional and inter-regional competition between port infrastructure facilities, railway transport, and shipbuilding industry for budgetary resources, in which federal subordination structures supported by the Russian Government (United Shipping Company, Rosmorrechflot, Russian Railways JSC, etc.) actively interfere. These factors often make it impossible to evenly use the transport and logistics capacities of the Caspian regions to service the INSTC and to utilize them to their full capacity. These circumstances partly influence structural disproportions in the volume of cargo transportation, including through the INSTC.

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