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MAIN PROBLEMS OF THE DEVELOPMENT OF IZMAIL SEA COMMERCIAL PORT UNDER MARTIAL LAW

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ОСНОВНІ ПРОБЛЕМИ РОЗВИТКУ ІЗМАЇЛЬСЬКОГО МОРСЬКОГО ТОРГОВЕЛЬНОГО ПОРТУ В УМОВАХ ВОЄННОГО СТАНУ

The article aims to systematically examine the functional role and the key development challenges of the Izmail Sea Commercial Port under martial law conditions. According to the research results, the Izmail Sea Commercial Port plays a crucial role in maintaining the stability of Ukraine's export and import flows. In particular, its status as a seaport and its ability to receive foreign vessels, conduct customs operations, and participate in international projects have provided a strong foundation for development during wartime. It has been proven that since the beginning of the full-scale war, the port has demonstrated high adaptability and has become one of the centers for reorienting Ukraine's exports. Investments from port operators and the private sector have contributed to the expansion

of grain and oilseed transshipment capacities, as well as the modernization of logistics and storage facilities. This has enabled a significant increase in transshipment volumes, expanded the range of cargoes, and established services for both container and tanker vessels. Despite some positive developments, the Izmail Sea Commercial Port continues to encounter several systemic challenges. These include military threats, navigation restrictions, increased pressure on infrastructure, a shortage of warehouse space, a lack of qualified personnel, and bureaucratic obstacles that complicate customs procedures and delay export operations. The combination of these factors creates risks of reduced port competitiveness in the long-, medium-, and short-term perspectives and significantly complicates its operational activity. In light of the above, the implementation of comprehensive measures to enhance the efficiency of the Izmail Sea Commercial Port is of great importance. In particular, it is essential to simplify administrative procedures and digitize customs clearance, as well as to introduce a unified coordination system between port, customs, and border services. It is also important to expand storage and transshipment capacities, modernize railway and road access routes, and ensure the port's energy autonomy. Additionally, it is necessary to stimulate public-private partnerships in the logistics sector and create favorable conditions for attracting international grants and loans, particularly within EU programs.

Метою статті є системне вивчення рольового значення та основних проблем розвитку Ізмаїльського морського торговельного порту в умовах воєнного стану. За результатами дослідження констатовано, що Ізмаїльський морський торговельний порт відіграє ключову роль у підтримці стабільності експортно-імпортних потоків України. Зокрема, статус порту, здатність приймати іноземні судна, проводити митні операції та брати участь у міжнародних проєктах забезпечили надійну платформу для розвитку навіть за умов воєнного стану. Доведено, що після початку повномасштабної війни порт продемонстрував високу адаптивність і став одним із центрів переорієнтації українського експорту. Інвестиції портових операторів та приватного сектору сприяли розвитку потужностей для перевалки зернових і олійних культур, модернізації логістичних і складських об'єктів. Це дозволило суттєво збільшити обсяги перевалки, розширити номенклатуру вантажів і налагодити обслуговування контейнерних та наливних суден. Водночас, попри позитивні трансформації, діяльність Ізмаїльського морського порту супроводжується низкою системних проблем. Серед них — воєнні загрози, обмеження судноплавства, зростання навантаження на інфраструктуру, брак складських площ, нестача кадрів, а також бюрократичні бар'єри, що ускладнюють митні процедури та затримують експортні операції. Сукупність цих чинників створює ризики зниження конкурентоспроможності порту в довгостроковій, середньостроковій та короткостроковій перспективах та істотно ускладнює операційну діяльність порту. З огляду на викладене, пріоритетом є реалізація комплексних заходів щодо підвищення ефективності функціонування Ізмаїльського морського торговельного порту. Зокрема, необхідно спростити адміністративні процедури та цифровізувати митне оформлення, а також впровадити єдину систему координації між портовими, митними та прикордонними службами. Необхідно розширити складські та перевантажувальні потужності, модернізувати залізничні та автомобільні під'їзди та забезпечити енергетичну автономність об'єктів порту. Слід стимулювати державно-приватне партнерство у сфері розвитку логістики та створити сприятливі умови для залучення міжнародних грантів і кредитів, зокрема в межах програм ЄС.

Key words: bureaucratic barriers; customs procedures; export operations; port operators; port; navigation restrictions; navigation modes; allocation of responsibilities; dredging.

Ключові слова: бюрократичні бар'єри; митні процедури; експортні операції; портові оператори; порт; обмеження судноплавства; навігаційні режими; розподіл відповідальності; днопоглиблення.

PROBLEM STATEMENT

The Izmail Sea Commercial Port, located on the Danube River and connected to the Black Sea (i.e., it has direct access to the sea via the Danube Shipping Canal), has become one of the key transport and logistics hubs of southern Ukraine amid the full-scale invasion of Ukraine by the Russian Federation. Legally, the port is subordinated

to the State Enterprise "Sea Ports Administration of Ukraine" (USPA) and is part of the national system of seaports (alongside the ports of Odesa, Chornomorsk, Pivdennyi, and others). At the same time, due to its location, Izmail is a mixed-type port, being riverine in location but maritime in its functions and status. After temporarily losing access to most of Ukraine's Black Sea

ports, the Izmil port has gained significant strategic importance as a key route for maritime exports and imports via the Danube.

Since the beginning of 2023 and as of June 22, the cargo turnover of the Izmil Port reached 9 million tons, and by the end of the year, it totaled 20.26 million tons, more than twice the 2022 figure (8.89 million tons). Although a return to record transshipment volumes is not currently expected following the partial restoration of operations at Black Sea ports (since a significant portion of grain cargo is again being directed to deep-water terminals), the cargo turnover of the Izmil Port in 2024 remains steadily high-around 13.4 million tons.

This is facilitated, in particular, by the fact that traders on the Danube route incur lower costs for military risk insurance compared to maritime transport via the Black Sea (due to geographical factors, international coordination and control, and the nature of cargo flows).

Therefore, the Izmil Sea Commercial Port plays a crucial role in ensuring Ukraine's food security, transporting agricultural products, and facilitating international trade. The systematic study of the port's main operational challenges and development directions is particularly significant in this context.

ANALYSIS OF RESEARCH AND PUBLICATIONS

The contemporary development features of ports located on the Danube River have been extensively studied in the scientific works of V.P. Vlasova, I.V. Tarnovska [1], L.A. Horoshkova, S.V. Horoshkov, Y.D. Kornichuk [3], O.M. Sumets, and L.A. Goroshkova [6]. In particular, these researchers focus on the economic and logistical aspects of Danube port operations, including issues of infrastructure development, environmental risks associated with navigation, and the possibilities for integrating Ukraine's transport system into the European inland waterway network (TEN-T).

In the works of L.A. Pavlovska, O.V. Kyryllov, O.M. Korobkov, and N.H. Shpak [5], additional attention is given to optimizing cargo transshipment, dredging operations, modernizing port infrastructure, and developing cross-border cooperation within the Danube region.

Thus, the scientific approaches of these authors provide a theoretical foundation for further research on both the functional role of the Izmil Sea Commercial Port within Ukraine's transport and logistics communications system and the related challenges of its development under martial law conditions.

FORMULATION OF THE ARTICLE'S OBJECTIVES

The article aims to systematically examine the functional role and the key development challenges of the Izmil Sea Commercial Port under martial law conditions.

THE PAPER MAIN BODY

It should be noted that the primary factor ensuring the significance of the Izmil Sea Commercial Port's development under martial law is its status as a seaport. In particular, within Ukraine's transport and logistics communications system, the port is important because it

has the right to receive foreign maritime vessels, conduct customs operations, and facilitate export-import transportation without restrictions, in its capacity as a seaport [1].

Before the full-scale invasion of Ukraine by the Russian Federation, this status allowed the port to be utilized in international agreements and included in EU projects, such as the "Danube Corridor" and EU Solidarity Lanes.

After the onset of the full-scale war and the blockade of the Greater Odesa ports, the development of the Izmil port accelerated and continued even after the blockade was lifted. It is worth noting that both the port's infrastructure and operational specifics underwent significant changes. Investments from the private sector and port operators increased in the construction of new elevators, warehouses, loading complexes, and logistics facilities. For example, in 2022, the Zernova Stolitsya Group constructed two grain transshipment complexes in Izmil with a capacity of 3,000—7,000 tons. The Nibulon joint venture also announced plans to build a grain elevator with a simultaneous storage capacity of approximately 118.5 thousand tons at the Izmil Sea Commercial Port, as well as a mill with a capacity of 750 tons per day.

In terms of operational activity, the Izmil port has undergone considerable expansion. For instance, in 2024, Region Grain Company (RGC) nearly tripled the capacity of its elevator in Izmil, now capable of receiving up to 40 grain wagons per day [6].

Recent changes in the port's cargo structure have occurred: the primary cargo flows now include grain, oilseeds, processed goods, fuel, and metal products-items that were once mainly handled through the ports of Odesa, Chornomorsk, or Pivdennyi. The Izmil Sea Commercial Port has actively adapted to the handling of container and liquid bulk cargo, even though this was not its primary specialization before the war [4].

In addition, there have been changes in logistics and operational technology. Due to the sharp increase in cargo volumes, transport flows have been reoriented-truck and rail traffic have increased, and temporary cargo accumulation points have been established. Night shifts and around-the-clock vessel handling schedules have been expanded. Collaboration with border, customs, and phytosanitary services has been enhanced to prevent delays in export processing.

At the same time, following these transformations in port operations, its functioning continues to face a range of challenges-not only technical, economic, logistical, and personnel-related, but also security-related. Among the most urgent problems currently limiting the development of the Izmil Sea Commercial Port are military actions, navigation restrictions, increased pressure on infrastructure, and bureaucratic obstacles [2—3].

The systemic nature of these problems generates instability in the regional situation, caused by security threats, energy supply disruptions, fluctuations in logistics flows, and uncertainty regarding the future operation of the Danube transport corridor. It creates risks of reduced port competitiveness in the long-term, medium-term, and short-term perspectives and significantly complicates the port's operational activities.

Table 1. Guidelines for a comprehensive approach to support protection, restoration, and operational adaptation in the development of the Izmail Sea Commercial Port

Direction	Measures to improve security	Critical points targeted by the measures
Strengthening physical security	Strengthening critical facilities	Warehouses, terminals, berths, checkpoints.
	Video surveillance systems and alarm sensors	Alarm sensors for early threat detection.
	Enhancing the security of personnel and vessels	Specialized patrols, access control, personnel training.
	Use of mobile fortification structures.	Mobile fortification structures for temporary protection of key areas.
Insurance and financial preparedness	Expansion of insurance coverage	Cargo, port facilities, and personnel.
	Establishment of a reserve fund	Reserves for emergencies or damages to avoid halting operations after each incident
	Engagement of state and international grants.	Coverage of restoration and security costs
Operational adaptation	Relocation of some operations to other berths or temporary terminals.	Individual port facilities affected.
	Use of remote control or automation for certain processes.	Minimization of risk to personnel
	Implementation of flexible vessel arrival schedules	Peak-risk periods of key facilities ensuring cargo handling.
Infrastructure restoration	Priority restoration of key facilities.	Key facilities ensuring cargo handling.
	Use of rapid-deployment structures or modular terminals.	Rapid-deployment structures or modular terminals that can be quickly restored
State and international support	Engagement of government agencies.	Financial and technical assistance.
	Potential involvement of international partners.	Technical modernization and port security.
	Advocacy for security policy.	Advocacy for maritime port security policies and prioritization of budget funding.

Source: compiled by the authors based on [3; 5—6].

Since the beginning of the full-scale invasion by the Russian Federation, the Izmail Sea Commercial Port has been continuously exposed to security threats. In particular, from July 18, 2023, the aggressor country carried out over 30 attacks on port facilities, resulting in damage to or destruction of 109 infrastructure objects and six civilian buildings. According to preliminary estimates, repairing the damage to the port will require approximately 1.6 million USD.

The impact of military actions on port operations is complex and can lead to several consequences, including:

- Temporary suspension of activities at specific terminals and berths
- Increased risks for vessels, personnel, and cargo
- Higher costs associated with repairs, security, and insurance for facilities
- Greater uncertainty for investors and port partners.

Thus, military actions not only cause direct material damage but also complicate the stable functioning of

the port, making it necessary to strengthen state support and invest in security systems and infrastructure restoration.

So, the situation at the Izmail Port is challenging due to ongoing attacks and risks to personnel, vessels, and cargo. A comprehensive approach is required, combining protection, restoration, and operational adaptation (see Table 1).

In practice, the development of the Izmail Sea Commercial Port requires simultaneous action on three fronts: protection, operational adaptation, and rapid infrastructure restoration. This approach will allow the port to maintain operations even under the threat of attacks, reduce risks to personnel and cargo, and increase the trust of partners and investors.

Regarding navigation restrictions, the issue is related to increased navigational risks, limitations on vessel movements along the Danube, and the need for coordination with the Romanian side.

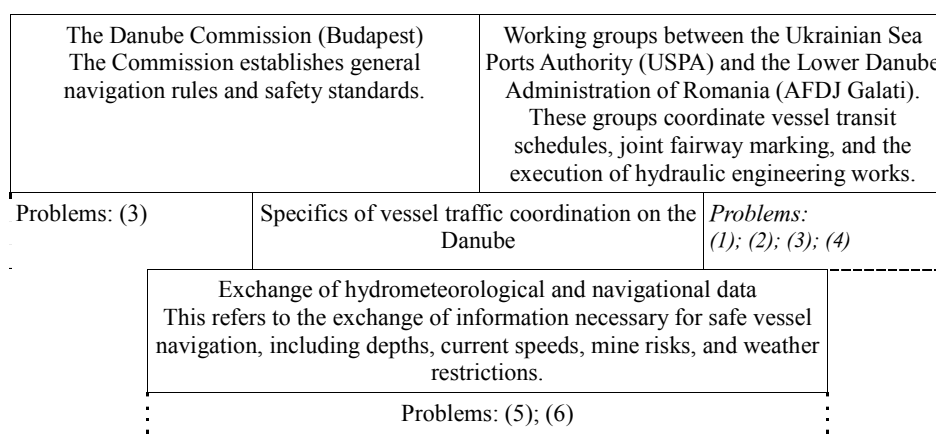


Figure 1. Logic for coordinating navigation modes, allocating responsibility for dredging, fairway marking, and conducting hydrographic surveys

Note

*Problems: (1) lack of coordination of vessel schedules between the Ukrainian and Romanian authorities; (2) restrictions on night navigation in certain sections due to insufficient marking or increased hazards; (3) complications in obtaining permits for transit through shared sections for vessels registered in different countries; (4) higher insurance rates due to parts of the water area being classified as high-risk zones (particularly in connection with the military situation in the region); (5) absence of a unified integrated data-sharing platform; (6) limited automation in the process of collecting and transmitting information.

Source: compiled by the authors based on [3; 5-6].

The Danube River section between Izmil, Kiliya, and the Sulina Canal is a shared waterway between Ukraine and Romania, requiring coordination of navigation regimes, allocation of responsibilities for dredging, fairway marking, and hydrographic works, as illustrated in Figure 1.

Additionally, the significant challenges are compounded by the maritime approach channel of the Bystre estuary (Danube — Black Sea). As of September 18, 2025, the maximum draft for vessels passing through the channel is 5.5 meters. Passage is allowed only during daylight hours and strictly with mandatory pilotage.

The Izmil section-44 miles (Catal)-is characterized by challenging water conditions, as the maximum permissible draft here is 6.8 meters. It prevents larger vessels (5,000-10,000 DWT) from fully loading to a depth of 7.0 meters at the Port of Izmil. This is despite the Izmil branch of the State Enterprise "Ukrainian Sea Ports Authority" signing a contract with the Turkish company Onur Marine Gemi for dredging works. Specifically, the contractor performed maintenance dredging in the waters of the Izmil Sea Port near berths № 12-14 and № 19-22.

Maintaining the required navigation dimensions on the Izmil section could not be fully achieved due to constant siltation and intensive sedimentation processes in this part of the Danube River, as well as limited or irregular dredging operations. Consequences of these limitations include: reduced efficiency in handling large cargoes; increased transportation and pilotage costs; restrictions on planning logistical operations and vessel scheduling in the port; greater dependence on weather conditions and river water levels.

It is recommended to carry out systematic, planned dredging rather than one-off operations, and to transport large cargoes using smaller vessels with shallower drafts (e.g., 3,000-5,000 DWT instead of 5,000-10,000 DWT).

During wartime, the Izmil Sea Commercial Port should efficiently organize cargo transshipment onto inland barges that unload at ports with deeper water areas.

Even after the opening of the maritime corridor, the operation of the Izmil Sea Commercial Port remains a critically important export route-especially for agricultural producers in the southern and western regions. In 2024—2025, up to 35—40% of Ukraine's grain and oilseed exports pass through the Danube ports, whereas before the war this figure was only 3—5%. Consequently, among other issues, there is significant pressure on infrastructure operating at the limits of its physical capacity. Under these conditions, terminal and storage area congestion has become not a temporary but a systemic problem. Specifically [4—5]:

- Terminals operate without any time or space buffer.
- There is a shortage of storage space for grain, containers, and cargo.
- Vessel handling times have increased, affecting both profitability and logistics.

To address this issue constructively-or at least reduce the associated risks-a phased set of actions is proposed: practical measures that can be implemented by the port administration itself, as well as by the state in cooperation with the private sector, according to the specifics outlined in Table 2.

For the development of the Izmil Sea Commercial Port, it should be viewed not merely as a transshipment point but as a central hub of multimodal logistics within the Danube Corridor. Without systematic unloading and modernization, it will remain a "bottleneck" in the country's grain export system.

Among other factors affecting the efficiency of the Izmil Port's operations are bureaucratic barriers related to customs, phytosanitary, and border control procedures.

Despite the introduction of electronic document management, several operations are still carried out manually or semi-manually, leading to delays in vessel and cargo clearance times. For instance, in 2023, due to inspections and delays in issuing cargo customs declarations (CCDs), more than 40 exporter vessels

Table 2. Measures to reduce the load on the infrastructure of the Izmail Sea Commercial Port under martial law conditions

Category of measures	Focus areas	Implementation specifics of the proposed measures
Short-term measures (1–6 months)	Cargo flow optimization	Implement or expand an electronic system for planning vessel movements and cargo scheduling to reduce idle time. Establish an operational coordination center between Izmail, Reni, and Ust-Dunaïsk to redistribute cargo among ports based on their capacity.
	Temporary storage solutions	Deploy mobile warehouses and modular hangars (for grain and containers) to quickly expand storage capacity without major construction. Utilize logistics hubs outside the port—temporary “dry warehouses” located 5–15 km from the water area for buffer storage of cargo.
	Work organization	Switch to a 24/7 vessel handling schedule with reinforced personnel shifts. Establish “green corridors” for the most priority cargoes.
Medium-term actions (6–18 months)	Terminal modernization	Upgrade or add ship-to-shore cranes, conveyors, and forklifts to increase operational speed. Install automated cargo tracking and documentation systems to reduce idle time.
	Development of storage infrastructure	Expand permanent storage facilities (silos, tanks, container yards). Implement outsourcing of warehousing services.
	Strengthening of transport connectivity	Improve rail and road access, and create additional holding areas for wagons and trucks. Implement a unified queue monitoring system.
Long-term steps (up to 3 years)	Creation of a “dry port”	Establish a logistics center outside Izmail to handle transshipment, storage, and customs clearance of cargo.
	Attraction of investment and international partners	Utilize EU mechanisms to finance modernization initiatives. Develop a joint project with the EBRD, EIB, or USAID to enhance the Danube logistics system.

Source: developed by the authors.

operating under Form 2 (cash settlements) were unable to load or depart from the port on time. These cases are not isolated and pose significant risks, including disruptions to export contracts, financial losses for operators, and a decrease in the overall capacity of the port. Additionally, the following issues have been identified:

1. There is a lack of clear coordination among supervisory authorities, which increases the time required for cargo processing.
2. Differences in procedures among the Danube region ports (Izmail, Reni, Kiliya) complicate logistics planning.
3. Some enterprises have reported a lack of transparency and excessive inspections, particularly during grain export operations.

In this context, simplifying administrative procedures and digitizing customs clearance is crucial, as well as establishing a unified coordination system among port, customs, and border services. For example, significant progress in this area could be made by implementing a unified electronic platform called “e-Port Danube.” This platform would integrate customs, phytosanitary, border, and port services into a single information space, facilitating integration with international data exchange systems, such as the EU Customs Data Exchange and NCTS.

CONCLUSIONS

Research has shown that the Izmail Sea Commercial Port is vital for maintaining the stability of Ukraine's export and import flows. In particular, its status as a seaport with direct access to the Black Sea via the Danube, along with its ability to receive foreign vessels, conduct customs

operations, and participate in international projects, has provided a strong foundation for development under martial law conditions.

The authors demonstrated that following the full-scale war, the port showed significant adaptability and became a key center for Ukraine's export reorientation. Private sector investments have contributed to the expansion of capacities for handling grain and oilseed cargoes, as well as to the modernization of logistics and storage facilities. This has enabled a significant increase in cargo turnover, diversification of cargo types, and the establishment of services for container and liquid bulk vessels.

Despite positive changes, the operation of the Izmail Sea Commercial Port faces several systemic challenges. These include military threats, navigation restrictions, increasing infrastructure load, shortage of storage space, lack of personnel, and bureaucratic barriers that complicate customs procedures and delay export operations. The combination of these factors creates risks of reduced port competitiveness in the long-term, medium-term, and short-term perspectives and significantly complicates its operational activities.

Given the above, the implementation of comprehensive measures to enhance the efficiency of the Izmail Sea Commercial Port's functioning is of crucial importance.

In particular, it is essential to simplify administrative procedures and digitalize customs clearance, as well as to establish a unified coordination system among port, customs, and border services.

It is also important to expand storage and transshipment capacities, modernize rail and road access routes, and ensure the energy autonomy of port facilities.

Encouraging public-private partnerships in the logistics sector is vital, along with creating favorable conditions for attracting international grants and loans, particularly within EU programs.

Furthermore, a comprehensive set of measures should be developed to enhance the physical security of port facilities and protect critical infrastructure from military risks.

The implementation of these measures will not only enhance the position of the Izmail Sea Commercial Port within the national economy but also transform it into a resilient and competitive logistics hub in the Danube-Black Sea region.

The prospects for further research may lie in studying the effectiveness of the proposed modernization and digitalization measures of the Izmail Sea Commercial Port and their impact on the competitiveness and resilience of Ukraine's exports under martial law conditions.

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