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КОНЦЕПТУАЛЬНІ ПОЛОЖЕННЯ ФОРМУВАННЯ ВАНТАЖОПОТОКІВ МОРСЬКОГО ТРАНСПОРТУ УКРАЇНИ В БЕЗПЕКОВОМУ ВИМІРІ У ПОВОЄННИЙ ПЕРІОД

Актуальність. *Формування вантажопотоків є важливою складовою сучасної логістики та ланцюга поставок. Сьогодні, транспортна система, особливо водний транспорт, знаходиться у стані турбулентності. В сучасних умовах, коли Україна залишилась без ключового логістичного ланцюга, необхідно зосередити увагу саме на важливості та ролі українського морського транспорту у формуванні вантажних потоків, які забезпечують продовольчу безпеку. Саме тому, постає необхідність у перегляді економічних підходів, якими регулюються вантажні потоки та необхідність у розробці загального керівного курсу на післявоєнне відновлення морських логістичних трафіків, шляхом формування вантажопотоків у розрізі системи глобальної транспортної безпеки.*

Мета та завдання. *Метою дослідження є розробка концептуальних положень щодо формування вантажопотоків морським транспортом України в розрізі глобальної безпеки на основі окремих опорних ринків зокрема видів перевезення вантажів у повоєнний період.*

Завдання, які необхідно вирішити задля досягнення поставленої мети: *а) аналіз вантажних потоків та вантажних обсягів за період з 2017 по 2023 роки, виокремити серед повної номенклатури вантажів основні ринки, на які можна опиратись у післявоєнний період, при відродженні морських логістичних трафіків; б) навести коротку характеристику сучасного стану ринків обраних вантажів; розробити та запропонувати концептуальні положення формування вантажних потоків у розрізі глобальної безпеки судноплавства на базисі опорних ринків.*

Матеріали та методи. *Дане дослідження ґрунтується на використанні концептуальних положень щодо формування вантажопотоків для вирішення проблем продовольчої безпеки та глобальної системи безпеки судноплавства. Застосовано методи: графічний метод, статистичного аналізу, системного аналізу, економічного аналізу на прикладі вантажопотоків водного транспорту.*

Результати. *Авторами дослідження був проведений ретельний аналіз вантажопотоків різних видів продукції, що може експортуватися за кордон морським транспортом. Наведені у статті показники висвітлюють економічні тренди вітчизняних вантажопотоків продукції, що транспортується морським коридором. Таким чином, проведено аналітичне дослідження формування вантажопотоків у розрізі кожного морського порту України за період з 2017 по 2021 рік, тобто довоєнний час. Обґрунтовано важливість та доцільність використання морського транспорту України в забезпеченні глобальних вантажних потоків. Авторами було сформовано концепцію щодо формування вантажних потоків морським транспортом України в безпековому вимірі.*

Висновки. *Таким чином, кордони деяких країн ЄС залишаються закритими для експорту українського зерна (тільки транзит до віддалених Європейських портів), вважаємо, що Україні слід тримати орієнтир на треті країни, які на пряму залежать від вітчизняного зерна і агропродовольства, а саме: Індонезія, Філіппіни, Марокко, Індія, ПСА Бангладеш, Камбоджа, Лаос, Сінгапур та країни Африки. Після того, як Росія розірвала угоду та масово почала знищувати портову інфраструктуру морських портів та річкових портів на р. Дунай, зараз Урядом відкриваються «тимчасові морські коридори», які проводять перевезення під охороною ВМС ЗСУ. Отже, з серпня 2023 року, перевалка зернових та олій відбувається виключно «тимчасовим зерновим*

коридором» та Дунайськими портами. Загальна кількість експорту аграрної продукції склала 3,6 млн. т., із запланованих 6 млн. тон.

Ключові слова: вантажні перевезення, водний транспорт, вантажопотік, вантажообіг, глобальна безпека судноплавства, ринок, зернова ініціатива, тимчасовий морський коридор.

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CONCEPTUAL PROVISIONS OF THE FORMATION OF CARGO FLOWS OF MARITIME TRANSPORT OF UKRAINE IN THE SECURITY MEASURE IN THE POST-WAR PERIOD

Topicality. Formation of cargo flows is an important component of modern logistics and supply chain. Today, the transport system, especially water transport, is in a state of turbulence. In modern conditions, when Ukraine is left without a key logistics chain, it is necessary to focus attention precisely on the importance and role of Ukrainian sea transport in the formation of cargo flows that ensure food security. That is why there is a need to review the economic approaches used to regulate cargo flows and the need to develop a general guiding course for the post-war recovery of maritime logistics traffic by shaping cargo flows in the context of the global safety system.

Aim and tasks. The purpose of the study is to develop conceptual provisions regarding the formation of cargo flows by maritime transport of Ukraine in the context of global security based on individual reference markets, in particular, types of cargo transportation in the post-war period. The tasks that must be solved in order to achieve the set goal: a) analysis of cargo flows and cargo volumes for the period from 2017 to 2023, to single out among the full nomenclature of cargoes the main markets that can be relied on in the post-war period, during the revival of maritime logistics traffic; b) give a brief description of the current state of the markets of selected cargoes; to develop and propose conceptual provisions for the formation of cargo flows in the context of global navigation safety on the basis of reference markets.

Materials and Methods. This study is based on the use of conceptual provisions on the formation of cargo flows to solve the problems of food security and the global shipping security system. The methods of: graphic method, statistical analysis, system analysis, economic analysis on the example of cargo flows of water transport are applied.

Research results. The authors of the study conducted a thorough analysis of cargo flows of various types of products that can be exported abroad by sea transport. The indicators presented in the article highlight the economic trends of domestic cargo flows of products transported by the sea corridor. Thus, an analytical study of the formation of cargo flows in the section of each seaport of Ukraine for the period from 2017 to 2021, i.e. the pre-war period, was conducted. The importance and expediency of using Ukrainian sea transport in ensuring global cargo flows is substantiated. The authors formed a concept regarding the formation of cargo flows by maritime transport of Ukraine in terms of security.

Conclusions. Thus, the borders of some EU countries remain closed for the export of Ukrainian grain (only transit to distant European ports), we believe that Ukraine should keep its sights on third countries that directly depend on domestic grain and agri-food, namely: Indonesia, the Philippines, Morocco, India, PSA (Bangladesh, Cambodia, Laos, Singapore) and African countries. After Russia broke the agreement and began massively destroying the port infrastructure of seaports and river ports on the Danube, the Government is now opening "temporary sea corridors" that carry out transportation under the protection of the Armed Forces Navy. Therefore, from August 2023, transshipment of grain and oil takes place exclusively through the "temporary grain corridor" and the Danube ports. The total amount of export of agricultural products amounted to 3.6 million tons, out of the planned 6 million tons.

Keywords: cargo transportation, water transport, cargo flow, cargo circulation, global shipping security, market, grain initiative, temporary sea corridor.

Problem statement and its connection with important scientific and practical tasks. The ongoing war in Ukraine today has additionally given rise to problematic issues related to the large-scale reduction of consumer demand in the market of freight flows and transport logistics. Currently, ensuring food security of Ukraine is one of the priority directions of the country's financial and economic policy in the war and post-war period in the international food arena. In the conditions of a large-scale war, the Russia in Ukraine created economic turbulence, instability and a production crisis in the country, which affected the transport logistics market and the country's cargo flows.

It should be noted that the problem of grain exports to EU countries and the ban on the import of these products negatively affects domestic exporters (V.D. Danchuk, A.V. Sevost'yanova, 2020). Determination of conceptual provisions and priorities for the development of the logistics market of cargo flows and water transport corridors in the conditions of post-war economic recovery. Today, the food and transport market is under the influence of the strengthening of global negative political and economic processes taking place in the international food markets, primarily the growing regional food crisis.

Analysis of recent publications on the problem. The theoretical aspects of the study of issues related to the study of the formation and current state of cargo flows were elaborated in the scientific works of Ukrainian authors: Tymchenko N.M., Kuzmenko O.Yu., Kuzmenko V.S., who in their research conducted a thorough analysis of the potential of water transport of Ukraine (Timchenko N.M., Kuzmenko O.Yu., Kuzmenko V.S., 2021); from the works of Goryainov O.M. basic theoretical concepts regarding the term "cargo flow" and its characteristics were taken (Goryainova O.M., 2009); Ilchenko S., Maslii N., Nitsenko V., Ganjurenko I., Lavrushchenko Yu., Kotenko S. and Vardiashvili A., studied the theory of multimodal and intermodal transportation (Ilchenko S., Maslii N., Kotenko S. et al., 2020); the question of the interaction of the segments of the maritime cargo transport market in the post-war period was considered in their works by such scientists as Ilchenko S., Gryshchenko V. and Gryshchenko I. (Ilchenko S., Gryshchenko V. and Gryshchenko I., 2023); the issues of the nature of the appearance of the concept of "logistics network", applied terminology, scientific classification of forms and varieties of network logistics were dealt with by the scientist Doroshevich D. (Doroshevich D., 2014), and Lysa

S. in the work of the scientist also consider the conceptual apparatus of "logistics network", methods and means of its management (Lysa S., 2017). I. Nikolaev (Nikolaev I., 2023) and V. Dykan (V. L. Dykan, M. V. Korin, 2012) considered in their works the origin of MTC, as well as their role in the global transportation of goods and their impact on the international economy.

Also, scientific works of international authors were processed: David Simchi-Levi (D. Simchi-Levi & all, 2005); Jean-Paul Rodrigue (Jean-Paul Rodrigue, 2020); Markus Hesse (Markus Hesse and all, 2004) their work covers the theory of cargo flows and their optimization, Yaqing Shu, Winnie Daamen considered the theory and modeling of vessel route selection (Y. Shu, W. Daamen & all, 2015).

Allocation of previously unsolved parts of the general problem. For the current wartime, there is a trend of rising prices in the cost structure of freight flows of domestic commodity products, due to the share of energy carriers, primarily electricity, natural gas. The military aggression in our country has additionally intensified problematic issues related to a large-scale reduction in consumer demand for agricultural products, damage to the infrastructure (sea and river ports of Ukraine), violation of logistics schemes of commodity supplies, etc. The blocking of sea transportation through the "grain corridor", the suspension of the grain agreement of the Russia and the increase in the cost of transport logistics have a negative impact on the freight turnover and financial indicators of agro-food producers and exporters, which will significantly affect global food security. The formation of transport cargo flows in the field of the marine transport complex of the economy, heterogeneous in terms of methods, objects and tools (sea, river, i.e. water transportation) is their common and only goal - the post-war development and improvement of the efficiency of cargo flows of these maritime transport enterprises. In the case of water transport infrastructure, such contradictions are:

1) inconsistency of the parameters of the transport process, determined by its logistics, with modern requirements, taking into account the development strategies of river ports, sea ports and the transport system of Ukraine;

2) inconsistency of the state of the infrastructure with the current requirements for ensuring the safety of navigation (mining of the water areas of ports and waterways, terrorizing water infrastructure and logistics objects by enemy missiles, naval drones, combat universal drones,

etc.);

3) inconsistencies in the quality of vessel service in the sea and river ports of Ukraine during the martial law.

It should be noted that restoration may be associated with equipment repair, streamlining of waterways, canals, dams, etc. For example, natural silting requires periodic cleaning of waterways and fairways with special ship dredges. In particular, during martial law, this may apply to transshipment, navigation and hydrographic equipment of ports, signaling systems during air alarms, etc. The replacement of objects involves the replacement of equipment and systems at the end of their service life (or damaged as a result of natural disasters, accidents, etc.) with similar parameters and vessel characteristics.

Formulation of research objectives (problem statement). The purpose of the study is to develop conceptual provisions regarding the formation of cargo flows by maritime transport of Ukraine in the context of global security based on individual reference markets, in particular, types of cargo transportation in the post-war period. Tasks that must be solved in order to achieve the set goal: a) analysis of cargo flows and cargo volumes for the period from 2017 to 2023, to single out among the full nomenclature of cargoes the main markets that can be relied on in the post-war period, during the revival of maritime logistics traffic; b) give a brief

description of the current state of the markets of selected cargoes; to develop and propose conceptual provisions for the formation of cargo flows in the context of global vessels security on the basis of reference markets.

Materials and methods. The author's vision of the study is based on the use of conceptual provisions on the formation of cargo flows to solve the problems of food security and the global shipping safety system. Methods are applied: graphic method, statistical analysis, system analysis, economic analysis on the example of cargo flows of water transport.

An outline of the main results and their justification. Today, when Russia's aggressive war against Ukraine continues, the questions of analyzing the current state of cargo flows of maritime transport in Ukraine are very relevant. In order to assess the current state of the sea transport market, it is necessary to analyze the basic data that show the volume of transported goods by sea transport, without taking into account the temporarily occupied territory of Crimea, the coast of the Sea of Azov. The data are presented in fig. 1., show the general picture of the cargo turnover of the seaports of Ukraine according to the nomenclature, in the section of each seaport of Ukraine. Figure 1, shows the structure of cargo flows of seaports of Ukraine in the period from 2017 to November 2023.



Figure 1 – Cargo flows of Ukrainian ports from 2017 to November 2023, (million tonnes)

Source: compiled by the authors based on data from the Ports of Ukraine magazine, 2017-2022, and on open data from the State Customs Service, 2023.

Based on the graph, the largest formative direction of cargo flow is export (76.4%), followed by import (16.7%), transit and cabotage (6% and 0.9%, respectively).

Also, according to the authors, it is appropriate

to analyze the formation of freight traffic in the context of each seaport of Ukraine separately by nomenclature. According to the resolution of the CMU "On certain issues regarding the implementation of imports" dated 24.02.2022 No.

153 and based on the analysis of the formation of exports and imports by sea transport, in table 1, the types of cargo that, according to the authors, will

be relevant in the post-war period, during the formation of the structure of the cargo flow through the sea ports of Ukraine.

Table 1.

Strategically important types of cargo for the formation of cargo flow by sea transport in Ukraine in the post-war period

№	Types of cargo	
	Export	Import
1	Grain crops	Oil and oil products
2	Ferrous metals	Nuclear reactors, boilers, machines
3	Sunflower oil	Electrical machinery and equipment
4	Ores, slag and ashes	Land transport means

Source: compiled by Labunets I. on the basis of the analysis and the Resolution "On the List of Critical Import Goods" of 24.02.2022 No. 153.

Next, the authors of the work, using statistical and graphic methods, created graph 2.3, which clearly shows the dynamics of the cost of export of

cargo flows with selected cargoes for the period from 2017 to 2023.

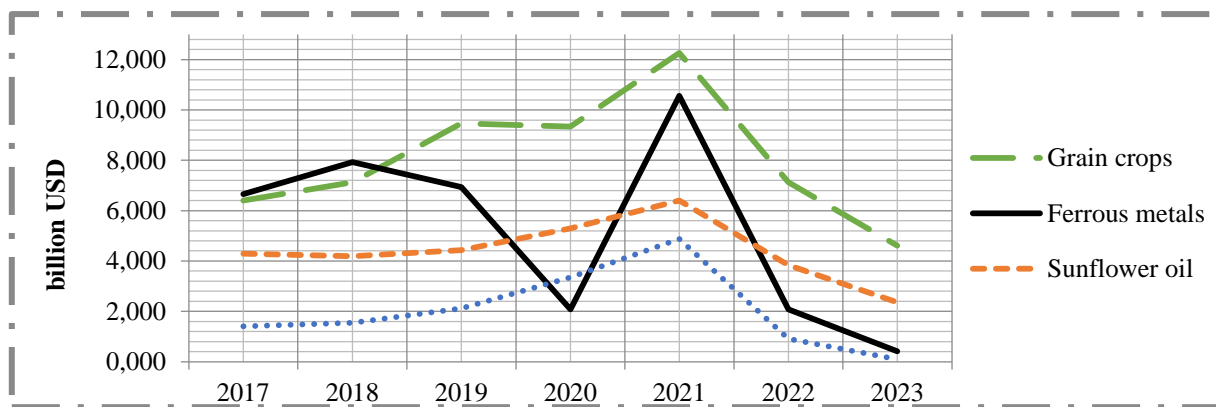


Figure 2 – Dynamics of the value of exports of selected cargoes in the period from 2017 to 2023 (by sea), billion USD

Source: compiled by the authors based on open data from the State Customs Service, 2023.

An increase in indicators is observed in 2021 for all product groups. We can see that the basis of the structure of exports through maritime transport

of Ukraine is grain crops, the average annual value of which is 8.047 billion dollars. USA. Figure 3 shows the volume dynamics of the export part..

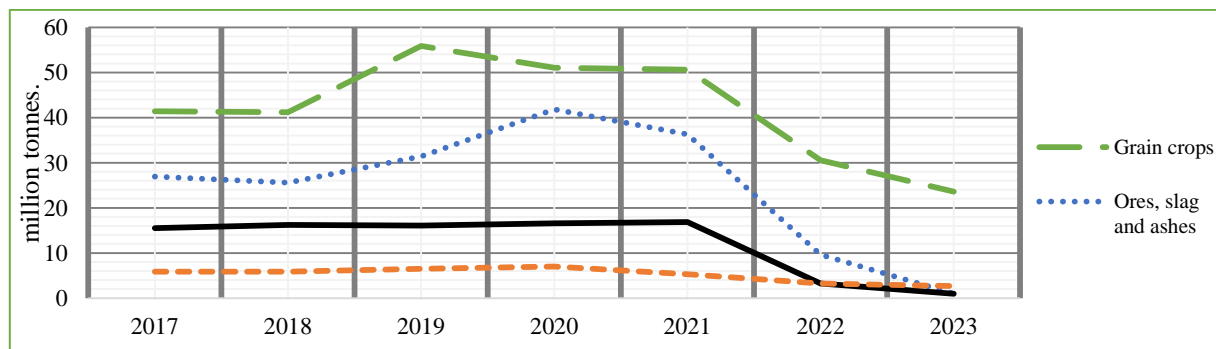


Figure 3 – Dynamics of export volumes of selected cargoes in the period from 2017 to 2023 (by sea), million tonnes

Source: compiled by the authors based on open data from the State Customs Service, 2023.

If you compare Figures 2 and 3, you can observe an interesting phenomenon - in 2021, there is an increase in the revenue of exporters of ferrous metal, while a decrease in cargo flow was recorded due to a decrease in demand from China. The reason for this situation is the global situation. The export structure changes according to the stages of

grain crop harvesting. That is why wheat and rapeseed are currently the most exported, and the export of soybeans is also gradually increasing. Next, the graphs in figures 3 and 4 show the dynamics of the import value and the dynamics of the volume of the imported part, which forms the structure of the cargo flow, respectively.

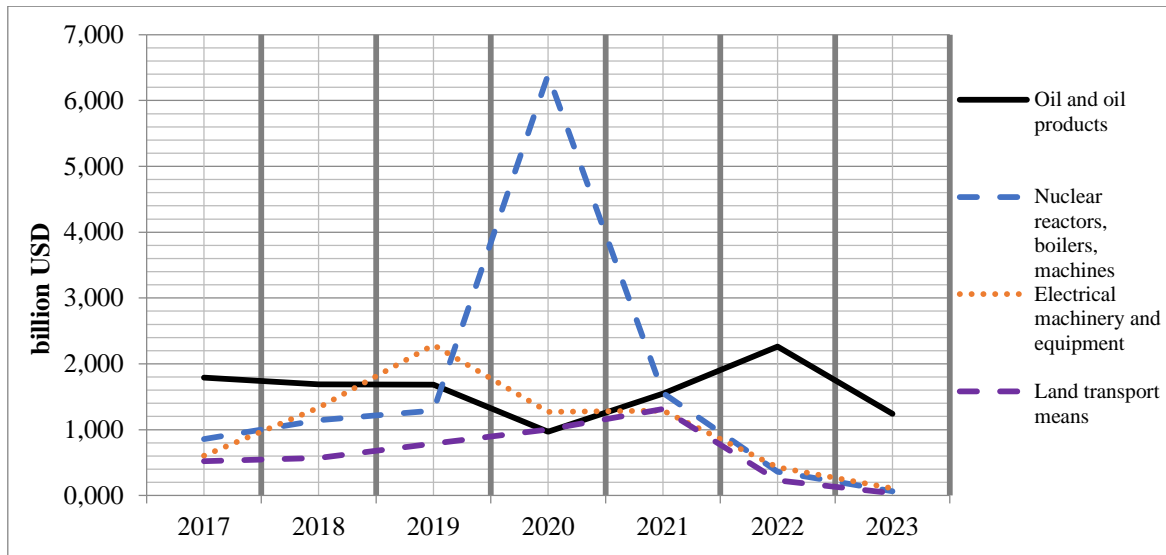


Figure 4 – Dynamics of the value of imports of selected goods in the period from 2017 to 2023 (by sea), thousand tonnes

Source: compiled by the authors based on open data from the State Customs Service, 2023

The same situation is observed as with the dynamics of the value and volume of exports, only with the commodity group "nuclear reactors, boilers and machines" when the dynamics of the

value and volume of imports are observed. It can be clearly seen that the value increased in 2020, while the volume of imported products decreased.

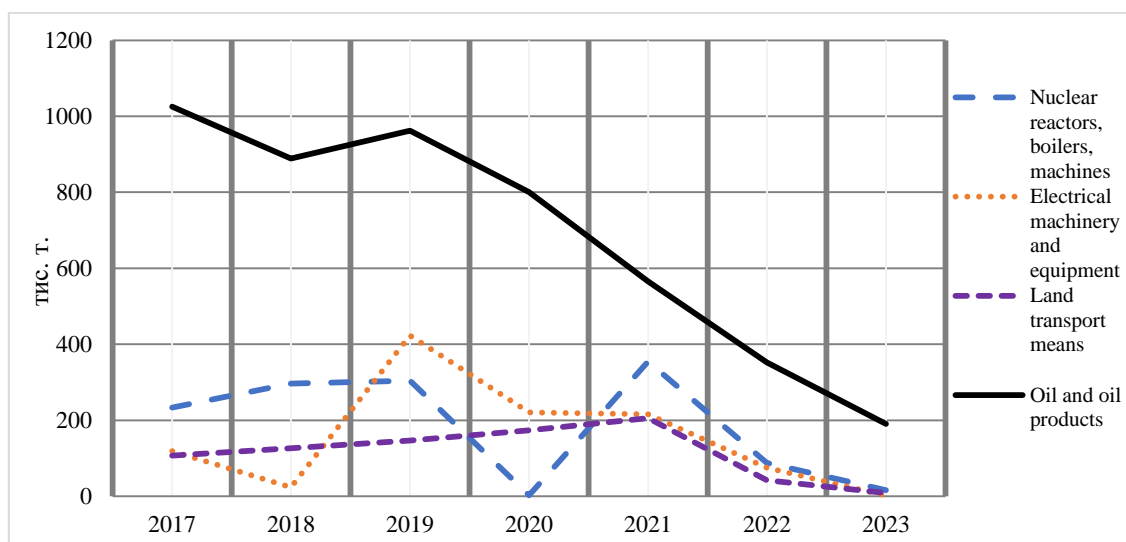


Figure 5 – Dynamics of import volumes of selected cargoes in the period from 2017 to 2023 (by sea), thousand tonnes

Source: compiled by the authors based on open data from the State Customs Service, 2023.

In 2022, we observe the same trend with the "oil and oil products" commodity group. The only

trend observed in the structure of the formation of cargo flows and their value equivalent is that the volumes of imports and exports from 2021 to today have become smaller on average by 3 times, except for "oil and oil products" where the value of exports in 2022 was 2.261 billion US \$, and in 2023 (as of November) is equal to 1.242 billion US \$, which is almost twice less than in 2022.

For further work, the authors decided to investigate partner countries that formed a share of imports and exports, and are today the main substitutes for Russia and Belarus in trade relations with Ukraine.

As of November 2023, exports of grain crops and sunflower oil take place through the ports of Ust-Danuyskiy, Reni, Izmailski and through the "temporary" sea corridor, which began functioning in August 2023, after Russia withdrew from the "Grain Initiative". The security of the "temporary" corridor is currently being taken care of by the Armed Forces Navy (Blackseanews, 2023).

In order to increase exports by 3.35 million tons per year, it was decided to sign an agreement between the enterprises "Nibulon", "Kernel", "Grain Alliance" and USAID (the US Agency for International Development) on a partnership that will lead to the development economy of Ukraine and will ensure the supply of much-needed grain to the world market.

The Kernel and Nibulon investments will increase grain export operations at three terminals: Ust-Dunaysk, Izmail and Reni, located on the Danube River, and will also cover a range of needs from the design and reconstruction of the quays at the port of Reni to the expansion of the operational capabilities of the Izmail port.

Since the borders of some EU countries remain closed for the export of Ukrainian grain (only

transit to distant European ports), as well as the reasoned report of the European Commissioner regarding "no desire to see Ukrainian grain in the EU", due to the impact on the entire EU market and the competition of Ukrainian farmers with Polish farmers, we believe that Ukraine needs to keep a reference point to the third countries of the world and to countries that directly depend on domestic grain agricultural production, namely: China, Indonesia, the Philippines, Morocco, India, PSA (Bangladesh, Cambodia, Laos, Singapore) and countries of Africa.

As of November 2023, 38 vessels arrived at the ports of Odesa, Chornomorsk and Pivdenny via the "temporary" sea corridor, and exports amounted to almost 700,000 tons of grain. If we consider the Danube ports, only 2.4 million tons were exported in September 2023.

The operation of the "temporary" Black Sea corridor for the export of goods has also increased the volume of rail transport unloading in the ports of Greater Odessa - now it is almost 450 wagons per day. More than 2,300 wagons with grain loads are headed there. In the direction of the Danube ports, the queue is slightly shorter - almost 2,100 wagons.

The total amount of export of agricultural products amounted to 3.6 million tons, out of the planned 6 million tons. In order to preserve agriculture, as a key branch of the Ukrainian economy, it is necessary to restore the full operation of the deep-water ports of Greater Odessa.

Therefore, during the analysis of the formation of the structure of cargo flows, several priority directions are traced, which the authors consider rational to use, in the restoration of regular logistic sea routes, given in Table 2.

Table 2.

Priority areas for shaping the structure of cargo flows in the post-war period		
№	Name of the cargo	Direction
EXPORT PART		
1	Grain crops	China, Romania, Turkey, EU countries, and African countries.
2	Ferrous metals	EU countries, African countries.
3	Sunflower oil	Turkey, EU countries.
4	Ores, slag and ashes	China, Japan, Korea, and the EU.
IMPORT PART		
5	Oil and oil products	India, Greece and Turkey.
6	Nuclear reactors, boilers, machines	China, Turkey.
7	Electrical machinery and equipment	China, Turkey, the UK, India.
8	Land transport means	China, Turkey, Korea, Japan

Source: developed by Labunets I.

The role of maritime transport in global cargo flows. Sea transport is the main branch of transport, which allows for the transportation of cargo over long distances, primarily between continents, and ensures the lowest cost of such transportation. It provides about 80% of all world trade. It is difficult to overestimate the potential of Ukraine's water transport, which covers both river waterways and marine waters. The geospatial location of our country makes it the center of many transport corridors and transit routes, and the combination of a developed system of roads,

railways, pipeline transport and sea corridors and ports can make Ukraine the logistics center of the Eurasian Continent (N.M. Tymchenko, O.Yu. Kuzmenko, Kuzmenko V.S., 2021).

So, we see that sea transport is a fundamental component of global logistics. Also from the scheme, a logical conclusion will be that sea transport provides communication between producers and consumers on different continents, which contributes to the development of the global economy. The role of maritime transport in global freight flows is presented graphically below.

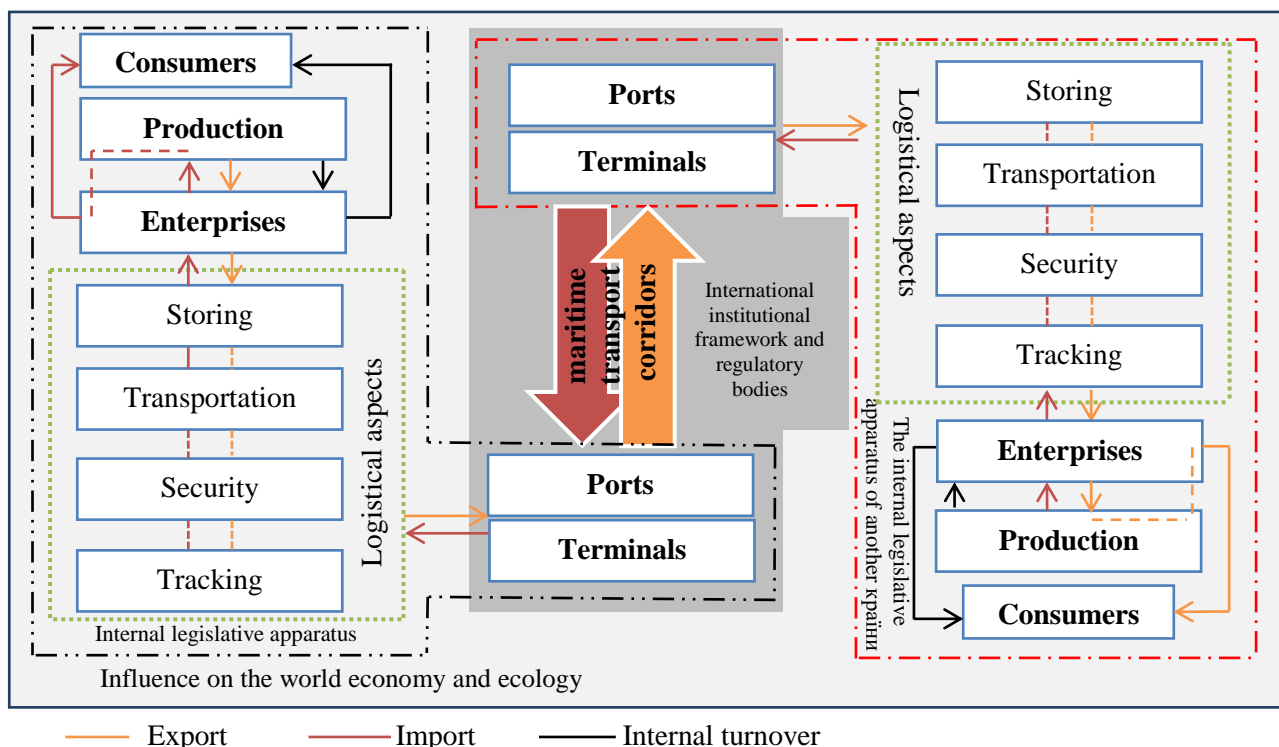


Figure 6 – The role of maritime transport in global freight flows

Source: designed and built by Labunets I.

The international consulting company Cushman & Wakefield has published a report that identifies new important transport corridors that will appear by 2030. These corridors will contribute to the development of the European logistics industry, as the demand for cargo transportation in Europe will increase almost threefold by 2050 (Negoda A., Rusak D., 2023):

1. "Blue banana" is the main distribution corridor through which goods are imported into Europe through the ports of the Benelux countries, the Rhine region of Germany, and further - to northern Italy. Due to the growing importance of Mediterranean ports, the Blue Banana may be extended to Genoa in Italy.

2. British Corridor – After Brexit, the UK's maritime, road and rail networks are officially no

longer part of the Trans-European Transport Network (TEN-T) and the Northern Mediterranean Corridor, so UK supply chains are more domestically oriented. Brexit is expected to increase the logistics industry's reliance on UK ports.

3. The Irish Corridor - a new route is being created for feeder traffic between the ports of Cork and Dublin in Ireland and the ports of Zeebrugge and Antwerp in Belgium. It is likely that the small capacity of the port of Zeebrugge will increase the cargo flow to nearby Ghent in Belgium or even to Zeeland in the Netherlands.

4. The Iberian Corridor - the availability of qualified and inexpensive labor in Spain and Portugal is already attracting German car manufacturers. Thanks to new railway lines and

other transport connections, the volume of transport in this direction may increase over the next 5-7 years.

5. Central European Corridor – investments in the motorways and railways of the trans-European transport network have already improved the system of transportation of goods along this existing corridor. If it eventually extends to the north of Italy, it can connect with the "Blue Banana" via Bologna and Milan.

6. The North Sea Corridor - the use of this corridor connecting the port of Hamburg with Copenhagen and Malmö will be much more active after the completion of the tunnel between Rødby and Puttgarden, which will be accessible for trucks and freight trains.

7. The Black Sea Corridor is a future distribution corridor that will be connected to the Central European Corridor after the completion of the Rhine-Danube railway line and the motorway network connecting Budapest to the Black Sea. As a result, Romanian markets, primarily Bucharest,

will play a more decisive role.

8. The Baltic Corridor - the growth of the Baltic countries as a production site will depend on the construction of highway and railway networks connecting this region with Finland, Poland, the Czech Republic and Germany. However, significant investments in infrastructure are required, and therefore the development of this distribution corridor is likely only in the long term. The above transport corridors will expand the horizons for the formation of the country's cargo flows in the post-war period.

The development of conceptual provisions on the formation of safe cargo flows of maritime transport in Ukraine is an important component of the principles of safety of cargo flows on water transport. The authors of the study propose in the post-war period a conceptual logical-structural scheme of the main principles and tools of guaranteeing the safety of cargo flows, given in fig. 7.

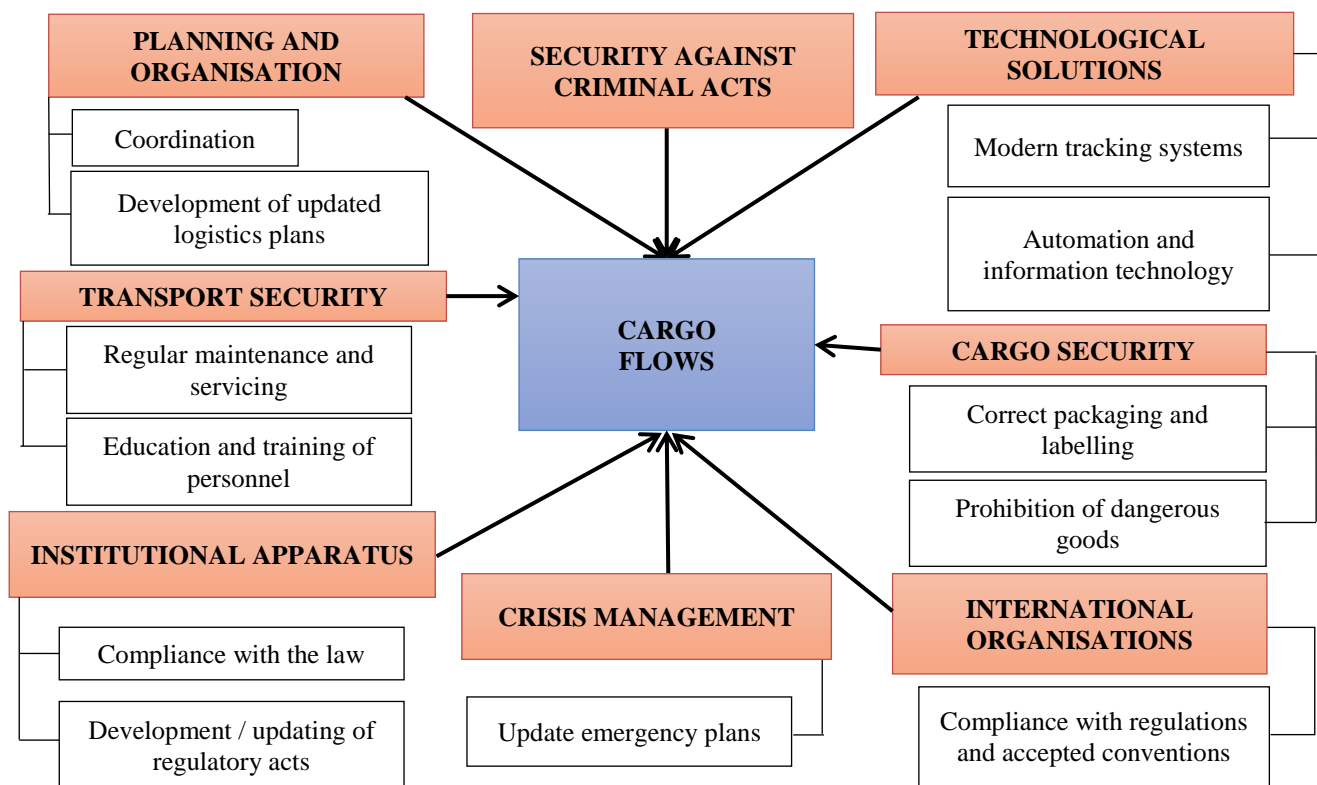


Figure 7 – Main principles and tools for ensuring the safety of cargo flows

Source: designed and built by Labunets I.

Organization of shipping security (physical). Increasing the presence of the military in the territorial waters of the Black and Azov seas, with the unblocking of the seaports of Ukraine, will increase the safe environment for the logistics processes of sea transport and ensure the safe

functioning of navigation at the infrastructure level. Therefore, scientific and technical progress, new requirements for ensuring the safety of navigation, the need to increase the competitiveness of ports and transit attractiveness for the restoration of safe traffic from cargo vessel

traffics, etc. It should be noted that ensuring the safety of navigation by the administration of seaports of Ukraine in relation to sea and river (water) transportation is carried out within the boundaries of cargo delivery by sea using at least two types of transport. That is, transportation by water transport involves cargo flow in ports. Therefore, the development of cargo flows must be comprehensive, systematically covering, in addition to water transport, adjacent types of transport, i.e. increasing the carrying capacity of the port without a corresponding increase in the carrying capacity of safe access roads, the overpass will not provide the necessary results in terms of time and quality of cargo transportation by sea.

The development of cargo flows of water transport is necessary to increase the efficiency of shipping safety and the delivery of goods by water transport. According to the type of cargo flows, they are divided into: technical and economic, since the main principles of ensuring the safety of water transport are aimed at technical development and to one degree or another are related to the achievement of economic principles.

It should be noted that freight flows on water transport can have a pronounced social character, for example, the construction of an effective ferry crossing on the Danube River to organize communication between hard-to-reach regions of the border areas of Ukraine, Romania, Moldova, etc. By type of safety navigation, it provides for investment measures and research on the development of sea ports. By duration - taking into account the peculiarities and diversity of cargo flows of water transport, all types - short-term, for example, modernization of navigation equipment, medium-term, for example, restoration of a part of the waterway, long-term - most logistics projects in the field of maritime transport, including that will be implemented in the post-war period.

Thus, with the current safe parameters and economic indicators of the cargo flow of water transport, a certain level of transport service is ensured during the delivery of goods by water transport, this determines the level of competitiveness of the country's transport system as a whole and the level of its transit potential. In order to achieve the necessary and desired level of transit potential and competitiveness of the

transport system, the state of cargo flows must be at a certain safe level, the achievement of which is the basic goal of ensuring the safety of cargo flows transported through the corresponding corridors by maritime transport.

Conclusions and prospects for further research. Thus, summarizing this study, it was noted above that the cargo flow of water transport should provide the necessary conditions for safe and efficient transportation by water transport and the competitiveness of the transport system of Ukraine. Thus, the borders of some EU countries remain closed for the export of Ukrainian grain (only transit to distant European ports), we believe that Ukraine should keep its sights on third countries that directly depend on domestic grain and food, namely: Indonesia, the Philippines, Morocco, India, PSA (Bangladesh, Cambodia, Laos, Singapore) and African countries. After Russia broke the agreement and began massively destroying the port infrastructure of seaports and river ports on the Danube, the Government is now opening "temporary sea corridors" that carry out transportation under the protection of the Armed Forces Navy. Therefore, from August 2023, transshipment of grain and oil takes place exclusively through the "temporary grain corridor" and the Danube ports. The total amount of export of agricultural products amounted to 3.6 million tons, out of the planned 6 million tons. The main proposals in terms of post-war economic recovery include the following:

- restoration of the leading positions of cargo flows on the domestic domestic transport market;
- support of domestic exporters with the aim of attracting foreign exchange revenue to Ukraine;
- formation of an equal post-war competitive environment between large, medium and small participants in the transport services market;
- stimulation of the development of cargo flows by water transport in the post-war period;
- at the regional level, develop and implement new programs for the restoration and stabilization of the functioning of the navigation safety system on maritime and river transports;
- promote the involvement of international charitable funds and organizations for the sustainable post-war restoration of cargo flows on maritime and river transports of Ukraine.

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