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ФОРМУВАННЯ КОНКУРЕНТНИХ ПЕРЕВАГ В СФЕРІ ВОДНОГО ТРАНСПОРТУ, ТРАНСПОРТНОЇ ІНФРАСТРУКТУРИ І ЕФЕКТИВНОГО ВИКОРИСТАННЯ ТРАНЗИТНОГО ПОТЕНЦІАЛУ В ПІСЛЯВОЄННИЙ ПЕРІОД.

Актуальність. Важелі і умови формування конкурентних переваг в басейні Чорного та Азовського морів в післявоєнний період будуть змінені кардинальним чином. Це, в свою чергу, призведе до зміни маршрутів транспортних потоків та їх структури, що зворотнім чином впливатиме на рівень конкурентоспроможності водного транспорту України. Вказане обумовлює необхідність детального дослідження проблеми формування конкурентних переваг в сфері водного транспорту, транспортної інфраструктури і ефективного використання транзитного потенціалу в післявоєнний період.

Мета та завдання. На основі дослідження особливостей формування конкурентних переваг в сфері водного транспорту, відновлення та розвитку транспортної інфраструктури в післявоєнний період запропонувати стратегію перебудови транзитного потенціалу на нових, сучасних засадах та розробити комплекс заходів та напрямки перебудови таким чином, щоб уникнути проблем, притаманних водному транспорту в довоєнний період і, на основі виконання задач короткострокового періоду післявоєнної перебудови, забезпечити довгостроковий розвиток водної галузі, її інфраструктури та, за ефективного використання транзитного потенціалу, сформувати основи розвитку економіки регіонів та країни в цілому.

Результати. Досліджено особливості формування конкурентних переваг в сфері водного транспорту, відновлення та розвитку транспортної інфраструктури в післявоєнний період, запропонована стратегія забезпечення конкурентних переваг в сфері водного транспорту на середньо- і довгостроковий період: «не витрати, а інвестиції». Вказана стратегія на основі виконання національних завдань післявоєнної перебудови завдяки зростанню рівня конкурентоспроможності водної галузі України має забезпечити передумови довгострокового розвитку водної галузі, її інфраструктури і, за ефективного використання транзитного потенціалу. Цьому має сприяти така орієнтованість виконання національних завдань відновлення водної галузі, щоб в подальшому уникнути проблем, притаманних довоєнному періоду. Для реалізації вказаної стратегії запропоновано комплекс заходів.

Висновки. Запропонована стратегія перебудови транзитного потенціалу, яка забезпечує можливість позбутись проблем, що стурмували розвиток ефективного транспортування вантажів водним транспортом в довільний період. Вказана стратегія дозволяє сформувати наслідковий зв’язок виконання національних завдань водної галузі таким чином, щоб забезпечити ефективність виконання завдань наступних етапів і в цілому, сприяти зростанню конкурентоспроможності водного транспорту. Для реалізації запропонованої стратегії розроблено комплекс заходів, які, маючи на меті вирішення короткострокових завдань, в стратегічному плані дозволяють реалізувати потенціал конкурентоспроможності водної галузі, що, в свою чергу, створить передумови...
розвитку економіки країни. Прикладом є пропозиція створення інформаційної системи контролю ризиків мореплавства і автоматичного оповіщення в разі можливої загрози рівня небезпеки, що, в подальшому, сформує імідж безпечного рівня мореплавства в ранні замінних районах. В цілому результати дослідження можуть бути в подальшому використані як з науковою метою так і в практичних цілях.

Ключові слова: водний транспорт, ризики, змішані перевезення, конкурентоспроможність, транзитний потенціал.

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FORMATION OF COMPETITIVE ADVANTAGES IN THE FIELD OF WATER TRANSPORT, TRANSPORT INFRASTRUCTURE AND EFFICIENT USE OF TRANSIT POTENTIAL IN THE POST-WAR PERIOD.

Topicality. The levers and conditions for the formation of competitive advantages in the Black and Azov Seas in the postwar period will be radically changed. This, in turn, will change the routes of traffic flows and their structure, which will inversely affect the level of competitiveness of water transport in Ukraine. This necessitates a detailed study of the problem of formation of competitive advantages in the field of water transport, transport infrastructure and effective use of transit potential in the postwar period.

Aim and tasks. Based on the study of the peculiarities of the formation of competitive advantages in the field of water transport, restoration and development of transport infrastructure in the postwar period to propose a strategy for restructuring the transit potential on new, modern principles and develop a set of measures and directions of restructuring and, in such a way as to avoid the problems inherent in water transport in the pre-war period and based on the short-term post-war restructuring, to ensure the long-term development of the water sector, its infrastructure and, with the effective use of transit potential, to form the preconditions for economic development of regions and the country as a whole.

Research results. Peculiarities of formation of competitive advantages in the field of water transport, restoration and development of transport infrastructure in the postwar period are investigated, proposed strategy to ensure competitive advantages in the field of water transport for the medium and long term: "not costs but investments". This strategy based on the urgent tasks of post-war restructuring due to the growing level of competitiveness of the water industry of Ukraine should provide the preconditions for long-term development of the water industry, its infrastructure and, with the effective use of transit potential, to form the preconditions for economic development of regions and the country as a whole.

Conclusion. A strategy for restructuring the transit potential proposed, which provides an opportunity to get rid of the problems that hindered the development of efficient transportation of goods by water transport in the pre-war period. The specified strategy allows to form consequential connection of performance of urgent tasks of branch so that to increase efficiency of performance of tasks of the following stages and as a whole, to promote increase of competitiveness of water transport. To implement the proposed strategy, a set of measures has been developed, which, aimed at solving short-term problems, in strategic terms allow realizing the potential of the industry's competitiveness, which, in turn, will create preconditions for economic development. An example is the proposal to create an
information system for maritime risk control and automatic notification in the event of a possible increase in the level of danger, which, in turn, will form the image of a safe level of navigation in previously mined areas. In general, the results of the study can further be used both for scientific purposes and for practical purposes.

**Keywords** water transport, risks, mixed transportation, competitiveness, transit potential.

**Problem statement and its connection with important scientific and practical tasks.** Consequences of hostilities, destruction of transport infrastructure facilities, basic enterprises of the economy, which formed the structure of export and import freight in the pre-war period, after the war, even in the long run, will determine the direction of economic recovery in general and, in particular, the transport system.

The change in the structure of export and import cargo transportation will also be caused by the aggressor's deliberate destruction of civilian facilities, infrastructure facilities, and enterprises that provided food to the population. A typical example of this is the destruction of livestock infrastructure of the dairy company "Agromol Fest" in Kharkiv region.

The consequence of this will be a change in food consumption by the population of Ukraine, which will also help reduce the export of food, especially grain. Moreover, this, in turn, will affect the change in the structure of export and import cargo flows and, indirectly, the competitiveness indicators. Implementation of tasks in these areas in the short, medium and long term should mutually agree. That is, the implementation of short-term tasks should be a component and prerequisite for the tasks of subsequent periods, to ensure a thorough restructuring of transport infrastructure, which, in turn, will form the preconditions for long-term economic development of the country. Thus, in the short term the issue of competitiveness of Ukrainian seaports will be pushed to the background, because the principle of necessary expediency will be applied to cargo transportation, as the main thing for this period will be rationally organize the delivery of goods needed to restore the affected regions. However, this does not preclude the need to pursue a policy of rational management of changes in water transport infrastructure during this period, taking into account the needs of future periods.

These changes should be made in view of promising areas of technological innovation. This will make it possible to move to the modern level of technology Industry 4.0. Such a policy will create the preconditions for the proper level of competitiveness of Ukraine's seaports in the coming periods, ensure the country's economic development, address urgent employment needs, improve socio-economic conditions, or prevent this.

The positions of the regions of Ukraine in the competitive ratings in the field of water transport, levers and conditions for the formation of competitive advantages in the Black and Azov Seas in the postwar period will be radically changed. This, in turn, will lead to changes in the routes of transport flows and their structure, which will inversely affect the level of competitiveness of water transport in Ukraine.

This necessitates a detailed study of the problem of forming competitive advantages in the field of water transport, transport infrastructure and efficient use of transit potential in the postwar period.

**Analysis of recent publications on the problem.** Various aspects of the competitiveness of water transport facilities in the Azov-Black Sea region, comparison of competitive ratings of maritime infrastructure of the Black Sea countries have been studied in the works of domestic and foreign scientists and practitioners: A. Demianchenko, N. Dubovyk, O. Karpenko, V. Koba, I. Lysak, T. Lohutova, M. Poltoratskyi, M. Makarenko, H. Makhurenko, L. Mezyna, K. Mykhailychenko, Ye. Voievudskyi, V. Kotelianets etc. The issue of ensuring the proper level of efficiency of the country's water transport in crisis conditions, in particular, during the war with a relatively low intensity of hostilities was studied in the scientific works of domestic scientists, including V. Gurnak, O. Ananchenko, A. Petunin [1], V. Gryshchenko, I. Gryshchenko [2], N. Maslii, Y. Zhadanova [3], M. Demianchuk [4], S. Ilchenko, N. Khumarova, V. Skribans [5] etc. In recent years, the effects of risks on the competitiveness of maritime transport have been studied S. Kotenko, I. Kucher [6].

**Allocation of previously unsolved parts of the general problem.** The war and its consequences require a detailed analysis of the peculiarities of the formation of competitive advantages in water transport, restoration and development of transport infrastructure and areas of effective use of transit potential in the postwar period strategically avoid problems inherent in water transport in the prewar period.

**Formulation of research objectives (problem statement).** Based on the study of the peculiarities of the formation of competitive advantages in the field of water transport, restoration and development of transport infrastructure in the postwar period to propose a strategy for restructuring transit capacity on new, modern principles and develop a set of measures and directions of restructuring and, based on the tasks of the short-term period of post-war reconstruction, to ensure the long-term development of the water sector, its infrastructure
and, with the effective use of transit potential, to create preconditions for economic development of regions and the country as a whole.

**An outline of the main results and their justification.** Destruction of metallurgical and mining enterprises, significant reduction of sown areas (already today sown areas have been reduced by more than 30%) will lead to a significant change in the structure of exports.

This, in turn, will change the structure of export cargo flows of water transport. For example, transit traffic flows passing through the Russian Federation will use the transport systems of other countries.

In particular, carriers of more than 1 million containers to be transported by rail connecting Western Europe with Eastern China via Russia are already forced to look for new routes by sea. Also Maersk - the company occupying one of the leading positions in the market of sea freight (first of all - container) transportations refused cooperation with Russia.

In addition, the London Maritime Insurers' Market has declared all Russian maritime waters, including the Black Sea, the Baltic and the ports of the Far East, a "military zone". That is, now the owner of the ship is obliged to notify his insurer of the arrival in this area and pay a special military premium, which can be up to 5% of the cost of the vessel, which makes such flights unprofitable.

This, firstly, indicates the beginning of a global change in transport routes, which should be used as a powerful enhancer of economic development in the field of water transport and an incentive effectively use the transit potential of the country. Secondly, a long-term trend of containerization of cargo flows will be formed.

This trend will be exacerbated by the fact that in the postwar period to restore the country's economy will significantly increase external supplies of equipment, components, construction materials, etc., which, in turn, will lead to a sharp increase in Ukrainian imports, which will be dominated by container traffic. Together, this will lead to the need for significant changes in the infrastructure of the water sector.

Therefore, the task will be to redesign the transport infrastructure and its systemic provision of personnel, resources, etc. Among the urgent goals will be, in particular, the task of re-equipment of berths and the corresponding change of their technological equipment.

For each segment of transport infrastructure, first of all for each of the seaports, structural changes will have their own characteristics. Some changes will be short-term, some will be long-term.

These differences and their impact on the activities of each of the seaports will require further study.

For example, already today the substructures of container cargo handling have significant problems with: lack of space for container storage; warehouse accounting; lack of modern technological and information equipment; warehousing logistics; freight processes when using adjacent modes of transport, etc. This leads to disruptions in the transport and logistics process; cargo delays, etc. Increasing the volume of container cargo will not only deepen these problems, but also can lead to a collapse in container traffic in some areas.

To solve this problem, it is necessary, in particular, in the short term to create near each of the seaports of highly robotic warehouses for the full range of cargo operations, storage and high-tech processing of containerized cargo. It is necessary to create this infrastructure with the expectation of further increase in the volume of container traffic.

This increase should be ensured by the strategic work of state management structures to use the country's transport capabilities by powerful players in the market of international transport services, the formation of cross-border cargo flows. These storage sites for long-term use must be equipped with modern intelligent tools to ensure efficient automatic sorting of containers, rapid formation of batches of containers by direction of transportation, etc. The formation of such storage sites will require a significant amount of work to determine and agree on their location, allocation and legalization of the necessary land, design work, construction and technological work on their arrangement, construction of access roads and infrastructure of other modes of transport for container cargo: automobile, railway, etc.

The growth of water transport competitiveness correlates with the reduction of transportation risks [6]. Therefore, one of the tools to increase competitiveness is effective risk management. Analysis of water transport risks in the period before the active phase of hostilities indicates ways to increase the competitiveness of water transport.

Therefore, in order strategically ensure the realization of the competitive advantages of economic development in the field of water transport, transport infrastructure and efficient use of transit potential, it is not necessary to focus purely on rebuilding war-torn technological and economic networks.

That is, there is a broader and more ambitious task not to restore, but to restructure the transit potential on a new, modern basis. The same opinion, even analysts of more developed countries on the infrastructure
of the fleet in the postwar period. Thus, М. Гілдей noted that one of the key conclusions from the conflict in Ukraine is the choice of strategy: "not costs but investments", which requires abandoning some old and inefficient ships to save money, which is then invested in new technologies. [7].

To do this, solve the problems of postwar economic development of the country and regions in such a way as to prevent the restoration of a set of problems inherent in the pre-war functioning of water transport. Such problems, in particular, include the establishment of effective interaction between different modes of transport, first, for mixed transport, which is especially important for container cargo.

Railway transport has the greatest impact on increasing the risks for water transport in the non-rhythmic nature of mixed freight transport. Analysis of the data in Table 1 proves this fact. Thus, the number of transit agreements for the freight year in 2021 increased by 35.2% compared to 2018; revenues increased by 21.1%; volume of mixed transportation by rail - increased by 2.1%. It should be noted that during the period 2019-2020 the volume of mixed transportation by rail increased compared to 2018 by 63.6%.

Table 1. Mixed transportation of goods involving rail transport.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Years</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of transit agreements for the freight year, units</td>
<td>1</td>
<td>105</td>
<td>115</td>
<td>102</td>
<td>142</td>
</tr>
<tr>
<td>Revenues, thousand dollars USA</td>
<td>2</td>
<td>180,0</td>
<td>276,6</td>
<td>271,0</td>
<td>218,8</td>
</tr>
<tr>
<td>Volume of mixed transportation by rail, million tons</td>
<td>3</td>
<td>8,8</td>
<td>14,4</td>
<td>12,5</td>
<td>9,0</td>
</tr>
</tbody>
</table>

Thus, the analysis found that in recent years there has been a significant irregularity in the supply of rolling stock of JSC "Ukrzaliznytsia" to port stations (see Fig. 1), which led to significant delays of cars (see Fig. 2), i.e., significantly reduced the efficiency of freight transport by water.

The analysis indicates that the reason for the decrease in the efficiency of transportation of transit cargo through the territory of Ukraine is the risk of increasing accidents on railway transport, in particular, due to non-compliance with the service life of rolling stock. Thus, in accordance with the regulations, the service life of rolling stock is 22 years for gondola cars, 26 years for cement trucks, 30 years for grain trucks, and 32 years for fitting platforms and tanks.

At the same time, according to the Chairman of the Committee on Infrastructure of the Federation of Employers of Ukraine and the founder of the "First Logistics Company" M. Shkilia: "In practice, it's actually a 'death train': 35-45-year-old piles of scrap metal wear out, carry the risk of disaster and danger to human life and health, not to mention damage to cargo and damage to shippers and carriers" [9]. That is, today:
more than 90,000 cars (~40% of the country's fleet) have long crossed the line of safe operation and have the status of "cars with extended deadlines" [9].

Table 2. Overhaul and reconstruction of the railway track according to the plan and in fact, 2020

<table>
<thead>
<tr>
<th>Type of railway tracks</th>
<th>Railway tracks in need of repair, km</th>
<th>Railway tracks were repaired, km</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Main tracks</td>
<td>9145,30</td>
<td>145,93</td>
<td>1,60</td>
</tr>
<tr>
<td>Station and special tracks</td>
<td>1874,60</td>
<td>14,46</td>
<td>0,77</td>
</tr>
<tr>
<td>Access railway tracks</td>
<td>0</td>
<td>0,31</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>11019,90</td>
<td>160,70</td>
<td>1,46</td>
</tr>
</tbody>
</table>

Source: own development according to the data [8, 11].

The analysis also indicates that the reason for the increase in accidents on railway transport is a significant difference between the volume of repairs of the railway track according to the plan and the volume of repairs of the railway track according to the fact (see Table 2). Thus, in the example of 2020, the share of repairs in the planned volume of repairs for Main tracks was only 1.6%, for Station and special tracks even less - 0.77%.

This leads to an increase in risks for mixed freight transport by rail, which increases the risk of irregularities in the transport of goods by water. Therefore, in the post-war period, efforts should made to correct this problem.

These problems can be solved by introducing precautionary measures: the formation of transit logistics centers, overhaul of the infrastructure of related modes of transport, construction of transit warehouses, etc. However, in our opinion, a more urgent way to solve the problem is to create an information system to support the transshipment process between different modes of transport (so-called "intermediary system"), the purpose of which will be to solve problems of interaction of transport subsystems in real time.

The complex of problems related to the pre-war functioning of water transport also includes issues related to the lack of proper connection of some ports, such as the seaport of Reni, with national systems of related modes of transport: rail, road, etc. Post-war investments will help solve this problem. It will also be important for the port of Reni to restore a reliable connection with the use of river-sea vessels with the ports of the Danube basin countries. It is also urgent to rebuild the system of seaports with river ports of Ukraine, first, ports on the Dnieper and Danube rivers, first with the use of "river-sea" vessels, which will significantly increase the efficient use of the Danube transit potential. To increase the transit potential of Ukraine, it is also necessary to introduce additional ferry routes with the ports of the Black Sea basin.

In the post-war period, it is also necessary to introduce a modern information system for maritime risk control and automatic notification of all stakeholders in the event of an increase in the level of danger. The reason for the significant short-term increase in threats to shipping may be, for example, an increase in mine
risk during major storms, which can lead to disruption of anchorages of previously undetected sea mines and, consequently, the possibility of their waves on sea routes. The introduction of such an information system will not only reduce the level of danger but also increase the level of confidence of seafarers and ship-owners in measures to the seaports of the country. The result will be an increase in the level of competitive advantages, economic development of the country in the field of water transport, transport infrastructure and efficient use of the country's transit potential.

In order to realize the potential of competitiveness of the country's maritime infrastructure, it is also necessary to strengthen the dynamism of the response of administrative structures, management entities to external challenges, in particular, to introduce a water transport efficiency management system and use it as a tool to strengthen the country's competitiveness, remove institutional and institutionalizational barriers to the implementation of investment projects, to expand the bases of cooperation with the system of international transport corridors passing near the borders of Ukraine.

Conclusions and perspectives of further research. Peculiarities of formation of competitive advantages in the field of water transport, restoration and development of transport infrastructure and directions of effective use of transit potential in the postwar period are investigated.

It pointed out that in order strategically ensure the realization of competitive advantages of economic development in the field of water transport, transport infrastructure and efficient use of transit potential and ensure further economic development, we should not focus only on rebuilding war-torn technological and economic capacities. In the medium and long term, there is a broader and more ambitious task not to restore, but to restructure the transit potential on a new, modern basis.

This was a prerequisite for the formation of a strategy to ensure competitive advantages in the field of water transport in the postwar period: "not costs but investments".

Given the chosen strategy, measures are proposed that, based on the short-term post-war period, ensure long-term development of the water sector, its infrastructure and, with the effective use of transit potential, form the preconditions for the development of regions adjacent to water transport infrastructure, countries as a whole.

These measures include: the formation of transit logistics centers; restructuring of the infrastructure of related modes of transport; construction of transit warehouses; creation of an information system to support the transshipment process between different modes of transport; ensuring proper connection of sea and river ports with national systems of related modes of transport; formation of preconditions for restoration of reliable connection of Ukrainian transport infrastructure with ports of the Danube basin countries and reconstruction of the system of connections of seaports with river ports of Ukraine, first of all, ports on the rivers Dnieper, Danube, first of all at application of vessels "river-sea"; to introduce additional directions of ferry communication with the ports of the Black Sea basin countries; create an information system for maritime risk control and automatic notification in the event of an increase in the level of danger; to strengthen the dynamism of the response of management entities to external challenges, for which to introduce a system for managing the efficiency of water transport; remove institutional barriers to the implementation of investment projects, expand the basis of cooperation with the system of international transport corridors.

The results of the study allowed proposing a set of measures to achieve the required level of competitiveness in the medium and long term, which will ensure the development of the industry and economy in the postwar period.

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