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## ЛОГІСТИЧНА БЕЗПЕКА КРАЇНИ В СИСТЕМІ НАЦІОНАЛЬНОЇ БЕЗПЕКИ

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Досліджено розбудову теоретичних засад національної безпеки в Україні. Відзначено істотне зростання в сучасних умовах зростання зацікавленості цієї проблематики у різних її вимірах: енергетичній, логістичній, військовій. Виявлено, що одним із ключових аспектів у формуванні національної безпеки останніми роками поступово стає питання формування критичної логістичної інфраструктури. Обґрунтовано службовий характер критичної логістичної інфраструктури, який відображається у низці її особливостей, серед яких найвагомішими є її імобільність, відсутність можливості для самовідтворення, велика затратність та обмежені можливості до переорієнтування.

**Ключові слова:** критична логістична інфраструктура, логістична безпека, енергетична безпека, система національної безпеки.

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## LOGISTICS SECURITY IN THE SYSTEM OF COUNTRIES NATIONAL SECURITY

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In the article was explored the development of theoretical foundations of national security of Ukraine. Was marked a significant increase of interest to its problem especially within its various dimensions: energetical, logistical, militarian. Revealed that one of the key aspects in the formation of national security in recent years gradually became the issue of critical logistics infrastructure forming. Grounded the official character of critical logistics infrastructure that appears in a number of its features, among which the most important are its: immobility, lack of opportunities for self-renewal, a large costs and limited possibilities for reorientation.

**Key words:** critical logistics infrastructure, logistics security, energy security, system of national security.

**Statement of the problem.** The period of Ukraine's independency in the initial stage permanently felt the need to build national security concept, its implementation into the strategy of the country on the path to civilized Europe. However, the emphasis was given primarily to the energy security in light of impossibility of its own resources to provide excessive energy needs of the country, especially in oil and natural gas consumption, and monopolistic position of Russian Federation at the market of primary energy resources. However, the problems of military security were extremely neglected, despite the fact that there were legal documents and regulations (National Security Strategy of Ukraine, the Law of Ukraine "The Principles of National Security of Ukraine" National Security and Defense Council of Ukraine, Decrees of the President). This was manifested primarily in the chronic of underfunding of the Armed Forces of Ukraine. Other components of national security, such as food, environmental, informational, were considered in satisfactory conditions. And only the military aggression from the side of Russian Federation led to a radical reassessment of the foundations of national security and appropriate shift of emphasis,

particularly in the direction of its military component to a reassessment of "soft" factors of the crisis in the national security, especially such as prolonged "Soviet past" "Soviet mentality" and corruption. In addition, should take place redefining the role of citizens, society and the state in the formation of appropriate level of national security, logistics security (not to be confused with security in logistics processes). Only because of setting up by Russia a limits to the transit traffic converts logistical security of the country into the extremely important status.

**Analysis of recent research and publications.** The issue of logistics security as a concept - actual to use at the macro level, has recently been given enough attention. In particular, this individually is mentioned in the Strategic Defence Bulletin of Ukraine, emphasize that a number of Ukrainian authors such as N. Chornopyska, A. Masliy. Separately, other authors also highlights the importance of a systematic approach to the formation of State's Security System, isolating its components such as energy, transport and others.

However, in all these cases, not enough attention is paid to the analysis of the relationships between logistics and other subsystems of the overall system security. It is the main issue of this article.

**Goals of the article.** The main aim of the article is a critical analysis of content of the concept of logistics security in the scientific literature; determining of its actual status and indication of its problem areas in Ukraine.

**The main material of research.** Development of theoretical foundations of national security of Ukraine was held extremely uneven. On the one hand, could be noticed a significant increase of interest, about problems in the energy security [1, 3, 7]. The explanation for this may be the radical structural changes, the formation of energy market, a radical increase of households market share, increased competition for global energy resources and so on.

Similarly that energy security is determined by a power engineering capabilities of technically and economically meet current and future needs of customers in the energy and maintain in appropriate manner protection of the environment. So it is possible to present the structure of "logistical security of the country" definition: wich is determined by the ability of an integrated logistics system of the country to meet current and future logistics needs of citizens, society, state and non-residents both in normal circumstances and in emergency situations.

The blockade of transit cargo transportation through territory of Russia by assignment of restrictive measures, introduction of unreasonable sanctions - have caused major problems for the implementation of agreements by Ukrainian suppliers and foreign-transit companies who used the transit potential of Ukraine. The use of possible alternative routes leads to a significant increase in the length and value of the cargo, which makes relevant goods and services uncompetitive along the eastern markets. Thus, [6] in April 2016. at the meeting of Council for Trade in Goods of WTO Ukrainian side ascertained after the first quarter of 2016. 49 % reduction in exports to Kazakhstan, the rising cost of transportation by 30 %, 48 % decline in exports of Ukrainian goods to Turkmenistan, Uzbekistan, Azerbaijan, Georgia, Armenia, Kyrgyzstan and Tajikistan.

Due to the uncivilized actions of Russia, the ukrainian search for exit from a difficult situation led to the decisions on actualization of the new "Silk Road", on which relied great hopes on a reducing transport duration and increasing costs competitiveness [6, 8]. The route had to be lined along the Russian Federation and should be as follows: Ukraine- Georgia-Azerbaijan-Kazakhstan-China, using ferry as well. However, these expectations were not met or fulfilled not in full, since occurs firstly, the lack of organizational and technical harmonization in the logistics chain between the links (different states, different modes of transport), and secondly, the "vicious circle" between costs and terms of delivery: reducing costs and delivery times can be achieved, besides the organizational and technical improvements, obtaining economies of scale, by larger and more frequent deliveries, and this requires a corresponding

demand for cargo transportation, which, unfortunately, in light of high costs and long delivery times right now is aspend. In addition to this the share of conservatism in the actions of carriers, often justified, given the spatial location of their infrastructure, the effect of personal experience and so on.

The project of a new "Silk Road" in addition to military aggression of Russia has been caused by a significant trade turnover between Ukraine and Europe with China (fig. 1).

However, the existing sea routes, their high dependence on weather conditions and the duration of cargo delivery is not a competitive point comparing with the delivery of goods through the territory of Russia. Due to this at the beginning of 2016 was launched the project of a new direction “Silk Road” (fig. 2). From Illychivsk was sent a half-empty train with 10 wagons and containers for the purpose of analysis of all risks and duration of the planned route. The duration of the trip had to be 11 days (versus 45 days – by the sea, and 14 days for the route: Georgia-China). Despite the declared duration – the goods reached the final destination in 15 days and until present days (October 2016) stands in China. Despite the alleged perspectives, short time delivery and ease of implementation (the distance of cargo delivery could be reduced and infrastructure facilities of all countries has working status) the project has not received support in the business.

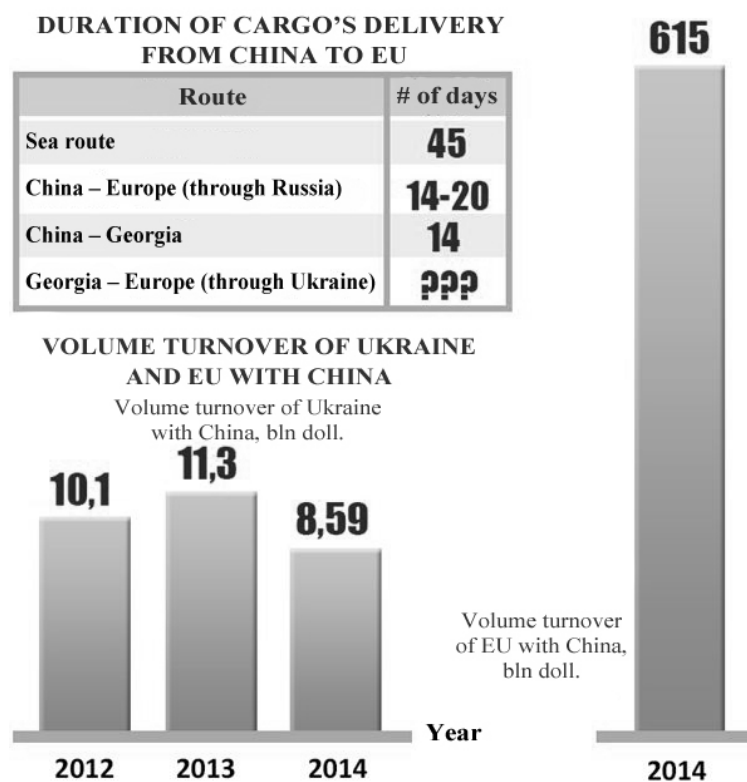


Fig. 1. Duration and volume turnover

Source: [8]

The main reasons for a non-viability of the project at the present stage are:

- the high costs of transportation (1.5–2 times more expensive than existing overland routes through Russia, the costs of shipping a 40-foot container according to the PJSC “Ukrzaliznytsia” – 5559 dollars.)
- the inconsistency of tariff policy between project participants;
- the duration of delivery – 15 day deadline under conditions of “green corridor”; clear control of all entities of supply chain; not fully filling the cargo. The results of this experiment in 15 days are the fastest that could be by such route; the duration of delivery potentially could be higher at 15 to 20 %);
- different bandwidth capacity of supply chain entities that creates additional bottlenecks for a stream;
- the absence of uniform standards, rules and regulations of accelerated customs clearance inspection;
- the lack of demand by supply instability, poor coordination and lack of communication with business.



Fig. 2. The project of a new "Silk Road"

Source: [6, 7]

Another area for exit from the crisis situation of logistics nature is formation and implementation (based on analysis of the State Military Security under the Strategic Defense Bulletin of Ukraine) the program of measures on formation of integrated (united) logistic system. It is assumed that the national logistics doctrine should be based on the following principles [4]:

- collective responsibility;
- distribution of authority;
- prioritization of operational requirements;
- cooperation and trust;
- coordination at all levels;
- covering all the needs of the troops according to the plan of operations;
- the adequacy of logistic support during the operations;
- ensure the effectiveness and economy;
- flexibility;
- the timeliness and accuracy of information;
- providing of logistics structures simplicity, its plans and reports;
- interoperability and integration.

The implementation of the outlined principles in the framework of realization the system of defense reform demonstrates the significance of logistics and logistics infrastructure in ensuring the state security and classify as strategical the issues of its development.

In this context it should be noted that one of the key aspects in the formation of national security in recent years gradually became the issue of forming the critical logistics infrastructure.

The term "critical infrastructure" has become extremely important in terms of European Union functioning with a view to assigning the appropriate means, which are crucial for the existence of society and the economy [10]. According to The National Programme for Critical Infrastructure Protection [13] to such infrastructure belong: energy facilities, energy resources, the systems of communication, financial

networks, the systems of essential goods and water supply, health care institutions, transport networks, emergency services, facilities of storage and / or disposal of hazardous wastes.

The essence of critical logistics infrastructure is based on its official character that appears in the following features:

- provides industrial and consumer services;
- can not operate for reproducing itself;
- equipment that belongs to the critical logistics infrastructure – is indivisible, and therefore financing of infrastructure facilities should have an extremely complex character;
- its formation and functioning requires considerable resources;
- characterized by the long time use with a limit abilities for reorientation, including those for civilian purposes;
- is immobile (impossible of location change).

Regarding [14] logistics which is closely linked with the entities and institutions involved in the system of economic security, in the literature, discussed object is called – logistic security or logistics safe. The delineation of such logistic closely associated with the structures of: Ministry of Defense, Ministry of Internal Affairs, Health, marine construction activities and so on.

Logistics of Security – it is the knowledge and skills that are necessary for the formation (planning, preparation) of rational material flows and connected with them informational flows; processes designing of moving materials and information in order to ensure the necessary conditions for the functioning of security entities.

Safety of Logistics – theory and practice, which provides a movement of flows materials and related information for the benefit of safety entities, particularly through use of the chances and predisposing conditions, taking challenges, reducing the risks and prediction (resistance / prevention of all kinds of threats to logistics operations).

The safety of logistical system – provision at the appropriate level of feasibility functioning of logistic processes for any securities entity in the specific conditions through the use of predisposing factors (new IT technologies, niche markets, favorable tax systems, etc.), taking business challenges, risks reduction, uncertainty and contradictions (prevention) of all kind of threats to logistics operations.

In Polish literature, in addition to logistics terms of safety, security of logistics also encounter the term “logistics security”, which is understood from the perspective of minimizing losses in the supply chain, optimizing health costs [9].

In [12] correctly point out that the Polish National Security Strategy does not provide appropriate value of logistics as in the strategy of national security of Ukraine [5]. Therefore, in the publication emphasize on the utmost importance (mandatory condition) of critical infrastructure reliable functioning that puts requirements to the architecture of these objects (a constructive principles of Marcus Witruwiusz [13]). According to the principles of Witruwiusz – to the basics of “good” architecture we can include:

- “ordinatio” – order and cleanliness;
- “dispositio” – location;
- “eurytmia” – correct combination of functions;
- “symetria” – precision and symmetry (not necessarily specularly)
- “decor” – the arrangement of premises, compliance to the purposes, relevance;
- “distributio” – lean and moderate.

Each of infrastructure projects, especially important – which refers to the critical infrastructure in the framework of provision of logistics security system of national security must meet the principles of “good” architecture.

In [11] also substantiated the decisive influence of logistics (realization of supply and provision of logistics services) to the serviceability of the system of national security in dynamic conditions of military-socio-political and economic reality.

However, it should be noted a number of positive things that have occurred in Ukraine in the recent years on the issue of acquiring practical sense for logistics strategic importance as one of the foundations of the

complex, including military, security. The Ministry of Defense of Ukraine actually implemented a number of projects and reforms related to the optimization of administrative and legal support of military capabilities.

In particular in the implementation are projects such as institutional procurement reform, e-procurement, automation of accounting and logistics in the field of material support of Armed Forces of Ukraine.

The reason for initiating the project of institutional procurement reform were: failure and poor provision of material, technical and food resources for Armed Forces of Ukraine; function dispersion of material, technical and food resources provisioning between different structural units of the Ministry of Defense and General Staff of Armed Forces of Ukraine. Reform itself is implemented in order to ensure efficiency and transparency of processes of quality logistics and provisioning according to the needs that emerged.

The reform of e-procurement consists in the establishment and creating a platform for electronic trading, electronic document management and website creation for the Department of procurement, with the ultimate goal – to create an open, transparent procurement system of profile ministries.

The declared goal of the project is to determine the possibility of reducing the "allowable residues"; building a system of operative material support; comprehensive automation of process of materials support accounting with the ultimate goal of reducing the timing and rhythm of deliveries.

**Conclusions and recommendations for further research.** The issue of logistics security of the State in the context of its overall security policy in recent years has become critical. In practice, it became obvious problem related to inadequate and inefficient logistics of the Armed Forces of Ukraine, underdevelopment of critical logistics infrastructure. On this overlap problems with other subsystems of the overall system of state security: economical, energetical, informational, environmental. Described above determines the relevance of further researches in this area. One of the promising areas of research is a study of possibilities of applying advanced logistics practices of business entities in the organization of logistics support of military units in terms of active military operations (at the front and rear level).

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