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# LOGISTICS AS A SUPPLY TOOL ECOLOGICAL AND ECONOMIC SECURITY OF THE STATE

***Volodymyr Hobela. "Logistics as a supply tool ecological and economic security of the state".*** *The growing role of logistics as a means of improving business efficiency and global trends in the greening of economic activity have highlighted the need for the introduction of eco-friendly logistics tools and the formation of eco-friendly logistics. To perform the tasks of this scientific work, the following general scientific methods of cognition were used, in particular, analysis to determine the main advantages of the development of logistics activities in Ukraine and the world in general; synthesis to identify obstacles to the implementation of logistics activities in Ukraine; deduction to determine the goals and environmental and economic effects of greening logistics activities; hypothetical used to justify logistics as a tool for environmental and economic security of the state; formalization and generalization for the formation of the main directions of greening of modern logistics.*

*The study examines the importance of logistics in the process of competition in national and international markets. Emphasis is placed on the security aspects of logistics. It has been established that security plays an important role in the world's leading companies. It is noted that logistics is an area of activity that allows you to optimize material, information and financial flows, which helps to increase the economic and environmental efficiency of business. Economic security is considered a component of National Security, but it is argued that economic activity causes significant damage to the environment and causes the formation of potential environmental problems.*

*The analysis of approaches to the definition of the theoretical content of the concepts of environmental, economic and ecological-economic security is carried out. It is claimed that eco-friendly logistics is a tool to ensure such development that will help ensure the achievement of economic objectives while minimizing the damage caused to the environment.*

*It has been established that in recent years' Ukrainian enterprises have appreciated the important role of logistics in improving business efficiency. The main advantages of logistics for business efficiency and the main obstacles for the development of logistics are highlighted. The main goals and directions of greening of modern logistics are singled out, the corresponding ecological and economic effects are formed. Given the global trends of greening and EU integration requirements, it is recommended to strengthen measures of state support and promotion of logistics activities, development of logistics infrastructure and greening of logistics.*

*Summarizing the results of the study, it is established that logistics should be identified as a tool to ensure environmental and economic security of the state. Given the global trends of economic greening, EU integration requirements and trends in the inner economy, there is an urgent need for state support to promote the development of logistics and infrastructure, greening of logistics. The goals of greening logistics are to reduce resource consumption and reduce pollution. In the course of the conducted research the perspective directions*

*of further researches were formed: research of expenses of greening of logistics and their correlation with logistic expenses; formation of measures for the greening of logistics activities of enterprises and industries; development of modern logistics technologies.*

***Keywords**:* logistics; global problems; ecological security; economic security; greening; ecological and economic effect.

***Володимир Гобела. "Логістика як інструмент забезпечення еколого-економічної безпеки держави".*** *Зростаюча роль логістики як засобу підвищення ефективності бізнесу та світові тенденції екологізації економічної діяльності актуалізували необхідність впровадження екологічно безпечних логістичних інструментів та формування екологоорієнтованої логістики. Для виконання завдань цієї наукової праці було використано такі загальнонаукові методи пізнання, зокрема аналіз для визначення основних переваг розвитку логістичної діяльності в Україні та світі загалом; синтез для визначення перешкод для впровадження логістичної діяльності в Україні; дедукція для визначення цілей та еколого-економічних ефектів екологізації логістичної діяльності; гіпотетичний застосовано для обґрунтування логістики як інструменту забезпечення еколого-економічної безпеки держави; формалізація та узагальнення для формування основних напрямів екологізації сучасної логістики).*

*В дослідженні акцентовано увагу на безпекових аспектах логістичної діяльності. Зазначено, що логістика є сферою діяльності, що дозволяє оптимізувати матеріальні, інформаційні та фінансові потоки, що сприяє підвищенню економічної та екологічної ефективності бізнесу.*

*Здійснено аналіз підходів до визначення теоретичного змісту понять екологічна, економічна та еколого-економічна безпека. Стверджується, що екологоорієнтована логістика є інструментом забезпечення еколого-економічної безпеки.*

*Виокремлено основні переваги логістики для ефективності бізнесу та основні перешкоди для розвитку логістики. Сформовано основні цілі та напрями екологізації сучасної логістики, виокремлено відповідні еколого-економічні ефекти. Враховуючи світові тенденції екологізації економіки та інтеграційні вимоги ЄС, рекомендовано посилити заходи державної підтримки та сприяння розвитку логістичної діяльності, розбудови логістичної інфраструктури та екологізації логістики.*

*У ході проведеного дослідження було сформовано перспективні напрями подальших досліджень: дослідження витрат екологізації логістики та їх співвідношення із логістичними витратами; формування заходів екологізації логістичної діяльності підприємств та галузей економіки; розвиток сучасних технологій логістики.*

***Ключові слова:*** логістика; глобальні проблеми; екологічна безпека; економічна безпека; екологізація; еколого-економічний ефект.

***Владимир Гобела. "Логистика как инструмент обеспечения эколого-экономической безопасности государства".*** *Растущая роль логистики как средства повышения эффективности бизнеса и мировые тенденции экологизации экономической деятельности актуализировали необходимость внедрения экологически безопасных логистических инструментов и формирования экологоориентированной логистики. Для выполнения задач этой научной работы были использованы следующие общенаучные методы познания, в частности анализ для определения основных преимуществ развития логистической деятельности в Украине и мире в целом; синтез для определения препятствий для внедрения логистической деятельности в Украине; дедукция для определения целей и эколого-экономических эффектов экологизации логистической деятельности; гипотетический применен для обоснования логистики как инструмента обеспечения эколого-экономической безопасности государства; формализация и обобщение для формирования основных направлений экологизации современной логистики.*

*В исследовании акцентируется внимание на аспектах безопасности логистической деятельности. Отмечено, что логистика является сферой деятельности, позволяет оптимизировать материальные, информационные и финансовые потоки, способствует повышению экономической и экологической эффективности бизнеса.*

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*Осуществлен анализ подходов к определению теоретического содержания понятий экологическая, экономическая и эколого-экономическая безопасность. Утверждается, что экологоориентированная логистика является инструментом обеспечения эколого-экономической безопасности.*

*Выделены основные преимущества логистики для эффективности бизнеса и основные препятствия для развития логистики. Сформированы основные цели и направления экологизации современной логистики, выделены соответствующие эколого-экономические эффекты. Учитывая мировые тенденции экологизации экономики и интеграционные требования ЕС, рекомендовано усилить меры государственной поддержки и содействия развитию логистической деятельности, развития логистической инфраструктуры и экологизации логистики.*

*В ходе проведенного исследования было сформировано перспективные направления дальнейших исследований: исследования расходов экологизации логистики и их соотношение с логистическими затратами; формирование мероприятий экологизации логистической деятельности предприятий и отраслей экономики; развитие современных технологий логистики.*

***Ключевые слова:*** логистика; глобальные проблемы; экологическая безопасность; экономическая безопасность; экологизация; эколого-экономический эффект.

**Introduction.** The intensification of competition in the domestic and world markets contributes to the formation of effective means of increasing the competitiveness of enterprises. Accordingly, the growing role of logistics as a means of improving business efficiency and global trends of greening the economic have highlighted the need for the introduction of eco-friendly logistics tools and the formation of eco-friendly logistics. Under such conditions, it is possible to increase the economic efficiency of business and reduce the amount of environmental damage, which will help counteract environmental threats and increase the competitiveness of enterprises in today's market economy. There is a need to form tools of economic and environmental security. Therefore, it is proposed to consider logistics as an activity aimed at ensuring the environmental and economic security of the state and to explore the main directions of greening the modern logistics.

**Analysis of recent research and publications.** The study of topical issues of logistics, current trends in logistics, eco-friendly, "green" logistics were engaged in such domestic and foreign reseachers: Brdulak H. [1], Ivanishcheva A. [2], Poliakova O., Shramenko O. [3], Koblianskaia N. [4], Mashchak N. [5], Mnykh O. [6], Fesina Yu. [7], Kharichkov S. [8]. The study current issues and environmental aspects of economic activity and ensuring economic and ecological safety work dedicated scientists, such as: Dudiuk V. [9], Franchuk V. [10], Polovian O. [11], Lytsur I. [12] and other.

**Purpose and objectives of the article.** To carry out the theoretical substantiation of identification of logistics as the tool of maintenance of ecological and economic safety of the state and to offer directions of greening the modern logistics.

**Presentation of the main material and research results.** At the present stage of development there is a significant role of logistics in obtaining sustainable competitive advantages, especially for international business. Thanks to logistics, organizations provide the required level of service to the end user, while providing him with certain additional benefits or values. These additional benefits may include optimizing deliveries, payment terms, timing, place of execution, and other benefits that create a competitive advantage for the business. However, the experience of the world's leading companies shows the important role of security issues and their impact on the business activities of international and national enterprises. This is especially true of economic and environmental security at all levels of manifestation - enterprise, industry, state, global. The impact of logistics operations on the economic efficiency of business,

especially in recent decades, is extremely significant, but it is worth noting the growing role of environmental aspects of logistics and economic activity in general. Because logistics is the area of activity that allows you to optimize material, information and financial flows, which helps to increase the economic and environmental efficiency of business. That is why there is a need to study logistics as a tool to ensure not only economic security but also environmental.

In general, economic security is an important component of national security, but in turn, economic activity causes significant damage to the environment, which leads to the formation of potential environmental problems. It is worth noting that the dynamic development of the world and globalization have led to the transformation of local environmental problems into global environmental problems that have threatened the existence of earthly civilization. Of particular importance are studies in the field of overcoming global environmental threats and finding a safe way for humans to live.

Currently, there is a lot of research on topical issues of security, including economic and environmental security. It should be noted that environmental safety is interpreted as a state characterized by the provision of all vital human needs while maintaining the impact on the environment at a level that ensures safe living conditions and human health, does not worsen future living conditions and creates a system of safety measures to prevent and eliminate the consequences of natural phenomena and natural disasters [9]. Instead, economic security is interpreted as a state of protection of national economic interests, which provides effective counteraction to external threats and guarantees the satisfaction of social needs [10]. However, a significant number of researchers suggest combining these concepts into one – ecological-economic security. The introduction of this concept has led to the definition of environmental safety as "a state of protection of recipients and the environment from the negative effects, threats and consequences of anthropogenic activities" [11], and ecological-economic security is interpreted as a state in which biotic, abiotic and anthropogenic load is acceptable limits of the system, and the system, in turn, is in a state of stability and dynamic equilibrium [12].

The most complete description of the state of the ecological and economic system can be obtained by comparing economic indicators with the corresponding state of the environment. Therefore, the further development of the ecological and economic system will be based on two guidelines. This will make it possible to determine what "price" we pay for economic development, whether economic growth ensures the growth of social standards and how much socio-economic benefits society loses, ensuring environmental and economic security. Awareness of the real state of the ecological and economic system will provide an opportunity to form a strategy for further economic development, which will be based on the optimal combination of requirements of the two subsystems. The tool to ensure such development will be eco-friendly logistics, which will help ensure the achievement of economic objectives while minimizing damage to the environment. Accordingly, we believe that we are talking about the green logistics in order to form tools to combat environmental and economic threats and ensure the environmental and economic security of the state.

Although the term "greening" has appeared relatively recently, it is commonly understood and most in demand in modern science. This concept is widely used in scientific papers, periodicals, political discussions and everyday conversations [13]. We consider it expedient to single out greening as an activity aimed at overcoming environmental problems as the main threat to the economic security of the state.

That is, greening is essentially an activity that contributes to economic security without compromising environmental security. Thus,

the main goal of greening is to transform socio-economic development into an environmentally safe and acceptable form [13]. Based on the above provisions, we emphasize that the main task of greening is to make environmental products and services an attractive and efficient commodity for the national economy. Note that in the context of the outlined provisions, we tend to the following interpretation of greening – all types of human activities aimed at preventing, identifying and eliminating environmental threats to the economic system [14].

Given the chosen strategic course of the state towards the transition to low-carbon economic development, which is based on the main provisions of the Paris Agreement to the UN Framework Convention on Climate Change, we consider green logistics one of the priorities. It should be noted that the market of logistics services is developing very dynamically, we are talking about both international and national markets. Nowadays, logistics is not only a tool for counteracting environmental threats, but also a tool for improving the economic efficiency of business. The share of companies providing logistics services is growing rapidly. Note that according to current legislation, the main sources of pollution in Ukraine are industry, energy and transport [15]. Accordingly, the greening of logistics operations will increase the environmental and economic efficiency of industry and transport operations and will make a significant contribution to environmental and economic security at the enterprise level and at the national level. Because the level of economic security largely depends on the level of management efficiency and the ability to take into account possible threats and avoid harmful consequences and negative factors of both its external and internal environment [16]. That is why logistics should be considered an effective tool for ensuring the environmental and economic security of the state.

In recent years, Ukrainian companies have appreciated the important role of logistics in improving business efficiency and are actively integrating the world experience of logistics management into domestic practice. As a result, the quality of logistics services increases [2]. In such circumstances, not only the introduction of modern logistics technologies is especially important, but also the need of green logistics, and transformation of logistics tools into eco-friendly. However, obstacles to the active development of logistics in Ukraine should also be identified. Domestic researchers distinguish the following among them: technological lag of the domestic transport system in comparison with foreign ones; low level of transport infrastructure development; gaps in the legislation in the field of logistics and land relations, which complicates the process of creating large logistics centers and other logistics infrastructure; high level of bureaucracy and corruption; lack of investment [3]. Analysis of obstacles to the development of logistics in Ukraine shows a low level of state support for this area of activity, especially the financing of logistics projects and the development of innovative technologies in the field of logistics. Note that the development of logistics infrastructure, including the construction of roads, terminals and logistics centers are quite expensive and require significant investment and resources, therefore there is a need for significant support from the state, and reducing bureaucracy and fighting corruption is the exclusive competence of the state. Given the growing role of logistics as a tool for environmental and economic security of the state should actively develop this type of activity.

Global trends in logistics, and especially the development of the European Union's logistics, indicate the world community's significant concern about global environmental issues, especially global warming due to excessive greenhouse gas emissions, and the role of logistics in solving them. Currently, the greening of logistics is a priority for the development of national and global economy. It should be noted that

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modern technologies contribute to greening the logistics and, accordingly, help reduce the harmful effects of the economy on the environment. The European Union has adopted a number of directives concerning the increase of environmental requirements for logistics operations, in particular for the production process, transport operations, requirements for packaging, packaging, labeling, etc. Ukraine's integration into the European economic space implies harmonization of European and domestic legislation. This is especially true of environmental requirements for production and transportation of products. The greening of logistics activities will help increase the competitiveness of domestic products on the world market and remove barriers to integration processes. It is also worth noting that in our country there are a number of environmental problems that become a threat to present and future generations. Accordingly, the greening of logistics will help eliminate environmental problems and strengthen the environmental and economic security of the state.

Given the above arguments, it is necessary to identify the main objectives of modern green logistics: reducing resource costs and reducing pollution. Accordingly, the main directions of greening the modern logistics and the corresponding environmental and economic effects are shown in table 1.

Table 1

**The main directions, goals and ecological and economic effects of greening the logistics activities**

| Directions | Goals of greening | Ecological and economic effects of greening |
|---|---|---|
| Introduction of lean production systems | Reduction of resource costs | Reducing the use of resources, reducing labor costs, reducing warehouse space, reducing production costs |
| Recycling logistics, reverse logistics | Reduction of resource costs;<br>Reduction of environmental pollution | Reduction of resource use, reduction of waste and pollution, reduction of transport costs, after sales service and repair, reduction of production costs |
| Implementation of software packages (MRP II, ERP, WMS) | Reduction of resource costs | Reducing the use of resources, reducing labor costs, reducing production costs, optimizing the use of warehouse space |
| Using the electric cars including forklifts and trucks | Reduction of resource costs;<br>Reduction of environmental pollution | Reducing fuel consumption, reducing emissions of CO2 and other harmful substances, reducing the cost of logistics operations and production costs |
| Using the unmanned vehicles, drones, etc. | Reduction of resource costs;<br>Reduction of environmental pollution | Reducing the cost of logistics operations, more economical use of fuel, transportation of goods in difficult weather conditions, in dangerous conditions, optimization of transport and warehousing operations |

**Conclusions.** Logistics is an important type of economic activity that aims to increase the economic efficiency of business. During the last decades the research of ecological and ecological and economic efficiency of logistics is actualized. Logistics is

formed as an activity that helps to eliminate environmental threats and increase the economic efficiency of economic activity. Accordingly, logistics can be identified as a tool to ensure environmental and economic security of the state. Given the global trends of economic greening, EU integration requirements and trends in the national economy, there is an urgent need for state support to promote the development of logistics and infrastructure, green of logistics. In general, the goals of green logistics are to reduce resource consumption and reduce pollution.

In the course of the conducted research the perspective directions of further researches were formed: research of expenses for greening the logistics and their correlation with logistic expenses; formation of measures for greening the logistics activities of enterprises and industries; development of modern logistics technologies.

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