

## DEVELOPMENT OF GREEN LOGISTICS IN THE WORLD AND EVALUATION OF THE AVAILABLE OPPORTUNITIES

DOI: <https://doi.org/10.32620/cher.2025.2.04>

*Formulation of the problem.* On the one hand, the increase in interest in logistic support, which is considered a new scientific-practical direction, is due to the demand for market-oriented development of the economy, on the other hand, the increasing costs of product production, fundamental changes in the philosophy of resource management, and the wide application of the marketing concept and computer technologies. related to factors. In this article, the Logistics Performance Index of Azerbaijan is analyzed in the context of cross-country comparison, the development of logistics support in terms of increasing non-oil exports, including agricultural exports in our republic, and the mechanisms applied in this field are considered, the measures applied in the Republic of Azerbaijan in order to increase the country's export potential. Issues of improvement of "Green Corridor" release rules are being considered. *The purpose of the study.* The purpose of this article is to analyze the development of green logistics, study the experiences of countries, assess the existing opportunities in Azerbaijan, and examine the role of green skills in the formation and sustainable development of green logistics. *The object of the study.* The object of the research is to study the main approaches to solving the problems of green logistics. *Research methods:* The aim of the study is a comparative analysis of the functional and system approaches to solving green logistics problems and their implementation for the effective solution of environmental problems. Their diagnostics and solution, as well as the solution of research problems became possible due to the use of theoretical and empirical research methods, statistical and system analysis. *The main hypothesis of the follow-up.* The research work will identify and analyze the problems and obstacles affecting the implementation of green logistics in Azerbaijan, and proposals for the use of green skills will be made to overcome these problems. The field of logistics plays an important role in the efficient movement of goods, services and information within supply chains. However, the traditional practices of logistics often have negative environmental and social impacts, and against the background of these challenges, the concept of green logistics has emerged as a sustainable approach to optimize logistics operations while minimizing negative environmental impacts. A number of factors characterizing the relevance of the topic can be listed: global focus on sustainability; environmental issues and climate change; Sustainable Development Goals (SDGs); economic and competitive advantage;

<sup>1</sup> **Новрузов Атиф**, доктор філософії з економіки, доцент, доцент кафедри менеджменту, Університет Одлар Юрду, м. Баку, Азербайджан.

**Novruzov Atif**, Doctor of Philosophy in Economics, Associate Professor, Associate Professor of the Management Department, Odlar Yurdu University, Baku, Azerbaijan.

**ORCID ID:** <https://orcid.org/0009-0000-5308-7339>

**e-mail:** [atif\\_novruzov@mail.ru](mailto:atif_novruzov@mail.ru)

<sup>2</sup> **Годжасва Ельміра**, доктор філософії в економіці, доцент кафедри прикладної економіки, Азербайджанський державний економічний університет, м. Баку, Азербайджан.

**Gojaeva Elmira Magomedovna**, Doctor of Philosophy in Economics, Associate Professor of the Applied Economics Department, Azerbaijan State Economic University, Baku, Azerbaijan.

**ORCID ID:** <https://orcid.org/0000-0001-8413-4812>

**e-mail:** [elmira\\_qocayeva@unec.edu.az](mailto:elmira_qocayeva@unec.edu.az)

<sup>3</sup> **Мамедова Севда**, доктор філософії в економіці, доцент, доцент кафедри економіки та економічних відносин, Університет Одлар Юрду, м. Баку, Азербайджан.

**Mamedova Sevda Binyat**, Doctor of Philosophy of Economic Sciences, Associate Professor, Associate Professor of Economics and Economic Relations Department, Odlar Yurdu University, Baku, Azerbaijan.

**ORCID ID:** <https://orcid.org/0009-0000-6474-7291>

**e-mail:** [memmedova.sevda@oyu.edu.az](mailto:memmedova.sevda@oyu.edu.az)



[Creative Commons Attribution  
NonCommercial 4.0 International](https://creativecommons.org/licenses/by-nc/4.0/)



development policies of countries; local development issues and innovative approaches. *Present of the main material.* A comparative approach to the analysis of green logistics problems was carried out on the basis of the following indicators: environmental policy and information transparency of the enterprise, priority areas of activity and organization of the "green office", characteristics of the implementation of logistics and communication processes, management system and result. It allows us to determine the socio-ecological and economic guidelines of green logistics as a scientific and practical activity on safe strategic management of the supply chain, aimed at minimizing environmental risks and optimizing resource consumption. The need to adopt group practices is substantiated, including the creation of environmentally sustainable chains (environmental management, "green" procurement and taking into account environmental factors in choosing suppliers, eco-design, cooperation with customers) and security regulation in the field of such security, the ability of specialists in the functioning of "green" supply chains. *Originality and practical significance.* The originality and practical significance of the study lies in the fact that socio-ecological-economic benchmarks of green logistics, features and possibilities of functional and systemic approaches to solving its problems have been determined. The hypothesis of applying a systemic approach to solving problems of the negative impact of logistics efforts on the environment (disruption of groundwater ecosystems, deterioration of air, soil, water, etc.) underlies the construction of safe logistics systems and effective relationships in the supply chain, allows for a comprehensive assessment of the enterprise's activities at the level of specific characteristics and indicators. *Conclusions and prospects for further research.* Green logistics, which focuses on partnership with suppliers and consumers, lean manufacturing and transport and warehousing processes, loading and unloading operations, waste disposal, and organization of reverse flows, is associated with end-to-end management of material flows both in the direction of the consumer market and in the opposite direction. Consequently, green logistics and the identification of the features of the functional and system approaches to solving its problems, which represent the novelty of this work, imply the practical implementation of the principles of reverse, marketing, integrated logistics and environmental management. A comparative analysis of the experience of companies practicing environmentally oriented management of logistics activities, as well as approaches to solving green logistics problems, showed that in modern conditions of "changing environmental characteristics, as well as due to other challenges of economic reality" it is necessary to combine system and functional approaches, which contributes to the creation of a favorable opportunity to "preserve development variations as a necessary condition for ensuring the sustainability of the economic system."

**Keywords:**

Logistics, Logistics Assurance, Logistics Efficiency Index, Logistics Performance Index, Strategic Roadmap, Investors, Green Corridor.

## РОЗВИТОК ЗЕЛЕНОЇ ЛОГІСТИКИ У СВІТІ ТА ОЦІНЮВАННЯ НАЯВНИХ МОЖЛИВОСТЕЙ

*Постановка проблеми.* З одного боку, зростання інтересу до логістичного забезпечення, яке вважається новим науково-практичним напрямком, зумовлене потребою в ринково-орієнтованому розвитку економіки, з іншого боку, зростанням витрат на виробництво продукції, фундаментальними змінами у філософії управління ресурсами, а також широким застосуванням маркетингової концепції та комп'ютерних технологій, пов'язаних з факторами. У цій статті аналізується Індекс логістичної ефективності Азербайджану в контексті міжкраїнного порівняння, розглядається розвиток логістичного забезпечення з точки зору збільшення нафтового експорту, включаючи сільсько-господарський експорт у нашій республіці, та механізми, що застосовуються в цій галузі, заходи, що застосовуються в Азербайджанській Республіці з метою підвищення експортного потенціалу країни. Розглядаються питання вдосконалення правил випуску "Зеленого коридору". Мета дослідження. *Метою статті* є аналіз розвитку зеленої логістики, вивчення досвіду країн, оцінка існуючих можливостей в Азербайджані та вивчення ролі зелених навичок у формуванні та сталому розвитку зеленої логістики. *Об'єктом дослідження* є вивчення основних підходів до вирішення проблем зеленої логістики. *Методи дослідження:* Метою дослідження є порівняльний аналіз функціональних та системних підходів до вирішення проблем зеленої логістики та їх впровадження для ефективного вирішення екологічних проблем. Їх діагностика та вирішення, а також вирішення дослідницьких проблем стали можливими завдяки використанню теоретичних та емпіричних методів дослідження, статистичного та системного аналізу. *Основна гіпотеза дослідження.* У дослідницькій роботі будуть визначені та проаналізовані проблеми та перешкоди, що впливають на впровадження зеленої логістики в Азербайджані, а також будуть запропоновані пропозиції щодо використання зелених навичок для подолання цих проблем. Галузь логістики відіграє важливу роль в ефективному пе-





реміщенні товарів, послуг та інформації в межах ланцюгів поставок. Однак традиційні практики логістики часто мають негативний екологічний та соціальний вплив, і на тлі цих викликів виникла концепція зеленої логістики як стійкого підходу до оптимізації логістичних операцій з одночасною мінімізацією негативного впливу на навколишнє середовище. Можна перерахувати ряд факторів, що характеризують актуальність теми: глобальна спрямованість на сталий розвиток; екологічні проблеми та зміна клімату; Цілі сталого розвитку (ЦСР); економічні та конкурентні переваги; політика розвитку країн; місцеві проблеми розвитку та інноваційні підходи. *Виклад основного матеріалу.* Порівняльний підхід до аналізу проблем зеленої логістики було здійснено на основі таких показників: екологічна політика та інформаційна прозорість підприємства, пріоритетні напрямки діяльності та організація «зеленого офісу», характеристики впровадження логістичних та комунікаційних процесів, система управління та результат. Це дозволяє визначити соціально-екологічні та економічні орієнтири зеленої логістики як науково-практичної діяльності з безпечного стратегічного управління ланцюгом поставок, спрямованого на мінімізацію екологічних ризиків та оптимізацію споживання ресурсів. Обґрунтовано необхідність впровадження групових практик, включаючи створення екологічно стійких ланцюгів (екологічний менеджмент, «зелені» закупівлі та врахування екологічних факторів при виборі постачальників, екодизайну, співпраці з клієнтами) та регулювання безпеки у сфері такої безпеки, спроможність фахівців у функціонуванні «зелених» ланцюгів поставок. *Оригінальність та практична значущість.* Оригінальність та практична значущість дослідження полягає в тому, що визначено соціально-еколого-економічні орієнтири зеленої логістики, особливості та можливості функціонального та системного підходів до вирішення її проблем. Гіпотеза застосування системного підходу до вирішення проблем негативного впливу логістичних зусиль на навколишнє середовище (порушення екосистем ґрунтових вод, погіршення стану повітря, ґрунту, води тощо) лежить в основі побудови безпечних логістичних систем та ефективних взаємовідносин у ланцюзі поставок, дозволяє комплексно оцінити діяльність підприємства на рівні конкретних характеристик та показників. *Висновки та перспективи подальших досліджень.* Зелена логістика, яка зосереджена на партнерстві з постачальниками та споживачами, бережливому виробництві та транспортно-складських процесах, вантажно-розвантажувальних операціях, утилізації відходів та організації зворотних потоків, пов'язана з наскрізним управлінням матеріальними потоками як у напрямку споживчого ринку, так і у зворотному напрямку. Отже, зелена логістика та виявлення особливостей Функціональний та системний підходи до вирішення її проблем, що становлять новизну цієї роботи, передбачають практичну реалізацію принципів реверсної, маркетингової, інтегрованої логістики та екологічного менеджменту. Порівняльний аналіз досвіду компаній, що практикують екологічно орієнтоване управління логістичною діяльністю, а також підходів до вирішення проблем зеленої логістики, показав, що в сучасних умовах «змінних екологічних характеристик, а також через інші виклики економічної реальності» необхідно поєднувати системний та функціональний підходи, що сприяє створенню сприятливої можливості для «збереження варіацій розвитку як необхідної умови забезпечення стійкості економічної системи».

**Ключові слова:**

логістика, логістичне забезпечення, індекс логістичної ефективності, індекс логістичної результативності, стратегічна дорожня карта, інвестори, зелений коридор.

**Formulation of the problem.** Modern trends of integration and globalization contribute to the active development of enterprises, but in the pursuit of success, many forget about the environment. Modern logistics, in order to meet the requirements of time and technology development, must meet such an important requirement as environmental friendliness. A promising area of development in the field of supply chain management can be called “green” logistics.

The purpose of the study is to identify promising areas for applying the principles of “green” logistics by trade organizations. During the research and writing of the article, the logistics concept of “lean” production was analyzed, and the experience of applying the principles of

“green” logistics in the activities of foreign organizations in supply chain management was systematized. The main objects of green logistics management include [1]:

- flows of raw materials, semi-finished products, finished products, as well as product waste;
- logistics operations and processes, etc.

“Green” technologies usually include innovative solutions in the field of processing and recycling of materials, wastewater treatment, energy saving, air pollution control, environmental protection, and renewable energy sources.

Logistics is currently one of the fastest growing sectors. In addition, performance and evaluation are very important in logistics pro-

cesses as more and more people are realizing their importance and using them day by day. Due to its location in the most favorable region of Eurasia, Azerbaijan occupies an important place in the transport logistics platform. In order to organize a certain part of freight transportation from Asia to Europe (from China to Great Britain), from South to North (from the United Arab Emirates and Iran to Russia, as well as to Scandinavian countries), extensive measures have been taken in the field of logistics development. The total length of highways in Azerbaijan is 18,799 kilometers [5]. As a result of the construction and reconstruction of thousands of kilometers of roads by the orders of the President of the Republic of Azerbaijan in recent years, the country has become a logistics center. Currently, thousands of people work in this field in our country [3]. Fundamental changes and economic reforms are needed for high development in the country's logistics sector.

**Analysis of recent research and publications.** According to experts, the deterioration of the environmental situation in the country leads to annual economic losses amounting to 4-6% of GDP. The introduction of environmental and resource-saving technologies will allow obtaining a minimum economic effect of 500 million dollars per year, in the transport complex - up to 400 million dollars, in the agro-industrial complex - more than 500 million dollars. In the practice of entrepreneurial structures, the implementation of logistics functions with correct and careful behavior in relation to the environment is beginning to acquire great importance [2]. The movement of material flows along the market chain through the implementation of purchasing, transport and warehouse operations, the complexity of logistics processes and the geographical "disunity" of chain links entail the need to solve environmental problems. This determines the relevance of studying various approaches to solving green logistics problems, the need to take into account environmental requirements both in the economy as a whole and in the logistics activities of enterprises. The problems of the environmental component of supply chain management are the subject of research by many domestic and foreign scientists. An analysis of the results of their research allows us to note the lack of unified approaches to solving the problems of green logistics and greening professional activities. Since environmental aspects of the activity began to manifest themselves within the framework of the development of a green econ-

omy (in 2011, the UN Commission on Sustainable Development gave a definition of a green economy), it is appropriate, in our opinion, to use the term "green logistics". It is a science of effective management of material and related flows while minimizing the negative impact on the environment through the use of resource-saving technologies, eco-friendly transportation, warehousing and storage of goods. Many scientists suggest that, as an activity for safe strategic management of the supply chain, it provides for the use of environmentally friendly technologies and equipment at all stages of the flow of flows (from the purchase of raw materials to the sale of finished products) in order to minimize environmental risks, optimize resource consumption and increase the consumer value of products for consumers. The use of green logistics rules ensures the movement of material before it is "transformed" into a product, followed by collection, sorting, transportation of waste and their disposal, safe storage in the environment. [5] Green logistics involves the integration of environmental and socio-economic aspects at all stages of supply chain management. Its economic component is responsible for optimizing logistics costs; social – creates conditions for safe production, distribution and use of products; ecological – helps improve the environmental situation while maintaining product quality. The use of energy- and resource-saving technologies along with the integration of the designated components of end-to-end logistics flow management forms the contour of green logistics.

Thus, the basis for managing flow processes is a system analysis, which allows us to consider any object of study as an integrated logistics system, despite the fact that it consists of individual components. Analysis of the experience of foreign companies practicing environmentally oriented management of logistics activities shows that the consistency of environmental and economic factors leads to positive results. For example, the implementation of environmental measures by the Japanese company K Line led to a decrease in the volume of harmful emissions into the atmosphere by 1%. When express delivery operator UPS uses vehicles with hybrid engines, gas emissions will decrease by 671 tons per year. The German carrier Deutsche Bahn Schenker Rail proposed a method of transporting goods that completely eliminates carbon dioxide emissions [4]. The result of such effective activities was the use of green technologies in logistics,







a systematic approach to solving the problems of green logistics in general.

**The purpose of the article.** Issues of improving logistics provision are investigated based on the Logistics Efficiency Index (LEI) determined by the World Bank, as well as indicators for Azerbaijan, as well as official statistical data. At the level of relevant indicators, the country's place in the international arena, the current state of logistics capabilities and future potential are analyzed. The fact that the development of the agricultural sector is related to the development of logistics is considered in the context of the relations established in freight transportation with neighboring countries and reforms in foreign economic relations. The method of comparisons by years is used in the

analysis of the Logistics Performance Index (LPI) for Azerbaijan, determined by the World Bank. At the same time, the mechanisms applied in accordance with the experience of the State of Singapore in the Tool Free Trade Zone established in the country were reviewed.

Setting and explaining the issue, compared to the favorable geographical position of Azerbaijan, the logistics sector is not at the level it should be. There is no logistics center providing compact services in the country. In the "Strategic Roadmap for the development of logistics and trade in the Republic of Azerbaijan" adopted in 2016, such problems were considered and relevant strategic goals were determined. On the figure 1 presents the main directions of green logistics.

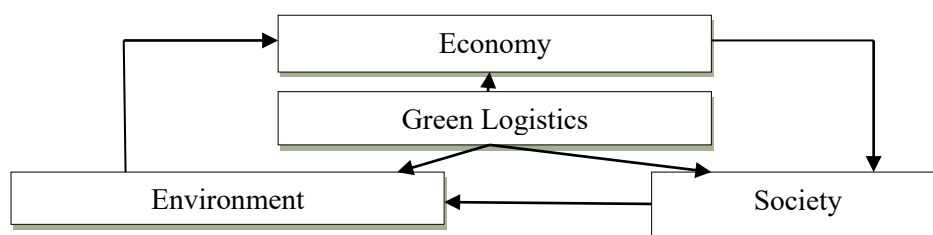


Figure 1 – Main areas of green logistics

Source: developed by the authors

The indicators of the countries operating in the field of logistics around the world are ranked taking into account seven points. These points are as follows:

- Negative and positive aspects of the country's cross-border customs procedures;
- Efficiency of communication network and technological support for the field of logistics;
- The difficulty of the inter-country transport process and the material response to it;
- Capacity of countries regarding internal transport process;
- The possibility of having cross-country logistics in a central structure and being controlled remotely;
- Local logistics costs;
- The quality of logistics to reach any place at any time

We should also note that during our general analysis, we witnessed that in 2007-2018, there was a certain progress in terms of the long-term LPI indicator in Azerbaijan. This has had a positive impact on the overall economic development of the country. It should be noted that the final indicator of LPI is formed from the following components: 1. Customs; 2. Infrastruc-

ture; 3. International cargo transportation; 4. Logistics organization competence; 5. Tracking of shipped cargo; 6. Timely delivery of cargo.

Azerbaijan cooperates with international cargo transportation companies and centers. The country is interested in developing relations with them for the purpose of increasing cargo transportation capabilities. The issue of relations with foreign investors is given a special place in the Strategic Road Map for the development of logistics and trade adopted by Azerbaijan. In accordance with the Strategic Roadmap for the development of logistics and trade, Azerbaijan also intends to use the "benchmark" applied by the large ports of developed countries in the world, including the ports of Hamburg, Singapore, Antwerp, Rotterdam and Montreal. There are 3 main factors that ensure competitiveness in the development of logistics in Azerbaijan: - pricing, optimization and application of new IT technology in order to increase the efficiency of the port; - investments in the infrastructure intended for railway and large cargo transportation and combining forces creating "synergy" (marketing and operation); - increasing activity in the field of trade based on the organization of value-added services in the port. It is also important to learn

from the effective experience of foreign countries regarding the development of logistics. In this regard, the experience of Singapore is particularly noteworthy. After gaining independence in 1965, Singapore was an economically weak country with no natural resources. However, in a short period of time, it has become a major logistics hub in Asia and the world. The following main directions of ensuring this can be distinguished: - Connecting the local market with world transport lines. National air transport has obtained Air Transport Agreements with 130 countries of the world. Singapore has attracted about 30 world transport and logistics companies to the country by creating a Free Trade Zone. - Formation of innovative infrastructure and modern development (world-class port infrastructure is developed and IT technologies are applied). Singapore intends to increase the number of container transfers in the country to 65 million in 2030. Another issue is to increase cargo transportation by means of large-capacity aircraft).

**Presentation of the main research results.** The result of the application of environmental logistics and “green” principles of building supply chains can be the following results: 1. Rational use of all enterprise resources: use of reusable packaging and its recycling, reduction of energy costs due to thermal insulation of warehouses and the use of solar panels, refusal of paper document management, planning optimal routes; 2. Increasing the level of environmental safety, reducing the degree of damage to the en-

vironment by using all the above methods and technologies of green logistics; 3. Increasing the motivation of entrepreneurs with the help of regulations; 4. Environmental training of personnel (already used in many companies focused on the development of green technologies); 5. Increasing consumer awareness and motivation.

Logistics supply chains (LCCs) are an important element of global value chains (GVCs). Increasing consumption volumes in the global economic system make GVCs and supply chains (SCs) key sources of competitiveness and differentiation of enterprise products. GVCs contribute to income growth, create jobs and reduce poverty [4]. Companies around the world are striving to create strong and resilient supply chains that enable them to deliver products to market better, more efficiently and more economically than their competitors. Therefore, supply chains are becoming the main driving force of the global economy, an incentive for business expansion, and a generator of income and profit. The analysis of the definitions of green logistics and green supply chain management currently presented in the scientific literature shows that all functional areas of logistics are covered. The authors use many different terms and definitions, for example, “green logistics”, environmental logistics, sustainable logistics, etc. At the same time, most studies address specific areas of logistics. Table 1 presents the characteristics of logistics resources used to implement green logistics tools [4].

Table 1 – Characteristics of logistics resources used to implement green logistics tools

Resource type	Characteristic
Material resource for the implementation of Green Logistics tools	All possible types of resources (energy, raw materials, materials, semi-finished products, components, finished products, etc.) used in the process of implementing green logistics tools when promoting material flow
Financial resource for the implementation of Green Logistics tools	The volume of financial resources circulating in the Logistics System, as well as between the Logistics System and the external environment, necessary for the implementation of “green” logistics tools
Resource of services for the implementation of Green Logistics tools	A complex (volume) of specialized work and activities performed by elements of the logistics system or third-party elements that are necessary in the process of implementing green logistics tools
Information resource for the implementation of Green Logistics tools	The flow of information requests in the Logistics System.

Source: developed by the authors

To achieve the SDGs in supply chain management, the concept of sustainable development of the LCG has been developed.

This requires the following conditions to be met:

- coordination of the goals and principles of sustainable development with the goals and

principles of logistics;

- the formation and maintenance of sustainability of the LCG is carried out in compliance with the legal norms of international and national legislation;

- the basis of management decisions for the sustainable development of LCGs are methods





and tools of “green” logistics;

Effective implementation of the principles of sustainable development in the management of logistics centers is based on the idea of synthesizing the principles of logistics and the principles of sustainable development in order to create a balance between the economic, environmental and social sustainability of the logistics system. The new synthesized system of green logistics principles includes three groups of principles: general, particular and specific principles that allow the elements of the logistics system to respectively implement key, basic and supporting functions for managing all types of logistics flows in the LCG. .

The implementation of a synthesized system of principles of “green” logistics in the management of LCG will improve the efficiency of decision-making on the development and implementation of methods and tools of “green” logistics, unify the process of sustainable development of the logistics system by eliminating the inconsistent use of tools by various elements. As a result, this will help reduce the negative impact on the environment and achieve the goals of the concept of sustainable development in logistics activities, provided that the economic efficiency of the LCG is achieved.

Systematization of methods and tools of “green” logistics using structural and functional analysis allows us to eliminate the uncoordinated use of “green” tools in relation to the infrastructure elements of the LCG - industrial enterprises, warehouses, supply and sales departments, transport. That is, to prevent cases of using essentially identical “green” logistics tools, which are implemented on a different methodological basis or are regulated by conflicting regulations.

The process of formation of sustainable LCGs is proposed to be carried out according to the “bottom-up” principle. In accordance with this principle, the formation of a “green” micro-logistics system should be preceded by the implementation of appropriate methods and tools of “green” logistics, ensuring the improvement of functions and operations at the level of individual elements of the drug system. The transition to the meso-level and the formation of a “green” supply chain is preceded by the formation at the micro-level of “green” logistics systems that are part of this chain, and so on.

The determination of the weighting coefficients of logistics flow indicators is carried out in accordance with the obtained values of the number of relationships ( $D_i + R_i$ ) and forces of influ-

ence ( $D_i - R_i$ ) between the indicators of logistics flows. Weighting coefficients are calculated in two stages: 1) separately by parameters and by indicators of logistics flows; 2) final weight indicators of logistics flows.

Research conducted on the basis of the Logistics Efficiency Index determined by the World Bank shows significant progress in the development of logistics infrastructure in Azerbaijan in the long term. However, cases of decline in some constituent elements of the mentioned index are also observed. This applies primarily to the service department. The analysis of the “Green Corridor” principle shows that such shortcomings are primarily related to the fact that it takes a relatively long time to review documents and provide an electronic response to them. In order to expand the involvement of investors in the Tool Trade Zone created by Azerbaijan, it is necessary to establish the services and financial freedom provided to investors on the basis of effective practices tested in the world in this field. In increasing investments in the logistics sector in Azerbaijan by foreign and local investors, the formation of a free economic judicial system and ensuring the full compliance of the laws to be applied with the principles of international law will play an important role.

A comparison of the Sustainable Development Goals and the Commission's operational goals shows the existence of contradictions between them. From a green logistics perspective, it is necessary to reconcile the SDGs (Economic, Social and Environmental Goals) and economic logistics goals. The main hypothesis of such coordination is that the implementation of logistics methods, concepts and functions can fundamentally reduce resource costs as a result of optimizing the parameters of logistics flows, which can potentially help reduce the harmful effects on the environment. In fact, using logistics solutions, the use of resources allows you to improve logistics processes and, as a result, to understand the social and environmental needs of society. However, for this, it is necessary to develop a system of logistics functions, methods and concepts for the development of “synthetic” principles of “green” logistics, the observance of which ensures the achievement of both the SDGs and the goals of sustainable development. LKG.

In order to influence the logistics flows, the elements of LCG, depending on the level of the tasks they solve, perform the following functions: key, basic and supporting. The allocation of logistics functions on the basis of structural

and functional approaches allows you to systematize logistics principles and methods in accordance with the CUR.

It allows to group the known "green" technologies and methods according to two main characteristics, which apply to each element of logistics when performing the main and auxiliary functions, and according to their impact on the logistics flow. key implementation. Logistics element management functions. Such an approach eliminates the repetition of "green" methods at various stages of the logistics process and allows the use of promising "green" solutions.

**Conclusions and prospects for further research.** In modern times, in order to improve logistics provision in the territory of the republic and relatively reduce the shortcomings and common problems during the development process, to achieve progress in this field, consistent movement towards the goals defined in the "Strategic Roadmap for the development of logistics and trade in the Republic of Azerbaijan" should be ensured. It is undeniable that the construction of logistics centers in the territory of Azerbaijan will have a positive effect on the development of the non-oil sector in the country. The Absheron Logistics Center operating in the country, the Red Bridge, Astara and Khachmaz logistics and trade centers created in the regions will help in the transportation of goods and their entry into the international market. However, in order to make the reforms in the field of customs even more effective, it is necessary to reduce the time of document review and eliminate the human factor in the created "Green Corridor" and "One Window" systems. For example, 2.1.1. if we look at the experience in the field of implementation of import operations according to the clause, we can see here that only the companies that entered the market in earlier periods gained superior positions. As a result, the opportunities of new export-oriented private entrepreneurs are shortened and the monopoly of old companies in the market is formed [5]. 2.1.3 of the mentioned Rules. If we take a look at paragraph (carrying out transportation using vehicles that meet international standards), we will see that there are obstacles to bringing trucks that meet international standards to the country, as modern cargo vehicles must pay a high customs tax when they enter the territory of the Republic of Azerbaijan. This creates problems in the development of logistics and the entry of new transport companies into the market [5]. "The State Customs Com-

mittee examines the application within 1 month", which is one of the 3 steps of the "Green Corridor" issuance system procedure, reduces the effectiveness of the electronic application. Because the response in electronic applications should usually be given quickly, the response time should be reduced, taking into account the short time for the exported agricultural goods to be on the road and spoilage [6].

The use of a green approach ensures a close connection between the environmental, economic and social goals of any state, which contributes to the achievement of sustainable development goals [8].

Reducing the environmental pressure on the environment is possible through the greening of all its functional areas (procurement, production, distribution, transport, information, logistics) and the entire system of goods distribution, capable of ensuring the company's entry into the domestic and foreign markets that meet consumer preferences. The use of a systematic approach to the study and solution of green logistics problems is a marketing tool for creating a positive image of the organization, a factor in "retaining" customers, and the basis for the formation of a customer-oriented business as a whole. This has a positive effect on the investment attractiveness of the industry and the interest of potential investors [9].

Systematicity and customer focus are the line of market behavior of the company aimed at protecting the environment and the customer, who has become more environmentally aware today and "forces" manufacturers and suppliers of products to make "green" decisions. Green logistics, which focuses on partnerships with suppliers and consumers, lean manufacturing and transport and warehousing processes, loading and unloading operations, waste disposal, and the organization of reverse flows, is associated with end-to-end management of material flows both in the direction of the consumer market and in the opposite direction. Consequently, green logistics and the identification of the features of the functional and systemic approaches to solving its problems, which represent the novelty of this work, suggest the practical implementation of the principles of reverse, marketing, integrated logistics and environmental management.





## References

1. Climate Change: Implications for Cities. (2014). Key Findings from the Intergovernmental Panel on Climate Change Fifth Assessment Report. University of Cambridge, 1-34.
2. Mammadov, E.Y., Azimzadeh, A.J. (2022). Efficiency of the innovation-investment model: Experience from China and prospects for Azerbaijan. The scientific and pedagogical news of Odar Yurdu University, 1, 32-38.
3. Mechanics of Moscow. (2016). *Research of the urban environment*. Moscow Institute of Social and Cultural Programs, 2-5.
4. The Future Is Coming (2017). The Index Of Cities' Readiness. Prerelease. P.W.C. July.
5. Analysis of industry smart technologies in Moscow and leading cities of the world. KPMG. (2016).
6. Energy Scenarios 2016 World Energy Council. (2016). Perspective input into the World Energy Council Scenarios: "Innovating Urban Energy".
7. Gasho, E.G., Stepanova, M.V. (2017). Moscow's sustainable development priorities: energy efficiency, vulnerability reduction, climate adaptation. Moscow, 35-43.
8. Eminov, A., Gojaeva, E., Gutium, T., Badalov, B., & Guliyeva, G. (2024). "Green economy" as a means of ensuring eco-friendly agricultural production. *Reliability: Theory & Applications*, 19(SI 6 (81)), 1133-1144.
9. Gojaeva, E., Adilova, N., Chobanli, E., & Gutium, T. (2024). Green Economy as the Basis for Innovative Environmental Sustainable Development. In *International Conference on Smart Environment and Green Technologies*. Cham: Springer Nature Switzerland, 465-472.
10. Babayeva, S., Novruze A., Gojaeva, E. & Pashayeva, A. (2024). Green Innovation as a Factor of Economic Growth. Development. In *International Conference on Smart Environment and Green Technologies*. Cham: Springer Nature Switzerland, 523-532.
11. Sadiq, M. (2023). Sharing economy benefits and sustainable development goals: Empirical evidence from the transportation industry of Vietnam. *Journal of Innovation & Knowledge*, 8.1. 100290.
12. Azerbaijan 2030: National Priorities for socio-economic development. Retrieved from: <https://president.az/az/articles/view/50474> (Access date: 20.01.2025)

Стаття надійшла

до редакції : 29.01.2025 р.

Стаття прийнята

до друку: 27.06.2025 р.

### Бібліографічний опис для цитування :

Novruzov A., Gojaeva E., Mamedova S. Development of green logistics in the world and evaluation of the available opportunities. *Часопис економічних реформ*. 2025. № 2 (58). С. 32–40.

