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TERRITORIAL DEVELOPMENT OF THE TRANSPORT AND LOGISTICS SYSTEM AND SUSTAINABILITY FACTORS

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Abstract: This article analyzes the territorial development characteristics of the transport and logistics system and the key factors ensuring its sustainability. It highlights how the uneven spatial distribution of transport infrastructure across regions directly affects economic development. The efficient functioning of the logistics system plays an important role in strengthening interregional connections and accelerating the movement of goods. Sustainability factors such as environmental safety, energy efficiency, and the implementation of digital technologies are assessed. It is substantiated that the development of regional logistics centers contributes to increasing regional competitiveness.

Key words: Logistics, goods, economy, international cooperation, integration, efficiency, sustainability, political factors, green warehouses, supply warehouse, and territorial development.

Logistics studies complex production and sales complexes. These complexes carry out organizational and economic activities in the areas of supply, core production, transport, and sales. The specific characteristics of these complexes include the wide spatial dispersion of fixed assets and internal units; the high capital intensity of the main part of technical facilities; the mobility of some elements of the logistics system and the strong attachment of others to a specific geographical region; and dependence on the performance of a large number of interacting subsystems (such as shippers, consignees, resource suppliers, and others). The term “logistics” has existed since ancient times and, throughout the course of human development, has evolved and been used to denote several related concepts. While the ancient Greeks understood logistics as calculation and accounting, in ancient Rome logistics was perceived as the distribution of goods.

Later, the term logistics began to be used to classify the practice of deploying and moving military troops. In the 9th–10th centuries CE, the Byzantine Emperor Leo V used the term “logistics” in his book on military affairs to mean “the supply of troops behind the front lines.” [1] p. 7. Logistics.

Today, logistics is considered as the management of material flows. In its time, the exchange of various goods and trade processes that took place along the Great Silk Road, which connected the East and the West, clearly demonstrate the elements of logistics. [1] p. 8. Logistics.

In the scientific dictionary on logistics published in Russia in 1995, logistics is defined as follows: “Logistics is the science concerned with the management and control

of transportation, storage, and other material and non-material operations carried out in the process of delivering raw materials and supplies to a manufacturing enterprise, processing raw materials, materials, and semi-finished products, delivering finished products to consumers, as well as processing, storing, and transmitting the necessary information." [3] Logistics.

If we look back to the recent past, the large-scale use of logistical capabilities became clearly evident during World War II. In the Second World War, the importance of logistics was extremely great, as the outcome of the war was determined not only by combat power or military technology, but also by the supply system, that is, logistics.

We are aware of the geographical location of the Republic of Uzbekistan and are familiar with its history. Until 1991, the Republic was part of the former Soviet Union, and its economy was based on a centrally planned system. Under a planned economy, the development of logistics processes is slow. These processes are managed by the state itself, and foreign trade and commodity exchange with other countries were at a very low level, with primary attention given to domestically available resources and goods. As a result, the development of logistics was limited, as there was no competitive environment. In contrast, in countries with capitalist economies, logistics was much more developed, innovations had been introduced, and a competitive environment had already been formed. In the period following independence, the gradual transition of the economy to market relations has clearly led to the expansion of logistical capabilities in Uzbekistan.

At present, the importance of logistics in the global economy is extremely high. In the world economy, some countries are based on the extraction and sale of natural resources, while others rely on purchasing raw materials and producing finished goods from them. As a result, trade relations are established between such countries, and not only bilateral trade but also participation in international trade routes enables them to develop economic relations on a global scale. Today, the competitiveness of logistics depends on lower product prices, higher quality, and faster delivery. In Western countries, 93% of the total time of product movement from the primary source of raw materials to the consumer is spent passing through various channels of material and technical supply. Actual production accounts for only 2% of the total time, while transportation takes 5%. Consequently, the share of goods movement costs in products exceeds 20% of national income in these countries. In the structure of goods movement, costs related to the storage of raw materials, materials, semi-finished products, and finished goods account for 44%, warehousing and dispatching for 16%, mainline and technological transportation for 23% and 9% respectively. The remaining 8% consists of expenses related to the sale of finished products. [2] Logistics.

The development of logistics in Uzbekistan is divided into the period up to 2016 and the period thereafter. The period after 2016 is assessed as a transition in the country's history from a logistics crisis to reform and modernization. After Shavkat Mirziyoyev came to power in 2016, Uzbekistan began to pursue an open economic policy. As a result, the modernization of transport and logistics systems in foreign trade became one of the key directions of state policy. The activities of the Tashkent International Logistics Center, the

Navoi Intermodal Center, and the Termez Logistics Center were expanded. Extensive efforts were made to fundamentally reform and transform the country's logistics system. These measures represent important steps not only toward increasing the country's economic potential but also toward securing a significant position in international logistics. The main changes and development directions are outlined below:

1. Modernization of transport and logistics infrastructure.

➢ Between 2017 and 2023, more than 600 km of railway networks were newly constructed or reconstructed.

➢ The Angren–Pap railway tunnel (commissioned in 2016) directly connected Uzbekistan's Fergana Valley with the central regions of the country. This became a turning point for domestic logistics.

2. Diversification of foreign trade routes.

➢ New transport corridors were opened through Uzbekistan, Russia, China, Kazakhstan, Turkey, Iran, and Afghanistan.

➢ The "Tashkent–Andijan–Osh–Irkeshtam–Kashgar" route began to play an important role in trade with China.

➢ In 2023, Uzbekistan hosted the "Central Asia Transport and Logistics Forum," which marked an important stage in the development of regional logistics.

3. Introduction of digital logistics systems.

➢ Systems such as the "Single Customs Window" and "TIR-EPD" (electronic cargo declaration) were introduced, reducing cargo clearance time by several days.

➢ Within the framework of the "Digital Uzbekistan–2023" program, GPS monitoring, electronic documentation, blockchain technology, and online tracking systems began to be implemented in logistics processes.

4. Activity of the private sector and foreign investment.

➢ After 2016, the number of private logistics companies doubled.

➢ With investments from Turkey, China, South Korea, and the UAE, modern warehouses and cold chain systems were constructed.

➢ Modernization was carried out in the operations of companies such as "UzAutoTrans," "Uzbekistan Railways Cargo," and "UzAviationCargo."

5. Personnel training and scientific approach in logistics.

➢ "Transport and Logistics" programs were established at the National University of Uzbekistan, Tashkent State Technical University, and the University of Economics.

➢ In 2021, the "Transport and Logistics" project was launched, strengthening scientific and practical cooperation in this field.

Sustainable logistics refers to the organization of the transportation, storage, and distribution of products and resources in an economically efficient, environmentally safe, and socially responsible manner. In other words, logistics should not only be fast and cost-

effective, but it must also avoid causing harm to the environment and serve the interests of society. The sustainability factors of logistics for the 21st century can be classified as follows:

1. Environmental factors.
   - Reduction of fuel consumption;
   - Reduction of CO_2 emissions;
   - Use of recyclable packaging;
   - "Green warehouses."

2. Economic factors.
   - Optimization of transportation costs;
   - Automation of warehouse logistics;
   - Cooperation and cluster systems;
   - Digital management.

3. Social factors.
   - Safe working conditions;
   - Training of qualified personnel;
   - Consideration of the interests of the local population.

4. Technological factors.
   - Digitalization;
   - Automated transport systems;
   - Smart logistics.

5. Organizational and political factors.
   - Support from state policy;
   - International cooperation;

The sustainability of logistics is based on the following formula: sustainable logistics = economic efficiency + environmental cleanliness + social responsibility. When these factors work together, resources are conserved, the environment is protected, the quality of life of the population improves, and the country's transport and trade potential increases.

In conclusion, the territorial development of the logistics system and sustainability factors are closely interconnected processes. Territorial development becomes a driving force of the national economy by expanding logistics infrastructure, transport routes, warehouse systems, and trade centers.

At the same time, sustainability factors such as economic efficiency, environmental cleanliness, social responsibility, and technological modernization ensure the long-term, continuous, and safe functioning of the logistics system. Thus, the territorial development of the logistics system cannot occur without sustainability, while sustainable logistics is strengthened through territorial integration and infrastructure development. As a result,

goods circulation in the domestic market accelerates, foreign trade volume increases, and economic stability is enhanced. As our wise people say, “First the economy, then politics.”

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