Logistics and transport as elements of sustainable development of territories

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Abstract. The article considers a number of aspects related to the essence of logistics and transport as elements of sustainable development of territories. The main directions of interaction between logistics, transport and sustainable development of territories are presented. The importance of creating technological and infrastructural reserves of the transport system to meet the needs of socio-economic development of the country is noted. The importance of an integrated approach to an effective solution to the tasks set by the concept of sustainable development with the help of the transport component is noted.

1. Introduction
At present, the problems of states caused by insufficient development of the transport system have become particularly obvious. These problems are diverse: economic, political, social, etc.:
- the extensional and quality characteristics of transport, especially its infrastructure, do not allow us to fully and effectively solve the problems of the growing economy, including the problem of meeting the demand of the innovative sector for high-quality transport and logistics services;
- the global economy restructuring associated with the change in the balance between economic centres, the increasing role of regional economic unions and the anticipated spread of new technologies entailed a change in national and global freight and passenger transportation, the increase of requirements to the quality of transport services, the security and sustainability of the transport system, the need to enhance the competitiveness of the Russian transport system;
- a significant improvement in the availability and quality of transport services for the population is required;
- it is necessary to ensure the growth of labour productivity and improve the use of labour resources in the transport system in order to reduce transportation costs and increase the competitiveness of the transport system;
- exhaustion of sources of export and raw material type of development based on intensive growth of fuel and raw material exports;
- environmental problems, including those caused by transport pollution, have become global [1];
- it is necessary to take into account the particular characteristics of territories, for example, there are special features for agricultural land [2] and [3].

All this leads to the need for new approaches to finding ways to resolve the situation.
2. Logistics

Logistics is the science of organizing, planning, controlling and regulating the movement of material and information flows in space and time from their primary source to the final consumer. Logistics is a system that provides a market orientation of enterprise management, which determines the content of the enterprise's activities to establish links with the consumer. The main areas of logistics are:

- market research and forecasting of demand for specific types of products;
- purchasing material resources necessary for production, making decisions about stock level, and managing supply stocks;
- organization of material flows in production;
- organization of goods distribution: selection and packaging of finished products, their transportation to the destination, delivery of products to the consumer, registration of necessary documentation.

The main essence of logistics is to reduce time and money costs associated with the movement of goods.

Taking into account the variety of logistics directions and their content, we can distinguish the following types of logistics:

- production logistics;
- organizational logistics;
- warehouse logistics;
- financial logistics;
- information logistics;
- transport logistics, etc.

Thus, logistics solves the tasks set for it, building time and spatial relationships determined by the specific nature of a particular task and the desire to obtain the optimal result with the minimum resources spent on it.

3. Logistics and transport

Transport is a set of means designed to move people and goods from one place to another. Transport includes several aspects. There, in relation to transport, you can select:

- infrastructure. This is a combination of all transport industries and enterprises, both performing transportations, and providing their performance and maintenance:
  - exploitable transport networks or communication routes (roads, railways, air corridors, canals, pipelines, bridges, tunnels, waterways, etc.),
  - transport hubs or terminals where cargo is reloaded or passengers are transferred from one mode of transport to another (for example, airports, railway stations, bus stops, and ports).

- means of transport. These are technical devices for transporting people and cargoes. The following are distinguished:
  - public transport – serves trade (transports goods) and the population (passenger transportation);
  - non-public transport — so-called intra-departmental transport;
  - personal or individual transport — cars, bicycles, yachts, private planes, etc.

- management. This is a whole complex of systems based on logical and other relationships, including:
  - control over the transport system, such as traffic lights, railway switches, flight control, etc.,
  - various kinds of rules (rules of behaviour in transport of a specific type; rules for financing the system – toll roads, fuel tax, etc.) [4] and others.

At the same time, it is necessary to take into account a number of factors when choosing a particular type of transport, taking into account the tasks facing the subject. (table 1).
Table 1. Criteria for choosing the type of transport.

| Selection criterion                              | Mode of transport |
|--------------------------------------------------|-------------------|
|                                                  | Road-transport    | Railway | Water transport | Air transport |
| Delivery speed                                   | high              | average | the lowest      | the highest   |
| Reliability of delivery                         | high              | average | low             | average       |
| Ability to transport various types of cargo     | average           | high    | the lowest      | low           |
| The geographical coverage of the nodes          | the highest       | high    | low             | average       |
| Cost (level of costs per ton of cargo)           | high              | average | low             | the highest   |

However, it is often necessary to combine the capabilities of different modes of transport, thereby creating transport corridors (Fig. 1)

Figure 1. Transport corridors.

The task of the transport corridor is to provide an opportunity for unhindered and cost-effective movement of vehicles in a particular direction.

Thus, logistics and transport are closely interlinked, and the area of their intersection is space. Sustainable transport is an important element of logistics that has its own characteristics taking into account the specific features of the territory, for example, urban transport is an area of urban logistics [5]

This contributed to the formation and development of the corresponding logistics direction – transport logistics. Transport logistics is a system for organizing delivery, namely the movement of any material items, substances, etc. from one point to another along the optimal route. This is one of the fundamental directions of the science of managing information and material flows in the process of goods movement.

For the successful functioning of the transport logistics system it is necessary to:
1) create transport systems, as well as transport corridors and transport chains;
2) ensure the technological unity of the transport and warehouse process;
3) plan the transport process with warehouse and production process;
4) select the means of transport;
5) select the type of vehicle;
6) to determine the efficient routes of delivery, etc. [6]
An integral part of logistics is a vehicle, the use and maintenance of which in practice accounts for about half of all actual costs for the implementation of work of this area. The main task of transport logistics was to solve key tasks, including coordinating the work of the transport and warehouse process, identifying the optimal category and type of vehicle, implementing working systems for the cargo transportation process, and creating the most profitable travel routes.

To solve such tasks successfully, it is necessary to implement key provisions in the field of logistics. The modern system is actively developing and improving, which causes an adjustment of the actual value of transport in this area. The latest system of transport services is characterized by an extremely profitable and promising ratio of the levels of expenditure and profit with current support for the wishes of the sender or recipient of goods.

Based on the methods of transportation implementation, it can be either external or internal. Such types have a certain form of communication between them, and are also included in the general structure of goods transportation. In practice, transport refers to the key stages of the transportation procedure. Logistics should solve the key tasks of organizing the procedure for transporting and storing different types of products within the current system. The actual benefit of this procedure is directly related to both the financial and time component. In order to achieve maximum savings of funds, the secondary loading and unloading process uses the product storage method. At the same time, an increase in the time frame that is required to complete the delivery of goods to the recipient is taken into account.

Transport logistics solves many different tasks:
- a comprehensive analysis of intermediate and final destinations is carried out;
- the main features and properties of cargo are analyzed;
- the most suitable vehicle for transportation is determined;
- the optimal shipping carrier is appointed or specialized logistics partners are involved;
- a suitable route is planned;
- monitoring of condition, quality and safety of goods during transportation is maintained;
- a set of measures for transport and warehouse distribution of products is implemented;
- optimization of key parameters is performed, which include increasing the delivery rate, reducing the current volume of fuel consumption, reducing the overall level of expenses, etc. [7].

There are many tasks and they are diverse. But in their complex they help in solving other issues that are already facing a different system – the system of sustainable development of territories.

4. Logistics, transport and sustainable development of territories

Space and time are also of great importance from the point of view of the interests of society and the state.

For instance, the space within which the power of a particular state operates is called a territory and is one of the characteristics of the state. Thus, the territory as a part of space has a political character.

Territory as an independent resource and territory as a space where there are other resources located in and on it, reveals the economic aspects of this term.

For the population, the territory is a habitat that must be preserved for future generations. This is the social and environmental characteristics of the territory [8].

Understanding the diversity of the essence of the territory, logically formed the idea of sustainable development of territories as part of the concept of sustainable development.

Sustainable development (as well as harmonious or balanced development) is a process of economic and social changes in which the exploitation of natural resources, the direction of investment, the orientation of scientific and technological development, personal development and institutional changes are coordinated with each other and strengthen the current and future potential to meet human needs and aspirations. Sustainable development should be systematic and thoughtful, taking into account the specific features of a particular territory, for example, urban logistics and its features as a strategic element of sustainable city development [9].
The concept of sustainable development was the result of the world community's awareness by the 1980s of the harmfulness of the consumer attitude to nature for the humanity that has become an integral part of the economic activities of states.

As a result, in 1980, the World Strategy for Nature Protection was adopted, which for the first time at the international level consolidated the idea of sustainable development, which was then formed into the concept of sustainable development, presented to the International Commission on environment and development, based on the unity of three elements, three systems – environmental, social and economic [10]. This triad is the basis for the development of territories [11].

This concept began to develop at the level of specific states, filling with new meaning, including more and more new elements (including Russia) [12].

Thus, in Russia in 2004, a new legal institution appeared – the sustainable development of territories, which was enshrined in the urban Development code of the Russian Federation. According to this document, sustainable development of territories means ensuring safety and favorable conditions for human life in urban development, limiting the negative impact of economic and other activities on the environment, and ensuring the protection and rational use of natural resources in the interests of present and future generations.

Given the size of the territory of the Russian Federation, the transport issue is very important. Its solution requires a lot of effort and interaction on the part of various subjects – government agencies, institutions of society, business, science, etc. Transport accessibility issues are economic, environmental, social, political, and cultural in nature.

One of the priorities of the state policy in the field of transport for the period up to 2030, according to the Transport strategy of the Russian Federation (Order of the Government of the Russian Federation of 22.11.2008 No. 1734-R “On the Transport strategy of the Russian Federation”) is to ensure the stability and predictability of the transport system. This provides for the creation of technological and infrastructure reserves, with the help of which, in the conditions of natural fluctuations and growth of projected demand for transportation in accordance with the needs of social and economic development of the country, the transport system will be able to provide people and businesses with safe, affordable and predictable transport services of appropriate quality at the right time and in the right place with minimal negative impact on the environment and human health.

And this requires a comprehensive approach that would include some measures (table 2):

| Table 2. Measures to ensure the stability of the transport system. |
|---------------------------------------------------------------|
| **Direction of activity** | **Activity** |
| development of the legal framework for the provision of transport services | safety, environmental friendliness, quality of transport services |
| development of competition in the field of freight transport | development of methods of state regulation of the market, railway transport |
| development of high-performance transport and logistics infrastructure that provides a competitive level of transport services | in the field of passenger transportation by public transport, commercial speed |
| achievement of the advanced level of equipment and technologies that ensure standards | reliability, safety, environmental friendliness |

At the same time, the creation of effective feedback in the form of a system of monitoring and management, control and supervision of transport is essential for regulation;
5. Conclusions
Providing high-quality competitive transport services will help meet the needs of innovative socially oriented development of the Russian economy and society. This will allow us to solve a number of tasks facing the state, namely:
- bring the indicators of population mobility closer to the level of developed countries, which will contribute to improving the quality of human capital in the country;
- ensure accessibility of transport services for various regions and social groups of society;
- increase the competitiveness of domestic goods and services on world markets due to the balanced development of the country's transport system;
- increase the economic efficiency of passenger and freight transport, which will optimize the transport costs of the economy and increase the availability of transport services for the population.

A stable increase in the availability and quality of transport services will ensure a steady increase in the mobility of the population in accordance with the demand for transport services from various social groups.

Ensuring the stability and predictability of the transport system, the implementation of transport standards in co-ordination with technological advances and balanced management decisions will contribute to achieving the goals of sustainable development of territories, and in general – the concept of sustainable development.

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