«GREEN» LOGISTICS

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ABSTRACT

Logistical support for trade flows in the market, which is global at its core, leads to realization of new needs. One of them is intensification of environmental protection, provision of environmentally safe transportation of goods to the customers. The article discusses the need for application, principles and targets of «green» logistics technology, contributing to the environmental safety of transport, enhancement of social responsibility, competitiveness of economic actors in freight and passenger transportation.

Keywords: «green» logistics, delivery of goods, transport, piggyback transportation, ecology, safety, environmental protection.

Background. *Activities of global business entities cannot be imagined without logistical processes, organized at the global level. Inclusiveness and their geographical vastness entail new environmental problems and continuous search for the most extraordinary decisions. Attention of companies to environmental protection aspect of their business processes stimulated the emergence of so-called «green» logistics.*

The focus of economic agents on «green» technologies of logistics processes is conditioned by, among other things, trends such as increased consumer awareness through eco-labeling [1], growing need for the ability to use economic factors of protective natural resources use, as well as the increasing influence of international standards in this area at the national level.

In Russia, the development of logistics as of a science in the modern sense of the word has only a few decades long history [2], so «green» technology has not received proper dissemination. And often «green» logistics refers to only environmental protection, but it is worth noting that in a broad sense, it must also have a social orientation.

Objective. *The objective of the authors is to consider main aspects related to «green» logistics technology application in Russia.*

Methods. *The authors use general scientific methods, statistics analysis, comparative analysis, evaluation approach.*

Results. *«Green» logistics is a system of measures, which involves the use of energy- and resource-saving technologies, modern technical facilities and equipment at all levels of the supply chain in order to minimize negative impacts on the environment, leads to improved social welfare and comfort of citizens, reduces economic risks and scarcity of natural resources.*

The basic principles of «green» logistics are: sustainable use of natural resources and potential of the enterprise; maximum recycling of production waste, containers and packaging as the recycled or environmentally friendly disposal; introduction of innovative technologies to reduce the environmental burden on the environment; increase of environmental responsibility of staff; economically sound, environmentally safe transportation and storage of marketable products; minimal use of raw materials and packaging, not subject to recycling or safe disposal.

In modern world's goods exchange and globalization of the economy development and improvement of a tool such as «green» logistics, has a stimulating effect on rationalization and optimization of logistics operations in order to preserve the ecology of the planet [3]. Although, to be fair, without strict government control it is not always possible to maintain a balance of commercial and social interests.

For example, the express delivery company DHL has launched GoGreen service, the essence of which is that DHL calculates the amount of CO_2 emissions during transportation of each cargo from the time of its acceptance to the time of delivery to the recipient. The client can pay 3% more than he should at the standard tariff, and DHL invests the money collected in climate protection programs worldwide [4]. From this example, it follows that some international companies using «green» logistics technologies, stimulate customers to pay for neutralization effects.

We believe that for such technologies to be developed and used widely, state regulation is required at all levels. For example, financial incentives through lower tax payments might be applied to those companies which use techniques of «green» logistics. Or an option can be introduced when the state can stimulate eco-logistics rationalism through a variety of subsidies, public service advertising, public procurement and other measures.

State promotion of companies that use «green» logistics technology should eventually be reflected in the comprehensive cost reduction that will equalize the cost of customer service and increase competitiveness as compared to the organizations not applying environmental innovation.

The basic idea of traditional logistics is to obtain additional income from cost savings, and hence logistics efforts should be aimed at optimizing business processes [5]. Application of «green» logistics technology at the level of economic entities has the same idea, but the focus is on caring about world and society, preservation of non-renewable resources, and so on, all of which is also an integral part of social responsibility of an enterprise.

For successful development of «green» logistics technology of any company in the first place it is necessary to reconsider its mission, then with due respect to a new mission to review strategic and tactical goals, and then reorganize the principles of corporate governance in line with new challenges.

However, in relation to practice, we note that road transportation cause the most damage to the environment, and this is due to wear and tear of the vehicle fleet and the use of fuel that meets Euro-3 standards (in Europe it had been mandatory till 1999, from 2009 Euro-5 standard is applied). At the same time the problem of wear and tear of the fleet, for example, is controlled by the preferential taxation. Subsidizing of owners of older vehicles to buy new cars is also popular. In Germany, the government is funding programs that encourage economic agents to purchase environmentally-friendly vehicles.

Each car emits on average per day about 4 kilograms of carbon dioxide, nitrogen and carbon, thereby contaminating, as ecologists estimated, about 70% of the territory of Russia. National motor transport burns each year 110–115 million tons of fuel and 1,2–1,5 million tons of lubricant, therefore cars «pleased» the environment

with crankcase gases, battery acid, lubricants and coolants, others consumables, which fall on plants, soil, are inhaled by people, get into their bodies and food consumed. Specific emission of pollutants of vehicles in Russia exceeds the corresponding figures in developed countries more than by 2 times.

The use of large-tonnage road transportation has a negative impact on the quality of roads, which leads to constant repairs and disruption of the environmental component (the more additional resources are consumed, the more intense are emissions). Axial load on roads is strictly regulated in each country. Thus, according to the standards adopted in most European states, the maximum allowable gross weight of the vehicle is 40 t, in Finland – 52 t, Russia – 38 t. Thus urgency and relevance of «green» logistics is obvious.

Transportation by rail is at the moment the most eco-efficient mode of transportation. Note that JSC Russian Railways quite consistently uses «green» logistics technology to attract new customers. Against the background of active advertising it is suggested that by choosing railways, they thereby protect nature and help to reduce CO_2 emissions into the atmosphere. The environmental advantages of rail transportation over other means of transport are provided primarily by widespread use of electric traction (electric locomotives of JSC Russian Railways transport nowadays more than 85% of cargo and 80% of passengers), which eliminates air pollution of areas adjacent to roads. Carbon dioxide emissions per 100 passenger km averages only 4 kg for a train while 14 kg – for a car and 17 kg – for a plane.

A striking example of implementation of «green» logistics technology has been shown by high-speed passenger trains «Sapsan», in which separate collection of waste is implemented, biodegradable utensils and bags for garbage collection are applied, special attention is paid to reducing noise exposure [6].

Of interest in terms of «green» logistics technology are innovations in the field of container shipments – piggyback transportation. This type of transportation includes a set of services for delivery of goods by road and rail transport. Most of the way trucks are on the train platform, and only a small section of the route is overcome «on wheels». This combined method significantly reduces harmful emissions, congestion of highways, road surface wear, as well as the overall environmental impact [7].

Conclusion. *Within the framework of the state policy in the field of ecological development of Russia for the period up to 2030 the use of «green» logistics technology promises not only to optimize costs, improve the quality of transport services to customers, improve conditions and productivity of employees (that is, to make green logistics more competitive), but also to keep for future generations not infinite natural resources of the country [8, 9].*

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