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## **ПРОБЛЕМЫ РАЗВИТИЯ ТРАНСПОРТНОЙ СИСТЕМЫ В РОССИЙСКОЙ ФЕДЕРАЦИИ**

***Оруджов Р.Н., Жигунова А.В.***

*ФГБОУ ВПО «Ростовский государственный университет путей  
сообщения»,*

*344038, г. Ростов-на-Дону, площадь Ростовского Стрелкового Полка  
Народного Ополчения, д.2,*

*кафедра «Экономика, учет и анализ», ruslan0411@mail.ru*

***Раджабов Р.М., Оруджова М.Н.***

*ФГБОУ ВПО «Ростовский государственный экономический  
университет»,*

*344002, г. Ростов-на-Дону, ул. Большая Садовая, д.69*

### ***Аннотация***

В данной статье рассматривается транспорт как инфраструктурная отрасль, обеспечивающая жизнедеятельность экономики страны. Проанализирована государственная программа РФ по регулированию транспортной инфраструктуры. Показываются и конкретизируются пути дальнейшего развития транспортной отрасли России. Оценивается место транспортной инфраструктуры в общем процессе модернизации экономики страны.

***Ключевые слова:*** транспорт, транспортная инфраструктура, инфраструктурный эффект, структурная диверсификация экономики.

## PROBLEMS OF DEVELOPMENT OF TRANSPORT SYSTEM IN RUSSIAN FEDERATION

*Orudzhov R, Zhigunova A.*

*The Rostov State University of of Railway Transport*

*Radjabov R., Orudzhova M.*

*Rostov State Economic University*

### **Abstract**

Transport as infrastructural sector, which assures vital activity of country's economy, is examined in this article. The state regulation transport infrastructure program of Russian Federation was analyzed. The ways of Russian transport sector future development are shown and specified. Transport place in general economy's modernization process of the country is appraised.

**Key words:** transport, transport infrastructure, infrastructural effect, Structural diversification of the economy.

Transport as an infrastructural sector provides the basic conditions of life and development of the state and society. Russian Federation has vast territories and the specific locations of production and the settlement systems, that's why the condition and development of the transport system are primary important and are essential for the implementation of an innovative model of Russian Federation economic growth and population life quality improvement.

Federal Road Agency of the Department of Transportation of Russian Federation prepared program «Transport system development» taking into account the role and place of transport in solving of social economical problems of Russian Federation for the period up to 2020.

Generally transport satisfied the growing demand for passenger and cargo transportation during last few years. For example, the gross domestic product at constant prices in 2011 grew by 51.6% and reached the level of 2002, meanwhile the turnover of all types of transport (except pipelines) increased by 36.2%, passenger turnover increased by 26.5%. Currency earnings from the transport services export increased in 2.3 to 16 billion dollars in 2012 comparing with 2004.

Considerable attention was paid to the transport infrastructure modernization and the transport system safety improvement and its sustainability. 31.7 thousand km of paved roads, 67.1 km of underground lines, 12.1 million linear meters berth sea and 4.3 million linear meters of river piers ports were set in operation during the period of 2002-2011. More than 1,100 km of new railway lines were put into operation by 2012.

World economic crisis significantly impacted on the performance of transport in 2008 – 2009. The decline in production in freight traffic basic sectors and in business activity of the population reduced demand for transport

services. However, the positive trends in the economy and the growth of real incomes have allowed in 2011 to exceed the 2008 level of key performance indicators. The air, rail freight and road turnovers grew, the air and road passenger turnover also increased. The volume of cargo handling in seaports in 2012 exceeded the 2008 level – it increased by 20% to 600 million tones [1,2].

Despite the positive trends in the individual modes of transport, the current state of the transport system does not meet the needs and perspectives of development of the Russian Federation, there is a shortage of capacity in all modes.

Structural diversification of the economy based on innovative technology development, the creation of a competitive institutional environment that encourages entrepreneurial activity and attraction of capital in the economy are contained by low technical and technological level of transport and poor state of many transportation system elements.

Condition of the transport infrastructure and fixed assets of transport organizations do not correspond to the tasks of the country modernizing. The length of the problem rail lines is more than 7.6 thousand km by the beginning of January 2012.

The main part of federal highways has one lane in each direction, only 8% of the total roadway lengths have a multilane carriageway. It does not make the safe and speedy movement of modern heavy vehicles possible. More than 30% of the length of federal highways and bridges on them require an increase in the strength characteristics. Only 39.3% of federal highways met regulatory requirements for transport and operational parameters in 2011.

Regional unevenness development of transport infrastructure limits the development of a common economic space in the country. The most significant differences are between the European part of the Russian Federation and the regions of Siberia and the Far East. Density of railways per 10 thousand kilometers varies in different regions from 0.5 km to 577 km, density of paved roads per 1000 km - from 1.7 km to 636 km.

The infrastructure of transport different types is being developed without sufficient coordination, which is essential for a balanced transport service, free economic zones creation and regional industrial clusters.

Transport organizations fixed assets depreciation for certain activities reached 50 - 60%. It negatively affects the quality of public transport services and businesses. About 95% of self-propelled river boats have been in operation for over 20 years and more than 40% - over 40 years, 30% of buses and 40% of trucks have been in operation for more than 13 years, which leads to higher costs of repairs and operation, reduces the level of service and has a negative impact on the environment [3, 2].

Obsolete aircraft fleet (27.6% has a lifespan of over 30 years) is inefficient and does not meet noise and engine emissions international standards, it

creates limitations in the quality of passenger service and reduces the level of safety.

The transition from the Unified System of air traffic to the Russian Air Navigation system is uncompleted, that impedes the air traffic services quality improvement, dynamic introduction and development of advanced systems and air navigation.

The integrated logistics systems, which combine elements of transport, warehousing, customs and distribution infrastructure, are not used on transport. There are no distribution centers, which are the basis of the logistics system in developed countries nowadays

The intermodal transport technology is not being developed. Serious imbalances have formed in the ports and related transportation infrastructure development, resulting in significant differences in the levels of manufacturability, capitalization and operating parameters of port junctions.

The use of modern information systems is fragmented; there are no internationally accepted standards for information technology market.

Transportation innovations and the entrepreneurial activity development are largely constrained by the normative legal support imperfection of the transport system and the transport market development. Public-private partnership is undeveloped in Russia. The current financial and economic mechanisms for the reproduction of fixed assets and innovation development are not effective enough and not adapted to the characteristics of the transport industry.

The transport component in the value added is significantly higher than in other countries – the average part of transport costs in the final price of Russian products is 15 - 20% vs. 7 - 8 % in countries with more developed economies. The reason for it is the result of all the negative factors combined with spatial features of the Russian economy.

Human development, the living conditions improvement of Russian citizens and the social environment require a new level of population common transport mobility, especially labor mobility.

In 2011, the transport mobility of Russian citizens was about 6.9 million kilometers per capita, including public transport mobility – 3.5 thousand km per capita, which is twice lower than in developed countries. The airlines regular users are 2 - 3% of the population.

Despite the fact that the commercial aviation traffic volume in Russia grows twice faster than in the world in recent years, its development still does not match the country's scale and the air transportation population needs. The airport ground network decreased by 136 airports in 14 regions during the period of 2002-2012, where aviation is often the main and the only year-round way of transport. A distorted network of air routes is formed nowadays – about 70% of all domestic flights are done through the Moscow aviation junction.

The causes are: the stagnation of local and intra-regional air transport, the lack of effective interaction between regional and major airlines, low level of technology based on the use of junctions. It means airlines are unevenly loaded, and it leads to excessive load of the Moscow airspace, which has a very negative impact on aviation safety in the region.

The discrepancy between the level of highways development and road transport demand is worsening. The length of public paved roads increased by 23% during the period 2002-2011, meanwhile the level of motorization increased by 60%. The length of federal highways serving the movement in overload conditions is about 31% of the total length, and within the Moscow transport hub - more than 60%.

Disparity between the levels of the highway development, motorization and road transport demand leads to a significant increase in costs, reduction in speed (average speed in Moscow is 21.8 km per hour, Seoul and New York City - 38, London – 29.6) and huge traffic jams [4, 5].

More than 46000 rural settlements (30% of the rural settlements total number; total population about 3 million people) have no connection to the country transport network with public paved roads. The formation of the core network of federal roads linking the Russian regions is uncompleted in Northern areas, Siberia and Far East.

The quality parameters of inland waterways worsened the length of navigable paths with guaranteed depths decreased by 1.4 times over the past 20 years. It led to decrease of the inland waterways competitiveness and transport provision and inaccessible areas limitation.

There are serious problems in urban public transport segment, especially in the biggest cities of the country. The modern integrated solutions for accelerated development of high-speed urban transport, which replaces private cars, have no application. Apart from failure in becoming an attractive alternative to the private car for daily trips employment public transport does not perform the basic function of maintaining the vehicle urban area unity.

Despite the active measures taken in recent years, population's safety in the public transport is still a significant problem.

Experts estimate the annual losses from accidents up to 8% of gross domestic product. The toll in road accidents in 2012 was about 30 thousand people (19-20 cases per 100 thousand of population) in the European Union the figure is 3-8 cases per 100 thousand of population.

The functionality of the Unified System of air traffic are severely limited and do not meet the growth of its intensity, which increased twice during the period 2002-2012 [6, 7].

There are threats of unlawful acts committing, including terrorism-related. The number of protected objects of transport infrastructure and vehicles that meet the requirements of transport security is 41.4%.

All this facts strongly reduce the quality of life and mobility of labor in the country.

Strengthening the foreign economic relations of Russia, strengthening and expanding of its global competitive advantages require a significant increase in the competitiveness of the Russian transport system in the international market of transport services. Transport infrastructure mismatches foreign trade needs - it is shown in the low specifications of international transport corridors on the territory of Russia, insufficient capacity of local ports and approaches to them.

Problems related to transporting through border check-points still exist. The possibility of increasing the gross national product at the cost of the export of transport services are not implemented in full

Solving these systemic problems is possible only in the conditions of the innovation scenario, which provides concept of long-term social economic development of the Russian Federation for the period up to 2020, the condition of the growth of investment in the transport system development at the level of 4 - 4.5% of gross domestic product by 2020 must be also met.

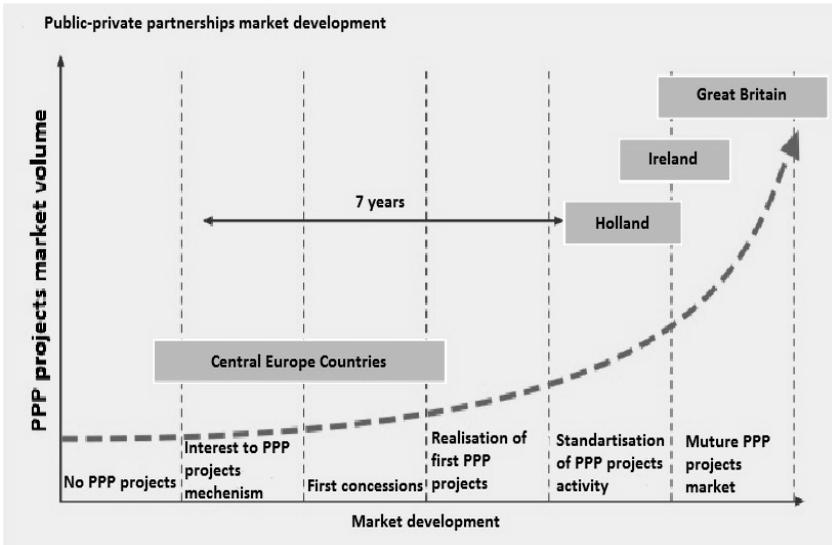
In condition of transport system financing limitation the main efforts of the program will focus on providing of maintenance and repair of transportation infrastructure, eliminating bottlenecks, increasing the availability of high-quality and safe transport services to the public, ensuring transportation safety, the development of the transport system segments, which are ensured by effective demand, meeting the transportation needs of foreign trade.

A complex approach to the transport system development involves the measures implementation (investment and current) and the state regulation system development, the efficiency of public spending and investment attractiveness of the transport infrastructure improvement.

Also it is necessary to take into account the world experience of the private capital use in addition to the public capital; this system is called the public-private partnership. The main area of PPP in Russia is building toll roads, development of urban transport, marine terminal facilities construction, airport facilities modernization, railway construction in the new deposits development areas, etc.

Apart from private investors attraction PPP allows to use advanced management technology, human and organizational business resources, which provide a high quality of design, construction, installation, repair and maintenance.

It will help overcome the economic growth infrastructural constraints during the program implementation, to provide the country transport system balanced development and to meet the growing demand for transport services [8, 9]. Picture 1 shows the PPP market development.



Picture 1. The PPP market development.

The freight transport sector growth by 40.5% is forecasted in 2020 comparing with 2011, passenger public transport growth - by 41.5%. Development of rail and water transport modes along with the objectives of bulk cargo, including exports, will increasingly focus on improving the cargo transport services quality within the scope of effective logistics for goods movement. The Northern Sea Route development will be important for the development of the Arctic (including offshore) fields, for the providing transit and mass socially important goods delivery (especially coal and oil) in Arctic ports and points.

To summarize it can be said that trucking and air shipping will grow aggressively. They are flexible in responding to the demand of high-tech manufacturing sectors, small and medium-sized businesses. Measures aimed at the regional and local air transportation development and use of the competitive advantages of inland waterway transport will increase its share in the transport balance of the country.

The passenger public transportation growth is expected due to the development of air transport and long-distance high-speed rail link and high-speed transport systems in urban and suburban. The “infrastructural effect” will play a key role in urban agglomerations formation, which is associated with the implementation of construction projects for the major transport systems, multi-modal logistics centers and information points [9].

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### **СОВРЕМЕННЫЙ ПОДХОД ПРИ ОПРЕДЕЛЕНИИ ТРАНСПОРТНЫХ СИСТЕМ ГОРОДОВ**

*Левадная Н.В., Черняева В.А., Дудкин Е.П.*

*ФГБОУ ВПО «Петербургский государственный университет путей  
сообщения» (ПГУПС),*

*190031, г. Санкт-Петербург, Московский пр., 9,  
кафедра «Промышленный и городской транспорт»,  
rat-spb@yandex.ru, vika2023339@yandex.ru*

#### **Аннотация**

При оптимизации или проектировании городских транспортных сетей необходимо уточнение методики обоснования видов транспорта и их долей в транспортной системе города. При этом важен комплексный подход к решению этого вопроса, учитывающий количественные и качественные характеристики города.

**Ключевые слова:** классификация городов, транспортная система.

### **MODERN APPROACH TO THE DETERMINATION OF URBAN TRANSPORT SYSTEMS**

*Levadnaya N., Chernyaeva V., Doudkin E.*

*Petersburg State University of Railway Transport*