

## Financial Instruments of Infrastructure Projects Development

Ksenia L. Terentieva and Venera I. Vagizova  
Kazan Federal University, Kremliovskaya Str. 18, 420008 Kazan, Russian Federation

**Abstract:** Infrastructure projects, especially transport ones are the basis of successful functioning of world economies over the long run. Nevertheless, there are hardly any effective instruments of the infrastructure projects financing available under the current conditions. This study offers to solve, the above problem through creation of a cross-border transport cluster being a promising form of interaction between the financial and industrial economy sectors. Currently in the Russian Federation, there are the following problems preventing introduction of the cross-border transport cluster with a view of infrastructure projects realization: limited international investment volume, inadequate mechanisms of rising private funds for infrastructure development as well as mechanisms of private-public partnership. There were offered instruments for improvement of a cluster-related policy of the Russian Federation in order to remove the mentioned obstacles and to create favorable conditions for creation and functioning of the cross-border transport cluster. This cluster will be able to ensure, the conditions for mutually beneficial cooperation of the transport sector enterprises and the financial sphere institutions to increase competitive advantage of the cluster members as well as to provide for attractiveness of infrastructure projects for investors. Use of new technologies offered by the modern industry of financial services and as a consequence acceleration of the transport sector development and successful realization of infrastructure projects are meant to be another positive effect from the cross-border transport cluster implementation.

**Key words:** Cross-border transport cluster, financial instruments, infrastructure project, transport sector, partnership

---

### INTRODUCTION

Infrastructure projects are an effective system of the world economy development. From the point of view of their essence such projects ensure economic diversification and development of the regional infrastructure. The world statistics states that competitive power of the world economies is 40% dependent on infrastructure thus insufficient volume of infrastructure has a negative effect on the world economy development as a whole. Before, the world financial crisis in 2008, about 22% of GDP of the OECD countries fell at long-term investments. However, during the crisis period this index abruptly went down and obtained its stable value only by 2012 having reached 17% of GDP. Not with standing, the fact that the necessary volume of investments in infrastructure of the developed countries makes 1.2-2 trn. doll under the present conditions financing of infrastructure projects development is being provided to the extent of 800-900 bln. doll. Due to this the issue of enlargement of an infrastructure projects share in GDP is becoming of urgent importance.

Realization of infrastructure projects within individual economies allowed successful overcoming of the world financial crisis of 2008. China with its aggregate infrastructure investments of about 40% of GDP can be

taken as an example. During the crisis, the country increased the infrastructure investments volume and thus its GDP growth rate during the crisis period remained almost unchanged (in 2008 9.6% in 2009 9.2%).

The Beijing International Airport with the planned passenger traffic of 130 mln. persons per year; the Panama Canal the length of which will make 81.6 km; the subwater tunnel under the Bosphorus aimed for railway transport; the subway in Hyderabad in India; the NITC bridge which will connect the cities of Ontario, Detroit and Windsor and will allow to create new international commercial relations are the examples of the most efficient infrastructure projects at the stage of realization.

### MATERIALS AND METHODS

**Problem statement:** Instable conditions of the Eurozone financial markets make the traditional sources of infrastructure projects financing less and less available. Within the countries having the European Union membership or candidate membership, the major part of infrastructure projects is being financed at the expense of EU, the rest countries realize such projects mainly by means of the state budget and development banks (Anonymous, 2013). For example, the results of the investigation by the specialists of Price water house

coopers in 2013 showed that 52% of the respondents faced over expenditure, 78% experienced delays in the projects realization, 6 of 10 respondents expected growth of costs during the following 12 months.

Aggregate investments in the Russian Federation infrastructure make 21-22% of GDP. Not with standing, the fact that this index is close to the average world value, it is not sufficient for growth of the country GDP given the current instability of the world financial markets. In the nearest future, the specialists forecast growth of GDP in Russia as a result of beginning of realization of a range of infrastructure projects such as construction of high-speed highways and the facilities for 2018 FIFA World Cup. With its infrastructure quality index Russia holds the 94th place in the World Economic Forum Global Competitiveness rating.

Rising of private funds for infrastructure projects financing is one of the ways to solve the above problems. This is confirmed by the Pwc research data according to which 9 of 10 respondents expect that their projects in the nearest future will be financed by the private sector. With the view of this it is necessary to promote cross-border investments in the global infrastructure projects. From our point of view, creation of efficient cross-border clusters is the most advantageous method of accomplishment of the mentioned task. Along with, the companies which deal with a project realization such clusters should include financial institutions which are ready to provide borrowed funds on mutually beneficial conditions.

Foundation of the efficient regional and cross-border clusters currently becomes a priority trend of the Russian economy development. Such tendencies are conditioned by globalization and integration of the world economic processes, intensification of competition and necessity to comply with the global standards.

The cluster-oriented approach will allow to increase the pace of economic development to improve the

standards of living of the population and investment potential of the regions as well as to develop the regional innovative potential which is manifested through introduction of the recent developments and rapid progress of production (Besstremiannaya, 2011).

A positive effect from creation of the clusters is possible due to extension of partnership relations between the state, business and science. Within the cluster network, all of its parts participate directly in the production process and realization of a product.

According to the forecast of the Russian Federation long-term socioeconomic development during the period up to 2030 in order to further facilitate the Russian economy competitive ability it is necessary to create a network of competitive innovative clusters, new regional economic development centers in the Volga region in the Far East and the South of Russia (Anonymous, 2015). The transport sector and logistics make the basis of infrastructure projects in the global and national economies.

Despite of its dynamic development, the condition of the transportation industry of the Russian Federation has an increasingly negative effect on the country economical growth. In recent years, there could be observed considerable growth of the total length of transport routes at the Russian Federation territory (Table 1). Starting from the end of 2011, it was the length of highway roads that increased in the most significant manner, i.e. by 253th km or by 30%. At the same time, the transport routes availability at the Russian Federation territory remains quite low.

Currently air, motor and railway transport become the priority modes of transportation. It is these modes of transportation that satisfy the growing demand for transportation services to the largest extent (Table 2).

Table 1: The length of the Russian Federation transport routes (th km) (Federal State Statistics Service, 2015)

Routes by mode of transportation	Years						
	2000	2005	2009	2010	2011	2012	2013
Railway tracks	86	85	86	86	86	86	86
Highways	752	724	776	786	841	1038	1094
Major pipelines	63	65	65	65	71	75	75
Inland navigable waterways	85	102	102	101	101	101	102
Total	986	976	1029	1038	1099	1300	1357

Table 2: Transportation of goods at the Russian Federation territory by modes of transportation (mn tons) (Federal State Statistics Service, 2015)

Mode of transportation	Years						
	1990	2000	2005	2010	2011	2012	2013
Railway	2,140	1,047	1,273	1,312	1,382	1,421	1,381
Highway	15,347	5,878	6,685	5,236	5,663	5,842	5,635
Pipeline	1,101	829	1,048	1,061	1,131	1,096	1,095
Marine	112	35	26	37	34	18	17
Inland water	562	117	134	102	126	141	135
Air	2.5	0.8	0.8	1.1	1.2	1.2	1.2
Total	19,265	7,907	9,167	7,750	8,337	8,519	8,264

Table 3: Correlation between the growth ratio of motor vehicles registered at the Russian Federation territory and the growth ratio of highways (Federal State Statistics Service, 2015)

Mode of transportation	Years						
	2000	2005	2009	2010	2011	2012	2013
No. of motor vehicles registered at the Russian Federation territory	24,863	30,497	38,472	39,831	42,032	44,618	47,548
Growth ratio		22.66	26.15	30.61	5.53	6.15	6.57
Highways (th km.)	752	724	776	786	841	1038	1094
Growth ratio		-3.72	7.18	1.29	7.00	23.42	5.39

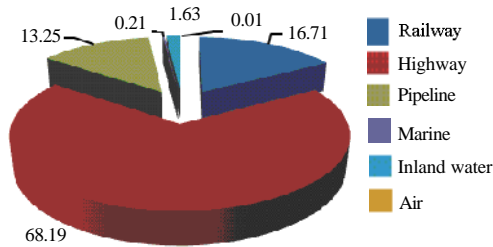


Fig. 1: Structure of goods transportation at the Russian Federation territory by modes of transportation in 2013 in percents (Federal State Statistics Service, 2015)

In 2013, highway transport occupied the largest share in the structure of transportation at the Russian Federation territory. The second and the third places were held by railway and pipeline transport correspondingly (Fig. 1).

Here below, you'll find major limitations preventing growth of goods transportation volumes in the Russian Federation:

- Crudity of financial instruments for infrastructure projects development
- Immaturity of transportation and logistics system
- Considerable delay in the road network development as compared to the speed of population automobilization (Table 3). Under present-day conditions one third of the Russian highways experience overload
- Underdevelopment of the export transport infrastructure
- Presence of limitations in the railway lines handling and carrying capacity
- High cost of jet fuel
- Underdeveloped airport network in the country (Anonymous, 2015)

Pursuant to the forecast of long-term socioeconomic development of the country for the period up to 2030 in the nearest time there should be initiated new high-technology transport projects. They should result in increase of the length of and advancement of the performance capabilities of the transport network, renewal

of the vehicles fleet and improvement of technologies as well as satisfaction of the growing demand for transportation services (Kondratiev, 2010).

According to the program of long-term socioeconomic development of the Russian Federation, it is planned to implement the following measures in the sphere of infrastructural development by 2030: realization of a system of high-technology projects aimed at development of main traffic routes and transport hubs (clusters multimodal centers) ensuring major interregional connections; development of a system of passenger trunk-line traffic inclusive of high-speed and rapid railway transport and air transport, development of a highways network as well as development of subway and other modes of rapid transit transportation in order to enhance availability of the transport sector services to population and to form and develop new transportation (carriage) technologies; development of transit potential; modernization of an integrated air traffic management system and its facilities, transition from traditional to perspective ground, onboard and satellite-referenced facilities and systems of communication, navigation, surveillance and meteorological support, introduction of new air traffic management technologies, enhancement of performance characteristics of an aircraft navigation system under the conditions of forecasted air transportation volumes growth, its integration into a Eurasian aircraft navigation system (Anonymous, 2015).

On the whole, it is planned to implement 48 large infrastructure projects with the total value of 9.6 trn. rubles by 2015. The amount of the required borrowed funds will make about 2.2 trn. rubles. Currently construction of a bridge over the Lena River is one of the most important infrastructure projects; its cost will make about 80 bln rubles. The bridge should connect Yakutsk city to the integrated Russian transport infrastructure.

## RESULTS AND DISCUSSION

According to the forecasts of the Ministry of Transport it will be necessary to raise 7.3 trn. rubles of the budget funds and 5.1 trn. rubles of private investors' funds by 2020 in order to implement all of the planned projects.

At the same time, the program of long-term socioeconomic development does not describe major instruments and institutions of financial support of the infrastructure projects realization. In this connection, it is necessary to consider a structure of cross-border cluster units focused on efficient interaction of the financial and real economy sectors. In the process of their creation, the existing problems with the instruments of the infrastructure projects financing (in particular of transport-related ones) should be considered. At the present time, a transport cluster in the Russian Federation is represented by the following elements:

- Transport companies providing various modes of transportation
- Market participants which form financial and product flows
- Shipping agents
- Infrastructural subdivisions: warehouse complex, distribution centers and terminals
- Companies dealing with construction of highways and railway routes
- Institutional bodies (the Ministry of Transport, the Ministry of Finance, the Customs Clearance Committee, etc.)
- Organizations providing various supplementary services (financial organizations, insurance companies, research organizations, centers for personnel training and retraining, organizations providing consultation and analytical services, marketing organizations)
- Organizations providing related services (transport vehicles maintenance and repair, road-building companies, service organizations) (Yevtodieva, 2011)

Synergistic effect sources for the transport cluster:

- Centralization of research work
- Saving of funds due to reduction of transaction costs
- Complementarity in the sphere of R&D
- Saving of funds resulting from the scope of activity
- Shared use of territorial material and human resources (Yevtodieva, 2011)

Analysis of the current condition of interaction between the financial-banking and the transport sectors of economy showed that the domestic banking system was not targeted at infrastructure projects crediting, since the transport sector revenue was directly dependent on the rates prescribed by the government. This sector is for the most part financed by development banks (for example “Vnesheconombank”). Besides institutional investors

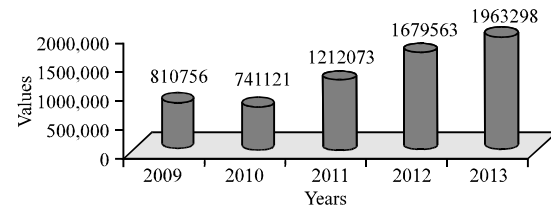


Fig. 2: Volumes of crediting to the transport sector of the Russian Federation (mn.rub)

attraction of which is the main purpose of a cross-border transport cluster creation are a source of long-term crediting of infrastructure projects (Postaluik and Akhmetshina, 2014).

The transport sector, demand for credit resources becomes higher every year which can be seen from the crediting volumes dynamics (Fig. 2).

Judging from Fig. 2, it can be stated that in 2010, there was experienced decrease in crediting to the transport sector which can be explained by the consequences of the global financial and economic crisis. In the subsequent years, this index showed rapid growth and by 2014, the volume of crediting to the transport sector reached 1,963,298 mn rub. which is by 142% higher than the level of 2009 and by 17% than the level of 2012.

Complexity of rates regulation; long term of investment pay-back; overvalued cost of construction; insufficient governmental support; lack of qualified specialists who are able to identify bankable projects and develop an efficient financial model; unavailability of transparent and efficient projects selection system are the major problems connected with development of the instruments of infrastructure projects financing.

In order to ensure, the further advantageous development of the transport sector, it is necessary to create a cross-border transport cluster which besides of the above listed elements would include financial institutions. Such mode of interaction between the financial and the transport sectors will allow:

- Formation of stable long-term interrelationship between the transport sector enterprises and financial institutions
- Creation of such interaction conditions which would be mutually beneficial both for the financial institutions and for the transport sector enterprises
- To ensure interest of investors in efficient transport sector functioning due to active participation of the same in the funds of the enterprises of this sector
- To ensure smooth-running functioning of the transport industry by means of a diversified crediting system

- To ensure use of new technologies of the current financial services industry in the transport sector

In order to create and ensure efficient functioning of the cross-border transport cluster intended for realization of infrastructure projects at the Russian Federation territory it is necessary to overcome limitations for the international investments to use various mechanisms of employment private funds in the infrastructure to develop the procedures of public-private partnership.

In this respect, we offer the instruments of improvement of the cluster-related policy of the Russian Federation which suppose the following steps:

- Improvement of the taxation system (granting tax exemptions for credit organizations making long-term investments to the real sector of economy) and multipurpose utilization of the instruments of taxation, financial-credit and customs policy
- Implementation of privileged conditions for creation of reserves for potential impaired loans provided as investments for the real economy sector enterprises
- Competition-based investment of the federal budget funds and the budget funds of the constituents of the Russian Federation for investment projects financing
- Development of an institution of governmental guarantees
- Development of specialized banks aimed at growth of priority and lame-duck economy industries
- Promotion of domestic demand in order to revive production and strengthen business solvency of the enterprises
- Creation of production capacities which are able to ensure, the demand of the transport sector for equipment on the basis of already existing production facilities
- Promotion of international investments inflow into the transport sector by means of offering various preferences to investors and exercising economy transparency policy
- Ensuring political stability, succession and predictability of the state economic policy

Under present-day conditions in Russia there has been already started realization of different arrangements which would facilitate infrastructure projects funding on the part of private capital. For example, a preparatory stage for implementation a new model of infrastructure projects financing "Tax Increment Financing" is coming to an end. According to this model,

private investor costs will be compensated at the expense of taxes received from realization of infrastructure project.

In addition, a legislative draft establishing fundamentals of public-private partnership is being under consideration now. This draft will determine the basis of government control in this sphere, authorities of the Russian Federation, regions and municipalities at time of implementation of agreements on public-private partnership. The mentioned law should extend the possibilities for joint activity of the state and business as well as ensure conditions for raising private funds for long-term infrastructure projects realization.

**Findings:** Therefore, not with standing high efficiency of the clusters and their potential importance both for development of the transport sector as a whole and individual infrastructure projects no favorable conditions for their creation and development were ensured in the Russian Federation. That's why, a series of measures should be taken to improve the cluster-related policy.

## CONCLUSION

The transportation industry of the Russian Federation has a high potential of clusterization which is a perspective mode of interaction between the industrial and the financial sectors of economy. The cluster-type form of development will allow increasing competitive capabilities of cluster members, creating conditions for mutually beneficial international partnership as well as enhancing the sector development due to facilitation of access to financial resources.

## ACKNOWLEDGEMENTS

The research is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

The investigation was performed under the auspices of the Russian Foundation for Humanities as a part of scientific project No.15-12-16001 "Development of financial mechanisms for management of a transport infrastructure of big cities and regions of Russia".

## REFERENCES

- Anonymous, 2013. Infrastructure projects in the Central and Eastern European countries and the CIS. Investigation by Pwc in 2013 [Electronic resource]. <http://www.pwc.ru/cpisurvey>.

- Anonymous, 2015. Forecast of long-term socioeconomic development of the Russian Federation for the period up to 2030 [Electronic resource]. <http://base.consultant.ru/cons/cgi/online>.
- Besstremiannaya, I.Ye., 2011. Chinese international infrastructure projects. I.Ye. Besstremiannaya (Eds.), *Kitay v mirovoy i regionalnoy politike. Istoriya i sovremennost*, No.16.
- Federal State Statistics Service, 2015. [Electronic resource]. <http://www.gks.ru>.
- Kondratiev, V., 2010. Infrastructure as an economic growth factor [Electronic resource]. [http://www.perspektivy.info/book/infrastruktura\\_kak\\_faktor\\_ekonomicheskogo\\_rosta\\_2010-11-10.htm](http://www.perspektivy.info/book/infrastruktura_kak_faktor_ekonomicheskogo_rosta_2010-11-10.htm).
- Postaluiik, M. and A. Akhmetshina, 2014. Economic systems sustainable development spatial structures innovatization. *Investment Management and Financial Innovations*, 11 (4): 127-133.
- Yevtodieva, O.Ye., 2011. Logistic clusters: subject matter and types. O.Ye. Yevtodieva (Eds.), *Economic Sciences*, No. 4.