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## ПРОЕКТНІ ЗАСАДИ РОЗВИТКУ ТРАНСПОРТНОЇ ІНФРАСТРУКТУРИ УКРАЇНИ

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Сформовано проектні засади розвитку транспортної інфраструктури України. Подано критичний огляд існуючих та перспективних програм розвитку основних транспортних галузей України. Зокрема, виявлено проблеми, характерні для галузей автомобільного, залізничного, водного, повітряного транспорту, а також загалом дорожньо-транспортного комплексу. Підкреслено роль міжнародних фінансових інститутів, передусім ЄБРР та МБРР, у фінансуванні інфраструктурних проектів та подано їх детальну характеристику за напрямом “Автомагістралі”. Серед пріоритетних напрямів розвитку транспортно-дорожнього комплексу виділено створення міжнародних транспортних коридорів та транспортно-складських комплексів, призначених для переробки контейнерних, контрейлерних та інших вантажів.

**Ключові слова:** логістика, логістична інфраструктура, індекс ефективності логістики, транспортний потенціал, транзитний потенціал, транспортна мережа.

## THE PROJECT BASES OF UKRAINIAN TRANSPORT INFRASTRUCTURE DEVELOPMENT

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The article formed the project bases of Ukrainian transport infrastructure. The critical overview of present and promising projects on the development of major Ukrainian transport industry sectors are provided. In particular, it detects the problems inherent in automobile, railway, shipping and aviation industry sectors, as well as in road and transport system in general. The role of international financial institutions such as EBRD and IBRD in funding various infrastructural projects is outlined and their detailed characteristics are provided. Among the priorities of road and transport system development, the establishment of international transport routes and transport-warehouse complexes, designed for the purpose of processing containerized, piggyback and other types of freight, are highlighted.

**Key words:** logistics, logistic infrastructure, logistics efficiency index, transport potential, transit potential, transport network.

**Problem formulation.** Economic development of the country, its stability and attractiveness for foreign investors heavily depends upon the efficiency of its logistics. World leading governments have spent billions of dollars to improve their logistic infrastructure and in such a way they have gained sustainable competitive advantages. Over the last decade such a tendency was peculiar to the vast majority of European, Asian and American countries.

Logistics performance index (LPI) has become the most popular indicator of logistic infrastructure quality assessment in the country. Despite the positive dynamics over the last five years, according to such an index Ukraine belongs to the group of countries characterized by the fragmentary development of logistics and the presence of a number of limitations in this sphere. In particular, to the main problems of logistics in Ukraine belong:

- insufficient modernization of the main assets in the sectors of industrial infrastructure, a considerable gap between their technical level and current prospective requirements;
- transport infrastructure underdevelopment and a very low level of intersectional coordination in the development of this type of infrastructure, resulting in a division of a sole transport area, irrational resources management and the decline in the efficient exploitation of transport;
- low level of warehouse facilities as well as insufficient automatization and mechanization of warehouse services.
- insufficient financial and economic mechanisms encouraging the increase in investment into the development of logistics in Ukraine.
- insufficient degree and quality of staff training.

Low quality of transport infrastructure is regarded as one of the most acute problems not only limiting logistic potential of the country, but also impeding its economic growth.

Infrastructure's peculiar role for Ukraine is determined by the extreme transport expandability of our country's economy. For instance, to earn one hypothetic dollar of GDP in Ukraine it is necessary to approximately transport 6 ton-km of freight, while in the European Union (EU – 25) the given figure amounts to 0.3 ton-km, which is 20 times less than in Ukraine [1].

It should be noted that according to the logistics performance index as well as Global Competitiveness Index of the World Economic Forum, it is mainly transport infrastructure which has for quite a long period been an extremely complex component of our country's infrastructure.

**Analysis of current research outputs and publications.** The economic crisis in late 2008 – early 2009 led to a significant downturn in national economy. However, the existing infrastructure was sufficient to meet the current needs. Therefore, critics did not consider the downturn as a problematic factor, which subsequently affected those sectors where the decline proved the highest. Meanwhile, the crisis was constraining the growth in demand for transport services, which even demonstrated a slight improvement (in points) in infrastructure quality assessment (table 1). Transport routes and port infrastructure development, however, still remains at a low level.

*Table 1*

**The assessment of Ukrainian infrastructure and its components' competitiveness**

Criterion	2011 (out of 142)		2010 (out of 139)		2009 (out of 133)		2008 (out of 134)	
	Ranking	Points	Ranking	Points	Ranking	Points	Ranking	Points
Infrastructure in general	71	3.9	68	3.8	78	3.4	79	3.1
Infrastructure quality in general	71	4.2	70	4.1	79	3.5	86	3.1
Roads quality	138	2.1	136	2.0	125	2.2	120	2.2
Railroad infrastructure quality	27	4.4	25	4.4	30	4.1	30	4.0
Port infrastructure quality	96	3.9	94	3.6	80	3.7	87	3.5
Air transport infrastructure quality	101	3.9	110	3.6	101	3.6	105	3.6

*Source: [2]*

The recovery of the country's economy and subsequently its transport sector started in 2010 (table 2). The increase in freight transportation and turnover by all the means of land and water transport in 2010 amounted to 11–14 % and exceeded the rate of GDP growth.

Table 2

**Dynamics of the volume of freight transportation in Ukraine according to transport means**

Transport means	Transported freight, million tons					Turnover of freight, million tons per km				
	2009	2010	2011	2012	2013	2009	2010	2011	2012	2013
By all transport means including:	696.1	755.3	811.7	772.8	757.6	380238	404572.9	426427.7	394648.1	379045.0
Railway	391.4	432.5	468.4	457.5	441.8	196253	218037.6	243556.4	237274.6	224017.8
Road	140.2	158.2	178.3	179.0	183.5	34004.6	38697.2	38438.9	39194.1	40487.2
Water	9.8	11.1	9.9	7.8	6.3	7956.31	9014.5	7365.2	5324.8	4615.2
Pipelines	154.5	153.4	155.0	128.4	125.9	141850	138445.4	136700.4	112505.1	109651.8
Air	0.1	0.1	0.1	0.1	0.1	350.835	378.2	366.8	349.52	273.0

Source: [3]

From the above provided table it might be concluded that the largest share of freight transportation steadily belongs to rail, both in quantity and longitude aspects (50 %). The second place can be shared by motor transport, whose share tends to increase, and pipelines, the share of which annually decreases. There is little demand for air transport on the market, though. Such a tendency can be first of all explained by its high cost.

The absolute increase in the volume of freight transportation by all transport means on the one hand demonstrates a gradual departure from stagnation of transport component of logistic services market and on the other hand – the growing pressure on transport infrastructure and shifts of consumer demands towards the quality of these services. Despite the fact that today transport generally meets the needs of country's economy and population, the safety, quality and efficiency of passengers and freight transportation and in particular its velocity and the environmental impact do not tend to meet current demands. For example, the average speed on the roads in Ukraine is twice or three times lower than in Western countries.

In every sector of the transport system there remains a stable tendency of fixed assets aging, the depreciation rate of which amounts to 50–65 %, which clearly demonstrates some lagging in the sphere of transport technologies [4]. Due to the lack of financial resources in the country's budget, the transport sector is being invested at the expense of the transport companies' own funds and bank credits. At the same time, in the EU countries transport infrastructure development still remains one of the greatest budget expenditures.

Therefore, combined with the insufficient investment into the development of transport infrastructure in Ukraine, the gap between infrastructure supply and demand on its services continues widening.

All in all, particular sectors of transport infrastructure are sustained with the complex of state-run programs, infrastructural and transportation projects. Due to the fact that the state of the logistic infrastructure and the quality of services provided by the leading logistic segment (transportation and forwarding services cover 90 % of Ukrainian logistic services market [5]) largely depends upon the level of transport infrastructure development, there exists pressing necessity to conduct a detailed and critical overview of existing programs and projects in this area through the prism of issues peculiar to every sector of transport infrastructure. This will allow comprehensively to assess the current state of transport infrastructure, outline some promising directions for further investments and determine their sources.

**Article objectives.** The article aim is a critical overview of present and promising programs of major Ukrainian transport sectors development through the prism of those problems they are currently facing.

**Presentation of main materials.** In order to enhance transport capacity the Ministry of Infrastructure of Ukraine developed a Program on transport infrastructure development, as well as Ukraine's Transport Strategy to be implemented till 2020. It provides the conceptual basis for the framing and implementation of state policy to secure stable and efficient functioning of a transport sector and determines the priorities of transport means development. In particular within the framework of this strategy it is planned to allocate more than \$ 100 billion which are to cover:

- the development of the road sector – \$ 55 billion;

- railway sector reforms – \$17 billion;
- the sea and river transport sector – \$13 billion;
- aviation sector – \$ 15 billion.

Furthermore, the Program on Economic Reforms in Ukraine (2010–2014) provides for an annual 10 % increase in budget to facilitate the implementation of transport infrastructure modernization and development programs. Meanwhile government’s financial assistance is provided within the framework of the relevant government target programs and projects. Besides government programs, the development of transport potential in Ukraine is also enhanced by infrastructural projects including those funded by international financial institutions.

Each transport sector is further considered in details through the prism of a complex of inherent problems and a range of present and prospective measures which might be taken to tackle them.

Road transport plays crucial role in socio-economic development of the country. To date, over 100 000 motor carriers provide the transportation of 52 % of passengers and 64 % of freight.

By and large, road transport meets national economy and population needs for transportation, however the structure of bus and trucks depots is far from perfect, since most vehicles in their design, passenger and freight capacity, construction types, comfort parameters, types of fuel and its consumption, environmental indicators etc. do not meet modern requirements. Depots renewal is very slow since about 70 % of the rolling stock is technically and/or morally outdated, and 50% of buses have been exploited for more than 10 years [6].

The Government Target Economic Program on Road Transport (to be implemented by 2015) is the main governmental program sustaining the development of road transport in Ukraine. The estimated budget of the program amounts to 57 900 million, 2 500 million are covered by the budget and 55 400 million are attracted from other sources. According to the given program and laws applicable in transport sector, local and district councils take effective measures to address the need to provide the population and enterprises, located in their jurisdiction, with safe and high-quality road transport services. In particular, the implementation of this program involves renewal of rolling stock of freight transport means by 30 %, the establishment of equal conditions for carriers concerning the taxes and regardless of the volume of their property, number of vehicles, employees etc. Expected results of the program also include: the improvement of transportation safety, reduction of fuel consumption and other energy sources by 10 %; the reduction of harmful impact of road transport on the environment; the integration of road transport system into the European one and transit potential development; the development of effective competition on the passengers and freight transportation services market [7].

The development of the given sector largely depends upon international agreements, infrastructural agreements inclusive (both bilateral and multilateral). They include:

- Law of Ukraine “On Ukraine's Adoption of Convention on International Freight Transportation Agreement”;
- Law of Ukraine “On Ukraine's Entry into the European Agreement on the Performance of Transport Means Engaged in International Road Transportation (EATM)”;
- Convention on the International Freight Transportation Agreement (CAFT) (as amended by the Protocol of July 5, 1978);
- The Agreement between the Ministry of Transport of Ukraine and the Federal Ministry of Science and Transport of the Austrian Republic on the international freight transportation.

Another important segment of the road transport system is rail transport which provides for the significant volumes of freight and passengers transportation. In particular, in terms of freight turnover Ukrainian Railways take the first place in Europe and the second in the CIS; in terms of passengers turnover it takes the second place in CIS and the fourth in Europe; in terms of the transport routes length it takes the second place in CIS and the sixth in Europe [8].

Among the main problems impeding the development of rail transport in Ukraine as compared to the level of development of this transport means, for example, in European countries, include: merger of passenger and freight rail transportation, insufficient electrification of railways, underdeveloped logistic system of transportation etc.

The Ministry informs that almost all railway rolling stock, from locomotives to railway passenger and freight carriages, needs capital renewal. Fixed assets are worn out by 80–90 %, e.g. the locomotives are worn out by 97 %, electric locomotives – 90 %, suburban rolling stock –90 % (the state of freight carriages being worn out exceeds 80 %; out of the total number of passenger carriages (over 7 000 units), only 2 000 are equipped with air conditioners) [6]. Current governmental programs, infrastructural projects as well as signed and ratified

international agreements, including infrastructural, are mainly targeted at tackling the aforementioned problems. The facilitation of railway transport sector development in Ukraine is secured mainly under these programs and agreements (see table 3).

Table 3

**A complex of programs, projects  
and agreements securing the development of rail transport in Ukraine**

<b>Government programs</b>	<ul style="list-style-type: none"> <li>• Government Target Program for Railway Transport Renewal (the period of implementation 2010–2019), adopted by the Ukrainian Cabinet of Ministers with the decree # 1390 passed on December 16, 2009.</li> </ul>
<b>Infrastructural projects</b>	<ul style="list-style-type: none"> <li>• Ukrainian Railway 7-year program for systematic daily services of fast speed trains;</li> <li>• Sector program “Ukrainian Carriage”;</li> <li>• A Complex program for Ukrainian Railway rolling stock renewal for the period of 2008–2020, which is being implemented at the expense of costs provided by EBRD;</li> <li>• National project “Aerial Express”;</li> <li>• The program for railways electrification (the period for implementation 2011–2016);</li> <li>• The program for Ukrainian locomotive depots renewal (the period for implementation 2012–2016);</li> <li>• The contract with Hyundai Corporation, funded by the Eximbank of Korea;</li> <li>• International “Corridor” project on the establishment of wide rail route 1520 extended to Vienna;</li> <li>• The project “The Introduction of High-speed Passenger Trains on Ukrainian Railways”, funded by EBRD (the sum invested totals \$120 million).</li> </ul>
<b>International agreements, infrastructural agreements inclusive (bilateral and multilateral)</b>	<ul style="list-style-type: none"> <li>• Agreement on International Railway Freight Connections;</li> <li>• Agreement concluded between the Ukrainian and Azerbaijan governments on the cooperation in railway transport sector;</li> <li>• Agreement on “The Rules for Freight Carriages Exploitation in International Connections”;</li> <li>• Agreement between Ukraine, Russia and Austria on the construction of railway route Košice – Bratislava – Vienna 585 km in length, costing \$ 4.7 billion.</li> </ul>

*Source: made based on information that is freely available on the Internet*

While analyzing the specified complex of programs and projects it is necessary to stress the essential role of Ukraine’s transit potential in reinforcing the freight transportation system that provides for the development of border crossings stations and the corresponding infrastructure, the expansion of the network of logistic centers and the formation of tight integration ties with European countries. Among the expected results there is renewal of rolling stock, the intensification of intermodal freight transit capacity on the territory from the Far East and Central Asia to Central Europe. Loans provided by the international financial institutions are regarded as the main source of funding the rail transport development at present and in the future.

The inland water transport (sea and river) is considered the cheapest means of freight transport. For instance, the cost of freight transportation by this transport means in terms of 1 hypothetical ton of freight is the lowest while its ecological impact on the environment is the least harmful. It is 10 times as energy efficient as road transport and 5 times as railway.

The main problems of water transport development in Ukraine include:

- the lack of legislative regulation of inland water transport exploitation;
- significant physical deterioration of inland water transport facilities (nearly 80 %);
- insufficient funding of water transport infrastructure maintenance, e.g. hydraulic constructions (quaysides) in ports, shipping hydraulic constructions (sluices) and fairways in good condition (over the years 2009–2012 the funding of sluices exploitation averaged 35 % out of the sum total of expected expenditures, 75 % of which were covered by the state budget and 25 % with sluices exploitation payment costs);
- The presence of areas with limited depths which restrain water transportations from being competitive.

Government programs and essential international agreements, securing the facilitation of water transport development in Ukraine, infrastructural agreements inclusive, are listed in Table 4.

In particular, possible conditions enabling the revival of water transport in Ukraine are connected with the modernization of Ukrainian deep water marine route “the Danube river – the Black Sea”, which bears geopolitical significance and socio-economic efficiency. The forecast is that due to the implementation of the whole complex of programs and projects, the share of water freight transportation between Europe and Asia will amount to 30 % [9].

Table 4

**The complex of programs and agreements securing the development of water transport in Ukraine**

<b>Government programs</b>	Ü The draft of the Government Program on Inland Water Transport Development for the period of 2014–2021;
	Ü The framework for the comprehensive target economic program of shipbuilding (to be implemented in 2035);
	Ü The strategy of seaports development (to be implemented till 2038).
<b>International agreements, infrastructural inclusive (bilateral or multilateral)</b>	Ü The agreement between the Ministry of Transport and Connections of Ukraine and the Ministry of Transport of the Russian Federation on the organization of direct international railway-ferry link through the Crimean (Ukraine) and the Caucasian (Russian) ports;
	Ü The agreement on freight transportation development along the route the Baltic – the Black Sea.

Source: made based on information that is freely available on the Internet

Ukraine has great potential for the development of air transport and the increase in freight and passenger transportation by native or foreign air fleet. For the realization of such potential, however, the following steps are to be taken: adaptation of current legislation to the European standards, the renewal of material and technical basis, the expansion of the so called low-cost transportation of passengers, modernization of air infrastructure, and provision for the security of national interests in realizing the accessibility of Ukrainian airspace.

The government programs, infrastructural projects and important international agreements, infrastructural agreements inclusive, securing the assistance in the development of air transport in Ukraine, are listed in table 5.

Table 5

**The complex of programs, projects and agreements securing the development of air transport in Ukraine**

<b>Government programs</b>	Ü Convention of Government Target Program for Flight Safety to be realized by 2015;
	Ü The decree issued by the Cabinet of Ministers of Ukraine on September 21. 2005 No 938 On funding the Project of “Boryspil” State International Airport Development;
	Ü State program for Aviation Safety of Civil Aviation;
	Ü The draft of a strategy of Government Target Scientific and Technical Program for Ukrainian Aviation Industry Development to be realized by 2020;
	A government comprehensive program for military and transportation airplane An-70 and its purchase on government order for safety measures;
<b>Infrastructural statements</b>	Ü TRACECA project “Aviation and Flight Safety in Civil Aviation II”;
	Ü Flight safety project “TRACECA/EASA”;
	Ü A twin project “EU Norms and Standards Realization Endorsement in the Sphere of Airspace and Traffic Management / Air Navigation Service (ATM/ANS)”.
<b>International agreements, infrastructural agreements (bilateral and multilateral) inclusive</b>	Ü “Open Skies” agreement between Ukraine and the USA concluded on June 5, 2000;
	Ü Convention for the Unification of Certain Rules Relating to International Air Transportation.

Source: made based on information that is freely available on the Internet

Transport network is an important segment of a Ukrainian transport system. It should be ascertained that executive bodies of the Ukrainian government have recently paid much attention to the issues of present transport

network development and the realization of country's transit potential. The integration of national transport infrastructure into a sole transnational network is nowadays viewed as a priority for the coming years [6]. It has been estimated that to comply with present requirements the country is expected to annually resurface 37.6 thousand km of existing and build 400 km of new transport routes [1]. However, in the recent years the given figures proved four times lower than expected. Active modernization of a transport network was initiated in 2010 due to the preparation for Euro 2012 Football Championship which vividly demonstrates the concentration of resurfaced transport routes in or near the host cities: Kyiv, Kharkiv, Donetsk and Lviv. Furthermore, at present not all of the recently resurfaced transport routes provide the service of freight transportation. Thus, it might be concluded that some improvements in transport routes infrastructure are still insufficient if we consider the volume of transport on the roads. The gap between the supply and demand, especially if we consider qualitative characteristics of transport routes, still remains one of the central problems hindering the competitiveness of Ukrainian transport infrastructure.

Such statements may be vindicated by the fact that the density of transport routes in Ukraine is 5.6 times lower than in France (0.28 and 1.65 km of routes per 1 sq km of the country's area). In Ukraine motorways extension amounts to 0.28 thousand km, in Germany – 10.9 thousand km, France – 7.1 thousand, furthermore, 1 km of transport routes in Ukraine is considerably underfunded (e.g. it is 5.5–6 times lower than in the aforementioned countries) [10].

Less than 2 % of transport network may be considered as of really high quality modern routes and nearly half of all the transport routes do not comply even with the basic requirements. Such low quality of transport routes results in significant losses amounting to 3 % of GDP annually [1].

Therefore, the given sector urgently needs large-scale investment which cannot be provided by the state. For quite a long period credits granted by international financial institutions under the government's assurance have been the major source of investment. In particular, the most important infrastructural projects in this sector restricted to "Transport routes", including those funded by international financial institutions, are provided in Table 6, and those restricted to "Water transport routes and multimodal transportation" are listed below:

- "Quarantine Breakwater" ("Karantynnyi mol") – a Ukrainian-German project aimed at the construction of a container terminal with the capacity of 600 000 TEU per year (the project cost amounts to 4.9 billion out of which 2.5 billion are reimbursed by the investor represented by government enterprise "Ukraine". The construction is to be completed in the last quarter of 2014;
- "Dry dock" ("Sukhyi port") – project on multimodal logistic terminal construction in Odessa (the total cost of the project amounted to 670 billion, the main source of investment – the costs provided by private investors). Implementation period – 2009–2014;
- The reconstruction of a water approach canal and inland water routes to deep-water quay of government enterprise "Commercial Seaport "The Southern" ("Yuzhnyi"). The construction cost amounts to 1139.9 billion, the period for realization 2012–2015. As of today 74,7 billion have already been allocated;
- General framework for Kherson commercial seaport development for the year 2015;
- EU project "EU's strategy for the Danube (River) Region";
- LOGMOS European project which is to be realized within the framework of "Logistic Processes and Sea Motorways II" TRACECA (TRANsport Corridor Europe-Caucasus-Asia) regional program.
- Mainly due to the cooperation with EBRD nearly €1.5 billion has been provided and 645 km of motorways resurfaced.

On the state level the financial support is to be provided within the 6-year government program of transport routes development, which was approved of in September 2013. Its expected amount of funding amounts to 214 billion, in particular, subventions are to be allocated from the state budget to local budgets for streets and roads of communal property building, resurface and maintenance in populated localities. If compared with the year 2012 in 2013 their amount increased by 8 % and amounted to 2.39 billion [11].

**Infrastructural projects financed by international financial institutions in the direction of “Motorways”**

<b>Infrastructural projects financed by EBRD</b>	
<b>Credit agreements:</b>	<p>The first credit agreement “On Resurfacing the M-06 and the Reform of Road Sector Funding” was funded with €75 million and signed in 2000, the project aims at the improvement of the state of the international corridor # 5 Trieste-Budapest (Bratislava)-Lviv and the section Chop (Uzhhorod)-Stryi (km 824 – km 614). In addition, the project was to introduce reforms in the road sector to reinforce the decentralization of management of funds provided for reconstruction. According to the decree by the Cabinet of Ministers of Ukraine passed on August 20, 2008 № 1096 “On the Approval of the Strategy of State Transport Routes Management Reforms” it is still effective.</p> <p>The second credit agreement “On Resurfacing the motorway Kyiv-Chop” funded with €100 million, signed in 2005. The project aimed at the improvement of the state of international corridors # 5 Trieste-Budapest (Bratislava)-Lviv, in the Stryi-Lviv section and № 3 Berlin-Wroclaw-Lviv-Kyiv, Lviv in Brody section (km 621 – km 441).</p> <p>The third credit agreement “On Resurfacing the Motorway Kyiv-Chop”, funded with €200 million, signed in 2006.</p>
<b>Financial agreements:</b>	<p>Financial agreement “Ukraine: the Project on Ukraine’s European Routes” funded with €200 million, signed on July 30, 2007. The project aims at the capital resurface of Kyiv-Chop motorway in the section from km 128 (Zhytomyr city) to km 441 (Brody, Lviv region) totalling 313 km. As of today 497 km and 720 km have already been repaired and opened.</p> <p>Financial agreement “European Roads of Ukraine II”, Kyiv roads improvement project funded with €450 million, signed on May 27, 2011. The project aims at the rehabilitation and improvement of about 350 kilometers of roads upon the arrival to Kyiv in central Ukraine. This section belongs to Trans-European transport network (TEN-T) or European roads networks. This is a large-scale project implemented in cooperation with the IMF, the cost of which totals €1 billion (€900 million are to be provided by EBRD (50%) and EIB (50%), the rest is to be covered by the state).</p>
<b>Infrastructural projects financed by the World Bank</b>	
	<p>The project “<b>On the Improvement of Motorways and Traffic Safety</b>”, the total cost – \$500 million (€347.4 million) (the credit agreement was ratified on July 16, 2009). The credit amounts to \$400 million (€ 277.9 million). The project aims at the improvement of M-03 segments between Boryspil airport and Lubny and the increase in roads safety, namely the reconstruction of approximately 120 km of Kyiv-Kharkiv-Dovzhanskyi motorway, including the implementation of construction works for enhancing the existing road, the implementation of program safety measures for emergency sections, the establishment of institutional potential (provision of technical advisory services, training and equipment to enhance traffic control systems in accordance with international practice, including the improvement of Ukrainian norms, regulations and standards in traffic engineering, repair and maintenance of roads, modernization of traffic management and roads exploitation).</p>
<b>Infrastructural projects financed by:</b>	
<b>the Hungarian Government</b>	
	<p>The project “<b>On the Improvement of Transport and Operational State of International Motorway M-03 Kyiv-Kharkiv-Dovzhanskyi in the section Lubny-Poltava</b>”, total cost – \$540 million (€ 375 million). Credit amount totals \$450 million (€ 312.5 million). The project aims at the improvement of M3 motorway in the section Lubny-Poltava and its reaching the European level and the enhancement of its transportation operational state of traffic routes in the emergency areas. The project was implemented in 2011.</p>
	<p>The agreement between the Ukrainian and Hungarian governments on the junction of motorways on the Ukrainian-Hungarian border to be implemented within the framework of the Fifth Pan-European transport corridor. It presupposes the construction of new and modernization of existing motorway sections of roads which are to be joint with two branched lines. The first line will run along the route Nyiregyhaza-Vasharoshnamen-Zahon-Chop-Uzhhorod-Mukacheve (the Hungarian section is a high-speed motorway), its junction is located at the international border crossing service station “Chop-Zakhoron”. Another line is still to be built. Under this agreement the parties obliged themselves to mutually determine the location of the junction on Ukrainian-Hungarian state border motorway (Ukraine’s Western border – Kyiv, which crosses Ukraine, and the M3 motorway, which runs through Hungary. Ukraine was expected to complete the work by 2005 (Chop – Stryi section) costing € 75 million and by the end of 2008 – Stryi-Brody section costing €100 million.</p>
	<p><b>Japan International Cooperation Agency (JICA)</b></p> <p>The project “On the Construction of the Bridge over the River Southern Buh in Mykolayiv” to be implemented within the framework of the Official Development Assistance provided by Japan to developing countries. The implementation of the project will connect large industrial and administrative centers and seaports in southern Ukraine, located on the international M-14 motorway Odessa-Melitopol-Novozovsk (in Taganrog), which runs along the Azov and Black Seas, and is a section of two international transit corridors: Euro-Asian transport corridor (Reni, Izmayil, Odessa, Mykolayiv, Simferopol, Novoazovsk, Taganrog) and the Black Sea motorway (Odessa-Mykolayiv-Kherson-Kerch). The construction of the bridge will also relieve of traffic Varvarivskiy bridge built in 1964.</p> <p>Currently the project is under the approval of feasibility study “The Construction of the Bridge over the Southern Buh River in Mykolayiv, Mykolayiv region”.</p>

The establishment of international transport corridors (ITC) is a separate aspect of national policy on country's transport potential development. In accordance with the Conception and Program for the establishment and functioning of a national network of international transport corridors, to be implemented by 2015, ITC establishment is a preferable comprehensive direction of a transport-road segment development.

The further integration of Ukraine into the international transport system presupposes the following: the incorporation into the existing international transport corridors and the establishment of new transport corridors.

The given Framework presupposes two alternative ways of transport corridors development on the territory of Ukraine, regarded as a constituent sector of an international transport corridors network:

- The reconstruction and modernization of an existing network;
- The establishment of a new transport network with the complete infrastructural complex in accordance with the international standards.

As a rule in a transport sector a concession agreement acts as an organizational form of government partnership with private investors (PGP). First of all, concessions are provided on the construction of new transport routes, having the directions which coincide with the directions of international transport corridors and motorways of E category.

To secure transport corridors functioning transport-storage complexes (TSC) are to be established for the purpose of container, piggyback and other types of freight processing.

In particular, as far back as in 2002-2010 the Comprehensive program for the assertion of Ukraine as a transit state in the period of 2002-2010 was launched to develop Ukraine's transit potential. The given program presupposed the following:

- legislative strengthening of a legal status granted to operators of multimodal transportations and logistic centers;
- the development and confirmation of principles concerning the operators of intermodal transportation of freight as well as logistic centers of international transportation;
- the development of a prospective framework of logistic centers location and its stepwise implementation; the research and pilot check on the basis of Illichivsk, Odessa and Reni of a maritime fleet as well as Transcarpathia traffic centre (Chop city) of performance efficiency and further expansion of the network of logistic distributional centers (state budget coverage amounts to 80 000 UAH).

However, it should be ascertained that the aforementioned measures have not been implemented as yet.

Among the promising projects the following ones should be outlined:

- The project on the cooperation with the EU focusing on the development of Trans-European transport networks (TEN-T), a transactional axis. The EU adopted the program of Trans-European transport networks (TEN-T) which provides for the establishment of a separate multimodal network connecting land, water and air transport. At the same time the EU is in the process of implementing 30 promising projects (axes), some of which have already been implemented. Promising for Ukraine is considered the project PP-06: railway axis Lyons-Trieste-Divacha/Koper-Ljubljana-Budapest-Ukrainian border. Presumably the corridor may end at the border crossing service station Chop (Ukraine) – Zahony (Hungary), therefore negotiations should be conducted with the project member states over the establishment of the International Logistic Centre on the territory of Ukraine which will provide services of intermodal transportations to the Russian Federation, Kazakhstan and China. It should be noted that in the border area on the Ukrainian territory high capacity terminals, warehouses, cross conveyor complexes and such like transport infrastructure facilities are located. They mainly operate under the customs control and are used to perform the complex processing of great amounts of export-import as well as transit freight.
- The project in cooperation with the EU on additional volumes of freight transportation through the territory of Ukraine and the branching network of ITC at the expense of the development of new directions (e.g. Europe-the Caucasus-Asia with the branching of a Budapest-Belgorod upon the river Dniester-Odessa motorway which spreads over the Kerch channel to the South of

Russia and the Caucasus), TRACECA (Silk Road), the Black Sea – the Baltic Sea with the involvement of additional volumes of freight from Turkey (forward) and the Scandinavian countries (backward), the use of waterways along the Dnipro river and exit through the Volga-Don area to the Caspian Sea and participate in the implementation of the international transport corridor “North-South” [13].

- The project in cooperation with China, the EU, Russia and India regarding the construction of high-speed railway line from Europe to China initiated by the latter. It is expected that the first transnational line will have the following direction: London-Paris-Warsaw-Kyiv-Petersburg-Moscow-Yekaterynburg-Astana-Irkutsk-Ulan Bator-Beijing. This requires Ukraine to search for new approaches to the development of transport systems, new technologies and sustainable ways of development of freight and passenger transportation, establishing various forms of cooperation especially between Ukraine and the EU. Nowadays Ukrainian, Russian and Hungarian Railways are cooperating on the issues of freight transportation by container trains in the direction China-Europe through the border crossing Zabaikalsk and also from China to the Czech Republic in transit through Kazakhstan, Russia, and Ukraine.

**Conclusions and further research prospects.** Given the lack of necessary financial resources in the state budget and the recently declared policy of government’s minimal intervention into transport sector under the conditions of maximum concentration of efforts on the core functions of the state in the development and implementation of a clear government transport policy, monitoring its implementation and securing the assessment of results, the prospects for the development of transport infrastructure are primarily connected with the expansion of private investments into the sphere and the attraction of public-private partnership (the combination of public and private sector domestic and foreign investments). However, according to the conducted research, international financial institutions are regarded as the main source of investment into the transport infrastructure. Such a situation could be explained by Ukraine’s important role as a transit state in the EU transport strategy. These funds should not be regarded as financial aid, like the projects in those countries which have already joined the EU, since they are primarily standby credits. However, despite the fact that over the last ten years such international financial institutions as the EBRD and the World Bank have invested in Ukraine a few billion dollars, its transport infrastructure has not significantly improved. This necessitates further and more in-depth study of the causes underlying such a pitiful condition, the identification and analysis of which will help avoid potentially unnecessary expenses and allow more efficiently using budget resources as well as those provided by private investors, including those allocated on a credit basis.

Nowadays the current situation in Ukraine and active calls of European governments for close cooperation with the European Union could create new opportunities primarily for promoting cooperation, especially in the processes of Ukraine’s establishment as a transit country, the transport infrastructure of which is considered as an integral part of a sole European transport and logistics systems.

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