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The current state of road construction production in Zhambyl region

The article discusses the issues of economic efficiency of road construction modernization, assesses the development of the current state of road construction production and addresses the problems of economic efficiency of road construction production in the Zhambyl region. Since road construction, the purpose of which is to create the country's transport system, including the road network, has been and remains one of the main production areas, providing solutions to both national and regional socio-economic problems, since the state and development of roads directly affects gross product, price level, coefficient of commercial use of roads by industries. The transport potential of the region is not only the object of management, but also determines the possibilities of socio-economic development of the region. It is concluded that the transport industry should develop at a faster pace than other sectors of the economy. In a market economy and high growth of the country's automobilization, restructuring and modernization of the road construction industry is needed, using innovative mechanisms for financing and rational use of funds in the road construction industry.

Keywords: transport infrastructure, highways, transport, region, development, roads, engineering structures designed, efficiency

The development of modern society is characterized not only by the deepening division of labor and the complication of production and commercial interrelations, but also the desire of people for closer communication and contact. Transport infrastructure plays an important role in the implementation of these trends. Transport development corresponds to the development of the territory and is a necessary connecting part in the movement of people and goods. The better developed transport infrastructure, the higher the competition and freedom of economic activity, the possibilities for improving conditions and raising the standard of living of the population of the region. In the Message to the People of Kazakhstan «Kazakhstan – 2030. Prosperity, security and improvement of the welfare of all Kazakhstanis», the President of Kazakhstan N. Nazarbayev set the task: «Kazakhstan must become part of the global transportation and communication system, which will require us to advance the development of the entire transport infrastructure of the country» [1].

Roads are a complex of engineering structures designed to ensure year-round, continuous, convenient and safe movement of vehicles with an estimated load and speeds set at any time of the year and in any weather conditions. The structure of this complex includes a roadbed, road pavement, bridges, pipes and other artificial structures, road construction and protective road structures, buildings and structures of road and motor transport services. Parameters and condition of all road elements and road structures determine the technical level and operational condition of the road.

The main transport and operational indicators of roads and road structures are provided speed and capacity, continuity, convenience and traffic safety, the ability to pass cars and trucks with axial load and total weight corresponding to the category of road [2].

That is why, in article 1 of the Law of the Republic of Kazakhstan dated July 17, 2001 N 245-II «On highways», the following main features were defined [3]:

- automatic roads as a complex of engineering structures intended for the movement of vehicles, providing continuous, safe movement of cars and other vehicles with fixed speeds, loads, dimensions, as well as land parcels provided for the placement of this complex (land of transport), and airspace above them within the established dimension;
- road activity as an activity for the design, construction, reconstruction and repair, as well as for the maintenance and use of roads and facilities on them;
- management of road activities as a set of measures aimed at organizing and ensuring safety and convenience on the roads, improving the transport and operational status of roads and structures, ensuring the order of

their protection, organizing the design, construction, reconstruction, repair, maintenance and use of roads the basis of state standards established by regulatory legal acts and the introduction of advanced technologies.

Thus, road construction includes both construction, and reconstruction, repair, maintenance of not only the roads themselves, but also the entire roadside infrastructure [4].

In modern conditions, the center of gravity of road organizations is gradually and steadily moving from the construction of new roads to the preservation, maintenance and improvement of the technical level and operational condition of existing roads with methods of maintenance, repair and reconstruction. The main task was to increase the capital of road pavements, to ensure high speed, convenience and traffic safety, engineering equipment and road construction, architectural and aesthetic design and other tasks that make up the operational support complex for road functioning.

One of the departments of the Ministry is the Committee for Roads (CRO). As defined in the Regulation on the Committee for Roads of the Ministry of Transport and Communications of the Republic of Kazakhstan, the CR has territorial bodies in regions and subordinate state institutions that are not government bodies [5].

The main tasks of the Ring Road are:

- 1) implementation of the state policy in the development of the road network;
- 2) the maintenance of serviced roads and structures on them in a state that ensures uninterrupted and safe passage of vehicles;
- 3) control in the field of highways.

The Ring Road in accordance with the current legislation carries out the following functions assigned to it by the Ministry:

- 1) carries out state accounting of public roads;
- 2) coordinates the name and indices of public roads of regional significance;
- 3) coordinates lists of highways of regional and district significance;
- 4) coordinates the provision of land plots for the placement of road service facilities in the roadside areas or facilities outside of their limits, when access is required to access them;
- 5) provides for temporary short-term land use of land plots of land strip of roads, of international and republican significance, not used by road authorities or the concessionaire;
- 6) coordinates the placement in the right of way of trade, catering and other service facilities, as well as their advertising;
- 7) implements the implementation of investment and social policies in the road sector;
- 8) organizes works on construction, reconstruction, repair and maintenance of highways of republican significance in accordance with the legislation of the Republic of Kazakhstan on public procurement and concessions.
- 9) exercise state control over the observance of the rules for the use of roads;
- 10) oversees the creation and operation of toll roads;
- 11) monitors the state of the roads, ensuring uninterrupted and safe traffic.

According to the Ministry of Transport and Communications of the Republic of Kazakhstan (MTC RK), the length of roads in Kazakhstan is 128 thousand kilometers, of which 85.6 thousand kilometers are public roads and 42.4 thousand kilometers are economic roads in the form of entrances to industrial enterprises, mines, farm and forestry, other industries, performing the role of technological roads [6].

Today, the density of public roads in the Republic of Kazakhstan is:

- 31,43 km per 1000 km² of territory;
- 5,78 km per 1000 inhabitants;

The density of the republican roads is:

- 8,44 km per 1000 km² of the territory;
- 1,55 km per 1000 inhabitants.

Public roads are divided by their significance into republican roads — 23044 km long, including 12 301 km international, and local roads, 62 636 km long. But, the unsatisfactory condition of the road surface leads to a decrease in operating speeds, an increase in operating transportation costs, and an increase in road traffic accidents. According to the international competitiveness rating for road quality, Kazakhstan ranks 109th. At the same time, according to the Statistics Agency of the Republic of Kazakhstan, the number of vehicles in the country is constantly growing (Table 1).

Table 1

Availability of vehicles in Kazakhstan, thousand units [7]

Regions of Kazakhstan	2013 y.	2014 y.	2015 y.	2016 y.	2017 y.
Republic of Kazakhstan	4 229,4	4 533,7	4 397,3	4 383,1	4 382,6
Akmolinsk region	172,4	213,4	208,2	208,1	208,2
Aktobe region	156,8	190,7	184,4	175,5	173,6
Almaty region	534,3	559,7	519,7	530,8	534,1
Atyrau region	154,2	140,1	140,9	137,6	137,4
West Kazakhstan region	123,9	136,6	138,6	135,5	134,6
Zhambyl region	264,6	222,8	216,1	232,5	222,0
Karaganda region	360,0	385,6	318,7	319,4	319,5
Kostanay region	198,9	243,6	206,5	205,1	203,3
Kyzylorda region	141,5	138,0	136,4	136,0	135,4
Mangystau region	118,1	172,1	168,7	164,6	162,7
South-Kazakhstan region	454,2	545,9	538,7	544,0	550,1
Pavlodar region	183,8	198,2	189,2	183,3	180,8
North Kazakhstan region	180,3	193,2	177,0	173,9	170,0
East Kazakhstan region	370,0	358,4	352,2	348,5	342,0
Nur-Sultan city	264,9	279,2	275,5	273,0	280,5
Almaty city	551,5	556,2	511,2	500,3	504,4

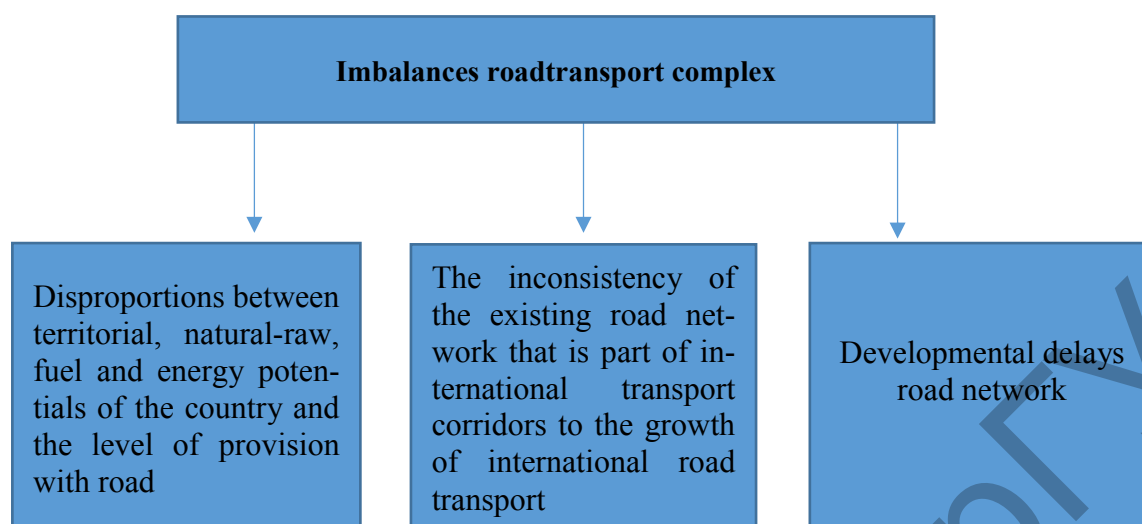
As follows from the data of the Department of Statistics of the Zhambyl Oblast, this region is also no exception. (Table 2) [7].

Table 2

Vehicles of Zhambyl region [7]

Name	2013 y.	2014 y.	2015 y.	2016 y.	2017 y.
Road transport	11405	12 575	15126	15276	16 307
Truck	2832	2942	4 048	4 325	4 389
Buses	47989	56349	84 900	100 409	119 349
Passenger car	10 335	10575	11126	11276	12 007
Urban electric transport	2832	2942	4 048	4 325	4 389
Trolleybuses	47989	56349	84 900	100 409	119 349

To ensure sustainable growth in the country, a coherent development of the economy and the road sector is necessary, but at present, there are a number of imbalances in this area (see Fig.).



Note. Designed by the authors.

Figure. Imbalances of the transport and road complex in the Republic of Kazakhstan

Imbalances of the transport and road complex, imbalances between the territorial, natural-raw materials, fuel and energy potentials of the country and the level of provision with roads, lag in development road network, inconsistency of the existing road network that is part of international transport corridors to the growth of international road transport. During construction, reconstruction, repair and maintenance of roads, state control is provided by the customer, an authorized state body on roads, and local executive bodies of the region, districts and cities, as well as design supervision by the developer of project documentation and production by the contractor.

Acceptance of the completed road works for operation, except for work on the current repair of roads, is carried out by the state acceptance commission (parts 1 and 2 of article 15 of the Law of the Republic of Kazakhstan «On roads») [8].

Despite the fact that the road sector in the country shows consistently high rates of development, the problem of technical re-equipment remains unresolved — for example, the acquisition of a special transport fleet for road maintenance. The fleet in the farms is worn out to 70–80 %, and there is practically no serious own production of such machines in the country. For example, out of more than 1,700 units of road equipment of the fleet of RGP «Kazakhavtodor», the only service contractor, Kazakhstan's equipment is less than 10 %. In turn, Russian and Ukrainian car manufacturers, for whom Kazakhstan is an attractive sales market, intend to strengthen their presence here, taking into account the growing needs of the industry [9].

Today, for the timely execution of work on current repair, maintenance and landscaping of roads, the Kazakhautodor RSE has 14 regional branches, a representative office for civil defense and emergency situations, 87 road maintenance areas, 202 road maintenance points, 8 forest plantings.

In the Zhambyl region, the executive body that provides guidance on the development and implementation of state policy in the road sector is the Zhambyl oblast department of the Committee for Roads Highways. In total, the region has a network of local roads of more than 4,12 thousand km, of which regional value is more than 2,21 thousand km. The network of regional roads is more than 1,9 thousand kilometers.

The regional roads in the Zhambyl region are on the balance of the state institution «Department of passenger transport and roads of the Akimat of the Zhambyl region».

On average, in recent years, roads with a total length of 10.9 km and eight artificial structures were covered. Construction and repair of roads in the region were conducted on a large scale, helped by an increase in funding by 3,9 times. Transfers from the republican budget in the amount of 1355,7 million tenge were directed to the implementation of three investment projects.

In addition to the overhaul, one kilometer of which cost 30 million tenge, the cheaper repair (5 million tenge per kilometer of roadway) was also practiced. Thus, it was planned to allocate 1,332,7 million tenge from the republican budget, of which 524,6 million for medium repairs and 808,1 million for capital repairs; from the regional budget allocate 945 million tenge [10].

The technical and operational condition of the auto route of republican value is increasing every year. What can not be said about the roads of inter-district value, for the restoration of which a special program is needed.

Distribution of funds for capital, medium and current repairs by districts is made depending on the condition and length of the road network. The average cost of construction and reconstruction of 1 km of the road of the 4th technical category is 50,9 million tenge, overhaul of the 3rd technical category — 30,1 million tenge, medium repair — 4,0–7,0 million tenge, normative cost of 1 km of current repair — 139,6 thousand tenge. At the same time, the financing of current repairs is currently made only 31,6 % of the regulatory need. It is assumed that the implementation of the Program will improve the level of technical and operational condition of local roads, introduce new equipment and technologies in the production of road works, effectively use local road construction material for road works, provide additional jobs, attract investors, increase the turnover of the national economy. goods on the roads of regional and district significance. Thus, in the process of studying the peculiarities of the current state of the road infrastructure in Kazakhstan, there are a number of imbalances, inconsistencies of most roads with regulatory requirements, and an increase in the cost of maintaining and repairing roads.

The latest government decisions regarding road construction imply the modernization and improvement of the investment attractiveness of its facilities, and hence an increase in the level of competition and economic efficiency [11].

The state of road construction in the Zhambyl region is controversial: on the one hand there is some progress in expanding the road network, raising the level of their technical and operational condition, on the other — the previous approaches to organizing and carrying out repair work and building new roads are not eliminated.

It is necessary to provide for the accelerated construction and support network of highways, the expansion of the construction of transport routes in rural areas, the improvement of the quality of construction, repair and maintenance of roads, and the implementation of necessary measures to improve traffic safety. Therefore, the direction of the further construction of a network of well-planned highways should connect all prospective rural settlements of the region, which is also necessary to fully meet the needs of the economy and the population in transportation.

Thus, the regional efficiency of construction and reconstruction of roads is reflected in reducing the cost of transport products, reducing delivery time and transportation distance, improving cargo safety during transportation, reducing losses and increasing the mobility of production resources on this basis, increasing productivity modern forms of its organization and management.

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С.Г. Шаушенова, Ш.У. Ниязбекова, А.А. Нурпеисова, С.К. Ержанова

Жамбыл облысындағы жол-құрылыс өндірісінің қазіргі жағдайы

Мақалада жол құрылысының экономикалық тиімділігі мәселелері қарастырылған, жол-құрылыс өндірісінің қазіргі жай-күйінің дамуына баға берілген және Жамбыл облысындағы жол-құрылыс өндірісінің экономикалық тиімділігі мәселелері зерттелген. Мемлекеттің және аймақтың әлеуметтік-экономикалық мәселелерін шешуге мүмкіндік беретін жол құрылысының негізгі мақсаты еліміздің көлік жүйесін құру, оның ішінде автомобиль жол желісін құру болып табылғандықтан, негізгі өндірістік аймақтардың бірі болып табылады және жолдардың жай-күйі мен дамуы жалпы өнімге, баға деңгейіне, салалар бойынша автомобильді коммерциялық пайдалану коэффициентіне тікелей әсер етеді. Өндіріс көліктік әлеуеті тек басқару объектісі ғана емес, сонымен қатар аймақтың әлеуметтік-экономикалық даму мүмкіндігін де анықтайды. Көлік өнеркәсібі экономиканың басқа секторларына қарағанда жылдам қарқынмен дамуы керек деген қорытынды жасалынды. Нарықтық экономика және елдің автокөлік құралдарының жоғары өсуі жағдайында жол құрылысы саласын қаржыландыру мен қаржыны тиімді пайдаланудың инновациялық тетіктерін қолдана отырып, жол құрылысы саласын қайта құру және жаңғырту қажет.

Кілт сөздер: көлік инфрақұрылымы, автомобиль жолдары, көлік, өңір, даму, жолдар, жобаланатын инженерлік құрылыстар, тиімділік.

С.Г. Шаушенова, Ш.У. Ниязбекова, А.А. Нурпеисова, С.К. Ержанова

Современное состояние дорожно-строительного производства в Жамбылской области

В статье рассмотрены вопросы экономической эффективности модернизации дорожного строительства, дана оценка развития современного состояния дорожно-строительного производства и изучены проблемы экономической эффективности дорожно-строительного производства в Жамбылской области. Так как дорожное строительство, предназначением которого является создание транспортной системы страны, в том числе сети автомобильных дорог, было и остается одной из основных производственных сфер, обеспечивающих решение как общегосударственных, так и региональных социально-экономических задач, поскольку состояние и развитие дорог непосредственно влияют на валовой продукт, уровень цен, коэффициент коммерческого использования дорог отраслями экономики. Транспортный потенциал региона не только является объектом управления, но и определяет возможности социально-экономического развития региона. Сделан вывод о том, что транспортная отрасль должна развиваться опережающими темпами по сравнению с другими отраслями экономики. В условиях рыночной экономики и высокого роста автомобилизации страны необходимы реструктуризация и модернизация отрасли дорожного строительства, с применением инновационных механизмов по финансированию и рациональному использованию средств в сфере дорожного строительства.

Ключевые слова: транспортная инфраструктура, автомобильные дороги, транспорт, регион, развитие, дороги, проектируемые инженерные сооружения, эффективность.

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