INVESTING IN ROAD CONSTRUCTION INFRASTRUCTURE PROJECTS UNDER PUBLIC-PRIVATE PARTNERSHIP IN THE FORM OF CONCESSION

Purpose. To substantiate an approach to road development investment management in Ukraine in compliance with the principle of syncretism and the use of Quality Function Deployment methodology, to improve the methodological approach to calculating the concession fee for brown-field and green-field road concession projects.

Methodology. The study used a set of general and special methods of cognition: the Quality Function Deployment (QFD) method, the environmental approach, multimodal analysis, Decoupling Index, Decoupling Factor, logical generalization, quantitization and qualitative comparison, scientific abstraction and systematization.

Findings. According to the results of research on interrelation of cost of an investment project and volumes of works by their types, an economic-mathematical model of estimation of need for investments in projects for construction, reconstruction, repair and maintenance of public motor roads is offered. The proposed model, unlike the existing ones, is based on lateral understanding of the clarity of delineation of capital needs by type of road construction, which will provide taking management decisions on investment projects with model and information tools that will help obtain the most realistic assessment of need for capital needed to improve the transport operation condition of motor roads in Ukraine.

Originality. The organizational-economic mechanism of management of investment activity of road economy and the estimation of efficiency of co-financing investment projects under programs on construction, reconstruction, repair and maintenance of motor roads is advanced. The diagnostics of efficiency of investment of construction of public motor roads under public-private partnership in the form of concession is improved.

Practical value. The results of the study can be used in the activities of road industry of Ukraine for the development and implementation of investment projects under motor road development programs.

Keywords: motor roads, investments, investment activity management, infrastructure projects, public-private partnership

Introduction. Sustainable and efficient functioning of transport infrastructure is a necessary condition for stabilization, recovery and restructuring of the economy, for ensuring the integrity, security and defence capabilities of the state, for improving the living standards and conditions of its citizens.

The development of transport infrastructure ensures an increase in the competitiveness of economy, as the intensification of investment activities in the road sector, in particular under public-private partnership in the form of concession using a system of tax incentives for concessionaires, is the basis for improving and developing motor roads.

Transport generates intersectoral services and creates the appropriate infrastructure of a country, as the demand for transport services largely depends on the demand for the results of activities of other sectors of the economy. A key factor in the functioning and development of transport infrastructure is the state of the country’s transport routes [1], according to which Ukraine, unfortunately, ranks 134th out of 138 countries that participated in the Global Competitiveness Report 2018.

Highly developed European countries, world leaders in economic development, which include Japan, are constantly increasing their infrastructural potential, as evidenced by the data given in Table 1 [2].

As we can see, the development of road network in any country of the world, on the one hand, is a consequence of the development of its economy, and on the other hand, one of the key factors contributing to this development [2].

© Tsimoshynska O., Koval M., Kryshtal H., Filipishyna L., Arsawan W. E., Koval V., 2021

Literature review. Studies on management of road sector investment activities are conducted in a work by Hughes J. F. and Healy K. (2014), who examined the critical infrastructure and natural, technological, social and political hazards of the functioning of transport system as well as the technical and organizational level of its sustainability.

In research [3, 4] the content of investment activity management is studied interpreting investment activity broader — as an organized activity carried out in the actual, existing in the country’s business conditions through practical actions of investment entities, whose functions consist in the purposeful process of finding the required number of investment resources, selecting appropriate objects or tools for investment, developing and implementing a phased investment program or strategy and ensuring its effective implementation in order to make a profit and/or cause some other positive effect. Undoubtedly, this definition is correct, but we are convinced that the concept of “investment activity” should be considered in the context of expectations of stakeholders as for its success [4].

While ensuring the success of investment activities is possible under condition of effective management, which, in a broad sense, should be considered as the application of special knowledge and methods to meet the expectations of investment process participants, and in a narrower sense, one should separately focus on each of specific scientific approaches.

Since management of investment activities is the coordination of certain actions, it is carried out due to the influence of a set of management tools, which activates a certain management mechanism.
The purpose of the article is to substantiate an approach to road development investment management in Ukraine in compliance with the principle of synergism and the use of Quality Function Deployment methodology, to improve the methodological approach to calculating the concession fee for brown-field and green-field road concession projects.

Methods. Management of investment activity is the guarantee of its success, and the quality of management of investment activity is the ability to meet the expectations of stakeholders as for successful implementation of investment programs and projects. Therefore, management of investment activities should be considered on the basis formed by the methods of Quality Function Deployment (QFD) – methods for making management decisions that are based on the structuring (deployment) of the quality function of a particular product. The QFD methodology has gained worldwide recognition and is one of the mandatory requirements of QS-9000 and ISO 9000:2015 Standard “Quality Management Systems – Fundamentals and Vocabulary” (ISO (2018). 9000:2015, Quality management systems. Fundamentals and vocabulary, European Committee for Standardization, Brussels.). According to the QFD methods, the requirements of stakeholders for the formation of a mechanism of investment activity management should be specified in stages, starting with determining the need for tool and ending with the evaluation of its effectiveness (Fig. 1).

The study also uses an environmental approach to managing the investment activities of road sector, which consists in combining economic growth with environmental protection and improving the quality of life, which is complemented by multimodal analysis of the process and result of interaction of its tools (Fig. 1), which will contribute to the systematization and consistency of transformations at all levels of the hierarchy of management of investment activities of the country’s road industry.

The environmental approach to management of the investment activities of road sector aimed at preserving the environment is characterized by the phenomenon of decoupling. Decoupling (or decoupling effect) is characterized by indicators of Decoupling Index and Decoupling Factor, which are determined according to the formulas

\[
Decoupling\ Index = \frac{EP}{DF}\text{}_{\text{ending}}; \tag{1}
\]

\[
Decoupling\ Factor = 1 - Decoupling\ Index, \tag{2}
\]

where EP (environmental pressure) is the anthropogenic pressure on the environment; DF (driving force) represents indicators of economic growth in the ending and beginning periods of the study.

Results. The development of national economy under the conditions of environmentalization requires revision of the methodological basis of doing business, clarification of its objects, the technology of data collection and processing in order to create an effective organizational and economic mechanism of managing, primarily, the investment activities of transport infrastructure [8, 9].

Sustainable and efficient functioning of the transport infrastructure is a necessary condition for stabilization, recovery and restructuring of the economy, for ensuring the integrity, security and defense capabilities of the state, for improving the living standard and conditions of its citizens.

Ukraine’s signing of the Association Agreement with the EU was a clear manifestation of the country’s desire to be part of the European community through political association and economic integration based on common values, which are the rule of law and respect for human rights and freedoms. Ukraine’s commitments under the Association Agreement are a roadmap for reforming the country. Currently, the EU provides support to Ukraine through various programs and using various mechanisms, which include, in particular, the financing of infrastructure projects – projects for the development of roads and transport infrastructure (Cabinet of Ministers of Ukraine (2015). Some issues of reforming the system of public administration of public roads.). Ukraine has new opportunities to develop trade relations, expand industrial ties and intensify scientific and technical cooperation with European countries. Under these conditions, the question of ability of Ukraine’s national transport system to integrate into the European transport system, become part of it and thus meet both Ukraine’s national transport needs and the needs of the EU as its strategic partner is burning. But the land transport arteries of Ukraine – its roads built in Soviet times – have exhausted their resources and need 100 % restoration of the road surface in accordance with modern loads and traffic intensity, namely the road network is waiting for further development.

Every year, the load on highways, especially transit routes, increases significantly [3]. Given the deep-rootedness of problem of investing in the development of motor roads and trans-
port infrastructure of country, it becomes clear that its solution requires significant funds over a significant period of time.

In order to improve the organizational support of investment activities of road industry and the adaptation of Ukrainian legislation to the legislation of the European Union, a draft Law of Ukraine “On Amendments to Certain Legislative Acts of Ukraine on Regulation of the Road Transport Market in Ukraine to Bring It in Alignment with the European Union Act” (Verkhovna Rada of Ukraine. 2017) has been developed; it proposes the introduction into the domestic practice of EU Directives (of the European Parliament and Council), which will contribute to: development of motor roads and the transport infrastructure in accordance with the requirements of European standards; introduction of effective control over the functioning of road transport market; improvement of the quality of transport services and the level of safety in motor transport.

It is known that the most pressing issue in the process of construction of motor roads and transport infrastructure is to ensure their proper financing, using various possible sources, including the private sector.

In our opinion, only the introduction of public-private partnership will ensure guaranteed investment, equal and transparent conditions for participation in tenders, differentiation of types of work in road maintenance distinguishing between permanent and periodic ones can significantly intensify the market of construction, repair and maintenance of roads in Ukraine. The experience of European countries proves this.

In the most general form, the effectiveness of organizational and economic mechanism for managing the investment activities of road sector should be understood as the effect obtained as a result of the functioning of tools aimed at achieving the main objectives of investing in road construction and improving road condition. And since the tools for managing the investment activities of road sector are generally divided into tools for administrative-legal and economic impact, then, when conducting a multimodal analysis of the interaction of plurality of its tools, one should focus on the analysis of both legal and economic regulation of investment activities [10]. In this case, the evaluation criteria and indicators should meet the main objectives of state regulation of the process of investing in the development of roads and transport infrastructure.

Unfortunately, the current regulations on management of investment activities in the road sector do not contain clear and measurable indicators and do not provide for mechanisms for monitoring the effectiveness of tools as for the attainability of objectives of investing in construction, reconstruction and repair of motor roads (including statistical data collection relevant just for this purpose), which significantly complicates carrying out a multimodal analysis of the interaction of plurality of tools of organizational and economic mechanism for managing the investment activities of road sector.

No less important in the study on investment management of the road sector is the evaluation of effectiveness of tools of economic impact, the methodology of implementation of which is determined primarily by the mechanism of financing road works carried out by:

- budget funds;
- funds of International Financial Organizations (EBRD, IBRD, EIB);
- funds of private investors.

Thus, for example, the EBRD and the EIB agreed upon the fact that the share of each bank in financing the project “Motor Road and Traffic Safety Improvement Project in Ukraine” in 2018 amounted to 474 million US dollars (Table 2) [11].

According to Table 2, during the period we studied, the sample of IBRD loans amounted to 320.9 million US dollars, which was only 71 % of the total amount of loan provided for by the Loan Agreement. Thus, the outstanding loan, as of the

<table>
<thead>
<tr>
<th>Sources of financing</th>
<th>During the year that ended December 31</th>
<th>During the whole period of implementing the Project</th>
<th>Budget of financing</th>
<th>Outstanding loan</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>66.349</td>
<td>167.350</td>
<td>450.000</td>
<td>282.650</td>
</tr>
<tr>
<td>funds of IBRD</td>
<td>6.640</td>
<td>19.156</td>
<td>19.156</td>
<td>–</td>
</tr>
<tr>
<td>funds of the State Road Agency of Ukraine</td>
<td>72.989</td>
<td>186.506</td>
<td>469.156</td>
<td>282.650</td>
</tr>
<tr>
<td>Total</td>
<td>44.614</td>
<td>211.964</td>
<td>450.000</td>
<td>238.036</td>
</tr>
<tr>
<td>2015</td>
<td>5.247</td>
<td>24.403</td>
<td>24.403</td>
<td>–</td>
</tr>
<tr>
<td>Total</td>
<td>49.861</td>
<td>236.367</td>
<td>474.403</td>
<td>238.036</td>
</tr>
<tr>
<td>2016</td>
<td>20.308</td>
<td>256.675</td>
<td>474.403</td>
<td>217.728</td>
</tr>
<tr>
<td>funds of IBRD</td>
<td>24.225</td>
<td>256.497</td>
<td>450.000</td>
<td>193.503</td>
</tr>
<tr>
<td>funds of the State Road Agency of Ukraine</td>
<td>24.225</td>
<td>256.497</td>
<td>450.000</td>
<td>193.503</td>
</tr>
<tr>
<td>Total</td>
<td>64.416</td>
<td>320.913</td>
<td>450.000</td>
<td>129.087</td>
</tr>
<tr>
<td>2017</td>
<td>24.225</td>
<td>280.900</td>
<td>474.402</td>
<td>193.503</td>
</tr>
<tr>
<td>funds of IBRD</td>
<td>24.225</td>
<td>24.403</td>
<td>24.403</td>
<td>–</td>
</tr>
<tr>
<td>funds of the State Road Agency of Ukraine</td>
<td>64.416</td>
<td>345.316</td>
<td>474.403</td>
<td>129.087</td>
</tr>
<tr>
<td>Total</td>
<td>64.416</td>
<td>345.316</td>
<td>474.403</td>
<td>129.087</td>
</tr>
</tbody>
</table>

Table 2

Characteristics of partial indicators of the research component index of information economy development

ISSN 2071-2227, E-ISSN 2223-2362, Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu, 2021, № 2
The actions and interaction of the components of the existing mechanism for co-financing investment projects for the construction, reconstruction, repair and maintenance of highways at the expense of IFI funds may be ineffective for the following reasons:

- the first is the long-term imbalance of public finance system, which is one of the preconditions for the devaluation of hryvnia and the deepening of economic crisis;
- the second consists in the imperfections of current national legislation on the competitive selection of contractors. In foreign practice, for example, the registration of unscrupulous contractors has been introduced. Under the European law, unscrupulous contractors are subject to restrictive measures concerning their participation in tenders for the next five years from the date of entry in the Register of Unscrupulous Contractors as well as full liability for late performance of contracts and undue termination of contracts;
- the third is represented by the imperfections of management system of the State Road Agency. Today, the State Agency is a vertically integrated holding company that, for itself, orders works, performs them and controls them. Thus, the Agency created Ukrainian Road Investments State Company, which belongs to its sphere of management, and annually procured from it services for the implementation of investment projects under the procedure of procurement from one participant. Therefore, there are many opportunities for abuse in such a scheme of activity, and the advantages of healthy competition a priori do not exist, because the latter is not created at all.

Given the above, we conclude that the existing mechanism of co-financing road development projects using MFI funds, unfortunately, was reduced to zero.

The world practice of road construction testifies to the success and efficiency of using concessions as a tool to attract private sector investments in the road sector. In Ukraine, the reasons for this are as follows:

- unfavorable investment climate in the country, a high level of dependence of the concessionaire on unstable and changing business conditions;
- the concession legislation lacking the necessary regulation of state guarantees, insurance and tax incentives for capital investments of the concessionaire and partnership risk sharing;
- low intensity of traffic flow;
- lack of price plans for the cost of travel per kilometer;
- low level of solvency of the population and its objective disinterest in toll motor roads;
- difficulties in creating an effective financial model of concession relations, and others.

Therefore, there is every reason to believe that the distinguishing feature of the Ukrainian concession is its perception by government agencies as a last resort in the issue of finding sources of capital investment — and this approach destroys the very essence of concession relations, which should be built on partnership principles.

Under the scheme of Ukrainian concession (Fig. 3), property created to fulfill the terms of concession agreement or received under the concession is the object of state ownership right, which is transferred to the concessionaire in possession and use for the term of agreement. The concession (State Road Agency of Ukraine), upon completion of the construction and commissioning of the facility is obliged to pay the concessionaire a fee for the operational readiness of road. In turn, the concessionaire is obliged (regardless of the results of economic activity) to pay the concession fees from the moment of receiving the income from the operation of motor road. In case of low

![Fig. 2. Scheme of the financial model of concession for the construction and operation of motor roads in Ukraine](image-url)
traffic, the Agency will reimburse part of the unearned income in the form of compensation in the amount not exceeding 15% of the income planned by the concessionaire for that year. Several conditions are enough to create competition and attract private investors: creating equal conditions for participation in and transparency of tenders, concluding long-term maintenance contracts for a period of 15–25 years so that investors have the opportunity to return the investment, guarantee of partner risk sharing at the expense of SFD funds and the division of operational maintenance into two types of services—permanent ones (cleaning, painting, and so on), which can be controlled according to the principle of OPRC (payment for the final result), and periodic ones, which include all types of repairs from medium to small ones [13, 14]. Thereupon, we can draw a general conclusion that the model (3) is qualitative and statistically significant, i.e., it can be used in the process of making management decisions to determine the value of investment projects. It is also worth noting that, since it is a case of an investment project for road construction, the model (3) includes only the variable $x_{1,3}$, and the variables $x_{2,1}$ and $x_{2,2}$ are equal to zero.

Taking into account the length, for example, of the Lviv-Krakow motor road, we found that the implementation of such a project requires 615 million euros (Table 5), i.e., 7.3 million euros per 1 km [11].

Thus, based on the results of the study on relationship between the cost of an investment project and the volume of works by their types, we proposed an economic and mathematical model for estimating the need for investment in projects for construction, reconstruction, repair and maintenance of public motor roads. The model, unlike the existing ones, is based on a lateral understanding of the clarity of division of capital needs by types of road construction. This will ensure making management decisions on investing in projects using model and information tools that will help obtain the most realistic

The average cost of construction of 1 km of motor roads in Ukraine during 2015–2018

<table>
<thead>
<tr>
<th>Road category</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$/km</td>
<td>€/km</td>
<td>$/km</td>
<td>€/km</td>
</tr>
<tr>
<td>I category</td>
<td>2.379</td>
<td>2.26</td>
<td>2.755</td>
<td>2.62</td>
</tr>
<tr>
<td>II category</td>
<td>1.237</td>
<td>1.18</td>
<td>1.432</td>
<td>1.36</td>
</tr>
<tr>
<td>III category</td>
<td>1.118</td>
<td>1.06</td>
<td>1.295</td>
<td>1.23</td>
</tr>
<tr>
<td>IV category</td>
<td>0.618</td>
<td>0.59</td>
<td>0.716</td>
<td>0.68</td>
</tr>
<tr>
<td>V category</td>
<td>0.150</td>
<td>0.14</td>
<td>0.174</td>
<td>0.17</td>
</tr>
</tbody>
</table>
vehicles are classified into four types depending on their technical characteristics, impact on road wear and environmental pollution.

Payments by the concessionaire in favor of the concessions may be made in the form of a fee for operational readiness [19]. The terms of concession agreement which provide for a fee for operational readiness may also provide for the payment of concession fees in case of exceedance of the actual indicators of demand and/or supply over the expected ones specified in the concession agreement [11].

The procedure for calculating the concession payment in particular in Ukraine is provided by the Methodology for Calculating Concession Payments approved by the Resolution of the Cabinet of Ministers of 04.02.2016 № 130 (as amended) (Cabinet of Ministers of Ukraine (2016). Methods of calculating concession payments: Resolution.), which schematically takes the following form (Fig. 4).

Taking into account its shortcomings identified over time, the methodological approach to calculating concession payment has been modified; now, it is based on the stakeholder approach for brown-field and green-field projects on motor road concessions, which, unlike the existing ones, being based on the variability of goals and scenarios of road development, provides for the formation, according to a normative approach, of a model of payment for the use of concession roads based on the distance of travel of a vehicle, its gross weight and the level of impact on the wear and deformation of road surface, on the road capacity and the road load factor. The introduction of proposed methodological approach to the calculation of concession fee will allow having a more realistic assessment of the payback period of road construction projects under public-private partnership in the form of concession.

Conclusions. Analyzing the effectiveness of organizational and economic mechanism for managing the investment activities of road sector, evaluating the efficacy of mechanism for co-financing investment projects under programs for construction, reconstruction, repair and maintenance of roads by international financial organizations as well as diagnosing the efficiency of investment of construction of public roads under public-private partnership in the form of concession allowed drawing the following conclusions:

1. It is stated that the road sector belongs to the strategic sectors of national economy and is an important component of the infrastructural potential of Ukraine. However, the development of motor road network and ensuring its quality, in accordance with international standards, requires significant financial resources incomparable with the capabilities of state budget. Therefore, financing relevant infrastructure projects under public-private partnership in the form of concession is the most attractive for Ukraine.

The sources and level of financial support for the repair and development of motor road network are analyzed. It has been established that in recent years, there has been a phenomenon of turbulence in the investment of projects for the construction and repair of public roads — a range of fluctuations and vortices of capital investment, which hinders the development of national transport system.

2. It is established that the construction of most roads in Ukraine is co-financed by the International Bank for Reconstruction and Development, the European Investment Bank and other international financial organizations, in particular, under the projects “Second Road Improvement and Road Safety Project”, “Road Industry Development Project” and “European Roads of Ukraine II” (“Improvement of Transport and Operational Condition of Motor Roads on the Approaches to Kyiv”). In total, at the stage of implementation in this sector of the economy, there are the above three projects, the total amount of loans for which is 1 billion 10 million US dollars and 900 million euros.

The inefficiency of road construction at the expense of international financial organizations has been proved, as evi-
The amount of concession payment rate is determined by the concession based on the results of concession tender taking into account the profitability indicator of the relevant field of economic activity in which the object is granted in concession and the amount of investment.

\[
C_p = I_e \times X\% + F_p
\]

\[
C_p = C_f \times X\% /n + I_e \times X\%
\]

\[
C_p = C_f \times X\% /n, \text{ where } C_f = C_0 \times I_e \times X_{\text{ar}} / I_{\text{am}} \times RV_{\text{fa}}
\]

Fig. 4. Scheme of the calculation of concession payment during the operation of a concession object in Ukraine:

1. \(I_e\) is net income from conducting concession activities for the relevant reporting period (quarter/year); \(X\%\) is the rate of concession payment, percent; \(F_p\) is the amount of fixed concession payment determined according to the results of concession tender; \(n\) is the reporting period (quarter (4)/year); \(C_f\) is the cost of the object granted in concession, adjusted for inflation index for the relevant period; \(C_0\) is the cost of the object granted in concession based on the results of its evaluation (revaluation) carried out in the manner prescribed by the legislation on property evaluation, property rights and professional evaluation activities; \(I,\) is the inflation index from the date of evaluation (revaluation) of the object granted in the concession until the moment of accrual of concession payment for the reporting period; \(I_{\text{ar}}\) is the arithmetic mean value of net income starting from the sale of services for the three years preceding the year of conclusion of concession agreement; \(RV_{\text{fa}}\) is the arithmetic mean value of residual value of fixed assets granted in concession for the three years preceding the year of conclusion of concession agreement.

2. It is substantiated that the key to avoiding the phenomenon of turbulence in the investment of road industry is to create real conditions for attracting private investment in the development of road infrastructure in Ukraine and for practical application of a mechanism for road construction and operation concessions. It is established that one of the determining factors influencing the decision to invest capital in the development of motor roads and transport infrastructure under terms of a concession is the size of concession payment as well as the availability of a system of tax incentives for concessionaires.

5. The methodological approach to calculating concession payment has been modified; now, it is based on the stakeholder approach for brown-field and green-field projects on motor road concessions, which, unlike the existing ones, being based on the variability of goals and scenarios of road development, provides for the formation, according to a nomothetic approach, of a model of payment for the use of concession roads based on the distance of travel of a vehicle, its gross weight and the level of impact on the wear and deformation of road surface, on the road capacity and the road load factor, which will allow having a more realistic assessment of the payback period of road construction projects under public–private partnership in the form of concession.

References.


Інвестування інфраструктурних проектів будівництва доріг за державно-приватного партнерства у формі концесії

О. В. Цімошинська1, Н. И. Коваль1, Г. А. Криціталь1, Л. М. Філіпішина2, А. В. Е. Арсаван3, В. В. Коваль4

1 – Межрегіональна Академія управління персоналом, м. Київ, Україна, e-mail: ovmichaiLENko@ukr.net
2 – Національний університет біоресурсів і природокористування України, м. Київ, Україна
3 – Балійська державна політехніка, Балі, Індонезія
4 – Одеський торгово-економічний інститут Київського національного торгово-економічного університету, г. Одеса, Україна

Мета. Обгрунтувати підхід до управління інвестиційною діяльністю розвитку дорожнього господарства України за дотримання принципу синкретизму й використання методики Quality Function Deployment, ускладнити методичний підхід до розрахунку концесійного платежу за brown-field- та green-field-проектами з концепції автодорог.

Методика. У ході дослідження використано сукупність загальнонаукових і спеціальних методів пізнання: метод Quality Function Deployment (QFD), інваріантний підхід, мультимодальний аналіз, декаплінг-індекс (Decoupling Index), декаплінг-фактор (Decoupling Factor), логічне узагальнення, кількісне та якісне порівняння, наукове абстрагування й система-

Результати. За результатами дослідження взаємозв’язок вартості інвестиційного проекту та обсягів робіт за їх видами нами запропонована економіко-математична модель оцінювання потреби в інвестиціях за проек­
ектами з будівництва, реконструкції, ремонту та утримання автомобільних дорог загального користування. Запропонована модель, на відміну від існуючих, заснована на латеральному осмисленні чіткості розмежування потреби в капіталі за видами робіт із розбудови доріг, що забезпечить прийняття управлінських рішень щодо інвестування проектів модельним і інформаційним ін- струментарієм, що сприятиме отриманню реалістично-го оцінювання потреби в капіталі, необхідному для по- кращення транспортно-експлуатаційного стану автодоро-гів в Україні.

Наукова новизна. Удосконалені орга-нізаційно-еко-номічний механізм управління інвестиційною діяль­ностю дорожнього господарства та оцінювання ефективнос- ті співфінансування інвестиційних проектів за програмами з будівництва, реконструкції, ремонту та утримання автодорог. Покращена діагностика ефективності інвестування будівництва автомобільних доріг загального користування на умовах державно-приватного партнерства у формі концесії.

Ключові слова: автомобільні дороги, інвестиції, управ-ління інвестиційною діяльністю, інфраструктурні проек-ти, державно-приватне партнерство

Инвестирование инфраструктурных проектов строительства дорог по государственному-частному партнерству в форме концессии

О. В. Цимошинская1, Н. И. Коваль1, Г. А. Крицаль1, Л. М. Филиппина2, А. В. Е. Арсаван3, В. В. Коваль4

1 – Межрегиональная Академия управления персоналом, г. Киев, Украина, e-mail: ovmichailenko@ukr.net
2 – Национальный университет биоресурсов и природопользования Украины, г. Киев, Украина
3 – Балийская государственная политехника, Бали, Индонезия
4 – Одеський торгово-экономический институт Киевского национального торгово-экономического университета, г. Одесса, Украина

Цель. Обосновать подход к управлению инвестиционной деятельностью развития дорожного хозяйства Украины в условиях синкретизма и использования методики Quality Function Deployment, усовершенствовать методический подход к расчету концессионного платежа за brown-field- и green-field-проектами по концепции автодорог.

Методика. В ходе исследования использованы совокупность общенаучных и специальных методов познавательного поиска. В работе использованы методы статистического анализа, методы экспертных оценок, методы системного подхода и др.
Результати. По результатам исследования взаємозв'язкі своєчасності витрат і зобов'язань виплат для розрахунку нормативних витрат нами предложена методика оцінки потребності в інвестиціях по проектам будівництва, реконструкції, ремонту та технічного обслуговування вантажних автомобілів.

Представлена модель, відрізняється від існуючих, на основі латерального ознайомлення з інтересами розширення потребності в капіталі по варіантам розрахунку витрат, на основі використання логічних методів оцінки, що значно збільшить точність розрахунку потребності в капіталі.

Наукова новизна. Усвідомлено організаційно-економічні механізми управління інвестиційною діяльністю дорожнього господарства і оцінки ефективності софінансування інвестиційних проектів на основі програм строїння, реконструкції, ремонту та технічного обслуговування вантажних автомобілів.

Практична значимість. Результати перевірки можуть бути використані в діяльності дорожнього господарства для розробки і реалізації інвестиційних проектів на основі програм розвитку дорожнього господарства.

Ключові слова: автомобільні дороги, інвестиції, управління інвестиційної діяльністю, інфраструктурні проекти, государство-частні підприємства.