

Regulatory and methodological innovations in the formation of construction costs in regard to overseas facilities with Russian funding

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Abstract. Determining the estimated construction cost of facilities outside the territory of the Russian Federation is one of the most complex issues in the construction pricing system. This paper is aimed at developing new mechanisms for calculating the estimated cost of overseas construction with account of capital construction projects peculiarities. This research is based on the analysis and generalization of the newly-changed principles of pricing in connection with the adoption of new regulatory legal acts in the urban planning sphere. The authors take into account their practical experience and best building industry practices in the field of pricing and develop an algorithm of price assessment for construction of objects erected abroad which is applicable both within the framework of the current system of pricing and estimated rationing in construction, and which can be used in case a new building legislation is introduced, as well as in the transition periods.

1. Introduction

Methodological support of construction pricing in regard to capital construction projects located outside the territory of the Russian Federation but financed from the Russian Federation budgeting system is to some respect adverse to the legislative processes regulating this issue, as well as to the established practice of calculating the estimated cost of foreign objects construction.

One of characteristic features of construction of objects outside the territory of the Russian Federation is their design and construction in accordance with intergovernmental agreements or contracts with foreign customers. These agreements and their separate contractual provisions establish unique financing rules for the construction of such objects and determine indirect factors affecting the construction costs.

Among existing methodological documents defining general approaches in this area, there is only one legitimate source entitled "The procedure for drafting cost estimate documentation for overseas facilities under construction with the participation of Russian organizations", introduced in 1993 [1]. The means and methods of pricing presented in this document are referred to the system which used to operate in the former Soviet Union. This system was based on fixed prices for construction products,



focused on maintaining a stable level of estimated cost and did not require clarification due to current changes in price factors.

The transition from a planned centralized system to modern approaches in building pricing, when prices for construction products are influenced by supply and demand, by changing price factors and investors financial capacity, by competition among contractors as well as the conditions of improving the construction pricing system in general, determines the need to change outdated methodological approaches and consolidate them in a new costing standard. It can be named the Methodology of determining the estimated construction costs of capital construction objects located outside the territory of the Russian Federation [4-8].

This paper presents new actual methods of determining the estimated construction costs of objects located outside the territory of the Russian Federation with Russian funding. The researchers take into account the specifics of foreign design and construction, as well as recently changed pricing principles and introduction of new regulatory legal acts into the sphere of town-planning.

2. Changes in regulatory and methodological documents and their analysis

The main objectives of the Methodology are to ensure the methodological unity of the formation of the estimated construction costs of foreign facilities financed with the involvement of the Russian Federation, the establishment of the procedure for determining the estimated cost, ensuring continuity and transparency of the pricing system and the development of uniform requirements for the forms, composition and content of cost estimate documentation for construction projects.

Here, the central idea is that the Methodology is developed with account of a newly introduced town planning legislation and its requirements to architectural design. It contains provisions which are in agreement with the changes added to the Town-planning code of the Russian Federation by the Ministry of Construction regarding regulation of pricing at the stage of architectural design. It also agrees with changes introduced into other normative legal acts regulating the procedure for formation estimated cost of construction and the methodology used when defining other costs considered in cost estimates which are being developed and actualized at the moment.

The changes introduced in 2019 by Federal Law No. 151-FZ concern methodological approaches to determining the estimated cost, as well as the procedure for using data on the estimated cost at the further stages of the investment and construction process [2]. The key changes here are those introduced into the conceptual framework which is used in the estimated construction pricing. The main change is the transformation of the definition of the estimated construction cost. The notion of "the estimated cost of construction , reconstruction, capital repairs, demolition of capital construction objects, works on preservation of cultural heritage objects" is now defined as "the calculated cost of construction, reconstruction, capital repairs, demolition of capital construction objects, works on preservation of cultural heritage objects" It is subject to determination at the stage of architectural and construction design and preparation of estimates for demolition of capital construction objects and application in accordance with Article 8.3 of Town-Planning Code of the Russian Federation (Part 30 of Article 1) [3]. Previously, it was defined as "the amount of money required for construction, reconstruction, capital repairs, demolition of capital construction objects, works on preservation of cultural heritage objects".

Article 8.3 of the Town-Planning Code of the Russian Federation is supplemented with provisions on the use of the result of the estimated cost calculations which go as follows: "The estimated cost of construction used when forming the initial (maximum) prices of contracts, the prices of contracts concluded with a single vendor (contractor, provider), the subject of which is the execution of works on construction, reconstruction, capital repairs, demolition of objects of capital construction, preservation of cultural heritage in accordance with the legislation of the Russian Federation on contract system in procurement of goods, works, services for state and municipal needs, the legislation of the Russian Federation on procurement of goods, works, services by separate types of legal entities, the formation of prices of other contracts, which are concluded by persons referred to in Part 2 of this article and providing for the execution of works on construction, reconstruction, capital repairs,

demolition of objects of capital construction, preservation of cultural heritage, on condition that the definition of estimated construction cost in the order prescribed in this part, in accordance with the Town-Planning Code of the Russian Federation is mandatory. At the same time, the estimated standards and estimated prices of construction resources used in determining the estimated cost of construction are not subject to application in the course of these contracts or agreements, unless otherwise provided by such a contract or such an agreement." Thus, the new legislation provides a clear distinction between the estimated and contract cost of construction and defines the boundaries of costing standards use. The corresponding synchronous changes were also introduced to 44-FZ (*Federal Law), which clearly divides the two cost estimates into cost estimates during the construction and cost estimates during the design phase. There is a direct ban on the use of pricing tools that are involved in calculating cost estimates at the design stage and cost estimates at the construction stage.

When developing methodical approaches to the definition of estimated cost of construction of the objects of capital construction located outside the territory of the Russian Federation, the authors took these innovations into account and made use only of methodical approaches to the definition of estimated cost at the stage of preparation of project documentation.

In addition to the measures aimed at the completion of construction in progress and commitments of the developer to the participants of shared construction specified by Federal Law № 151-FZ, the concept of "information model of a capital construction object" (Paragraph 1 of Article 5), as well as the basics of implementing and using information models in the preparation of materials of engineering surveys, project documentation, and also at carrying out expert examination of materials of engineering surveys and project documentation are enshrined at the statutory level. In accordance with Section 10.3 of Article 1 of the Town-Planning Code of the Russian Federation, information model of a capital construction object (hereafter referred to as "information model") is defined as a set of interrelated information, documents and materials about a capital construction object generated in electronic form on different stages of engineering studies, architectural design, construction, reconstruction, capital repair and operation and (or) demolition of a capital construction object). The provisions of the explanatory note to the draft amendments to the Town-Planning Code of the Russian Federation concerning the expected effect of the implementation of the life cycle management system of capital construction projects while using information modelling technology, also mention reductions in the cost of construction and operation of capital construction projects.

When developing this Methodology, the authors took account of this legal provision when forming provisions and included certain costs into the appropriate chapters of the consolidated estimate calculation of construction costs, to be more specific – into Chapter 12 as part of the cost of preparation of project documentation and engineering survey results.

This Methodology of determining the estimated construction costs of capital construction objects located outside the territory of the Russian Federation does not consider recent changes in the Town-Planning Code of the Russian Federation relating the placing of pricing in construction estimated costs of construction resources in Federal state information system are defined in accordance with Part 5 of Article 8.3, Federal information on unit pricing, including their individual components, to estimate norms, details of which are included in the Federal register of estimate standards after September 30, 2017, as well as the application rates specified in Paragraph 1 of this part, including their separate components, information about which is included into the Federal register of estimate standards, in order to determine the estimated cost of construction, reconstruction, capital repairs, demolition of objects of capital construction, works on preservation of objects of cultural heritage, financed with the help of budgetary system of the Russian Federation and the funds of persons referred to in Paragraph 1 of article 8.3 of the Town-Planning Code of the Russian Federation. This is done due to the fact that calculation of the specified estimated cost assumes the use of only an effective method due to the lack of indices of change of estimated cost for facilities located abroad.

For the purpose of making provisions for the determination of the estimated cost of construction resources before placing estimated prices of construction resources (defined in accordance with Part 5

of Article 8.3 of the Town-Planning Code of the Russian Federation) in the Federal state information system of pricing in construction the authors implemented the provisions of the Methodology of calculation of indices of changes in construction estimated cost, approved by the Order of the Russian Ministry of Construction (05.06.2019 No. 326).

The development of approaches to determining the estimated cost of other and limited expenses included in the estimated construction cost was carried out with account of the provisions of the draft Methodology for determining the estimated cost of construction (reconstruction, capital repairs) of capital construction facilities in the Russian Federation and other draft methodologies for determining these costs, posted on the website <https://regulation.gov.ru/>.

Thus, the methodological approaches introduced in this paper are formulated in accordance with the provisions of related legal acts and guidelines developed and actualized by the Ministry of Construction in the framework of its planned activities for improving the system of pricing and costing standardization in construction.

3. Development of methodological approaches to determining the estimated construction costs of capital construction facilities located outside the territory of the Russian Federation

Based on the study conducted by the Ministry of Construction of Russia, on legislative changes to normative legal acts regulating the procedure of formation estimated cost of construction, on the developed provisions and already existing methods (see Section 2 of this paper), as well as on the analysis of domestic and foreign experience of construction industry, on documents in the sphere of foreign estimated pricing and foreign methods of determining the estimated cost and existing foreign standards (for elemental and aggregated figures), the authors propose a methodology which take into account the following set of methodological provisions.

The estimated cost is determined exclusively by the resource method at the current price level formed on a certain date which is specified by the customer. Thus, the Methodology does not provide for the formation of the construction cost by the basis-index method, by the use and application of cost conversion indices, as well as by the system of unit prices and their components in the basic price level.

The estimated cost is calculated while using Russian estimate standards included into the Federal register of estimate standards, posted on the website of the Ministry of Construction of the Russian Federation, and also foreign standards (if any) and indices used in determining the construction cost on the territory of the country with the construction underway, third countries and (or) the communities of the countries placed (published) in open sources and (or) available for viewing (purchase) without charge and (or) paid basis, on condition that the sources of information are agreed upon with the customer.

One of the Methodology main innovations consists in determining the estimated cost (in the absence of Russian estimated standards, foreign standards and indicators) while using information on the prices of identical works, services and construction resources. In their absence it is possible to use information of homogeneous works, services and construction resources.

The study of construction peculiarities outside the territory of the Russian Federation with regard to their resource supply, assessment of possible schemes of the organization of delivery of material and technical resources, conditions for attracting labour resources made it possible to formulate methodological approaches to the determination of the cost of construction resources, which largely adopt the methods used for determination of the construction costs of capital construction objects on the territory of the Russian Federation. These methodological approaches also take account of the peculiarities of construction abroad and the local sources of construction resources and their supply.

The formation of the estimated prices for the cost of labour of Russian workers on the basis of the average monthly wage, established by Federal executive authorities, Federal agencies and services organizations, the scope of which is construction activity of certain foreign objects, makes it possible to generate the level of payment corresponding to that already existing in the industry, and takes into account guarantees and compensations related to the conditions of stay in the country of construction

during the construction period. Estimated prices for labour costs of foreign workers are determined depending on their qualifications on the basis of information provided by the customer, or on the basis of calculation according to statistical data of authorized state bodies or non-governmental organizations of the country of construction, as well as on the basis of other open official sources of information. This differentiation of methods provides flexible approaches to labour expense. At the same time, the ways of determining these costs depending on the location of labour resources are also differentiated (Figure 1).

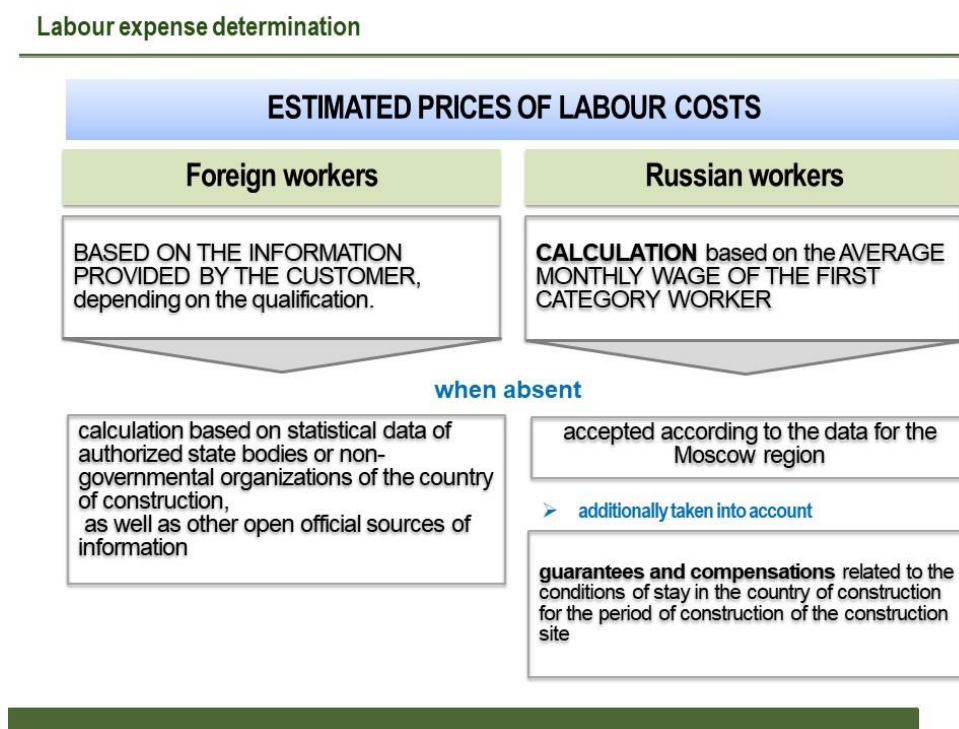


Figure 1. Methodological approaches to the formation of estimated prices for labour costs

The estimated costs for operation of machines and mechanisms are determined on the basis of economic analysis of rent (leasing) prices of machines and mechanisms. If there is no data available, it can be calculated in accordance with the existing costing standards. The costs associated with material resources are also determined with regard to their location, either with a normative method or by calculations. In addition, their estimated cost includes the costs of duties, taxes, fees and other customs costs for transportation across the border, the costs of insurance of goods in transit and other costs (licensing, certification, etc.), defined by the legislation of the Russian Federation, the country of construction and third countries (when crossing their borders), as well as costs at ports of departure, ports of destination and railway stations, including costs associated with loading, unloading and storage. The proposed methodological approaches allow taking into account all the costs attributed to the cost of construction resources, with account of logistics peculiarities in the country of construction, third countries and conditions of construction machinery and material resources delivery.

The main methodological approaches to the formation of estimated prices of technical and material resources are presented in Figures 2 and 3 (Figures 2 and 3).

The provisions of the Methodology contain the possibility of taking into account industry peculiarities and other construction characteristics in determining the estimated cost of construction. E.g., the Methodology specifies that in cases provided for by regulatory legal acts of the Russian Federation, the legislation of the country of construction and when justified by the project

documentation, the consolidated costing might include costs connected with specific construction characteristics.

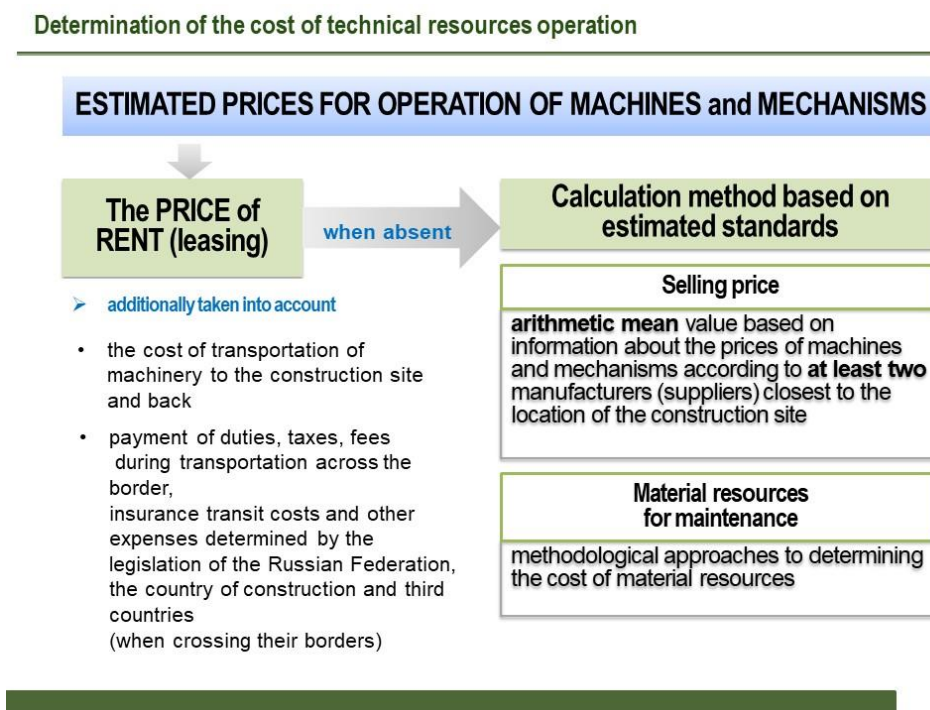


Figure 2. Methodological approaches to the formation of estimated prices for technical resources.

The approaches to estimated costs calculation developed in the Methodology take into account most peculiarities of the formation of limited and other expenses for facilities located outside the territory of the Russian Federation as compared to the expenses for facilities built in the territory of the Russian Federation. The list of such specific expenses is greatly expanded and includes, for example, additional costs when working conditions are hot (tropical) climate, the cost of special test equipment and components shipped to the construction site, the costs associated with certification and expertise of the work, services, and construction resources in accordance with the legislation of the country of construction and (or) special contract requirements including the cost of attracting life sciences organizations, the cost of Russian experts and experts from third countries registration in the country of construction, the issue of visas and work allowance, the cost of training of Russian specialists, the specialist of construction and professionals of third countries, the cost of medical service of Russian experts, specialists and construction professionals of third countries and others.

The specifics of the expenses included in Chapter 8 is the refusal of application of average standards established on the territory of the Russian Federation and calculation of expenses for construction and dismantling of temporary buildings and constructions only on the basis of data given in the project documentation.

In determining the cost of maintaining the customer service there is a specification which concerns the expenses for costs of young specialists of the country of construction, employed in a customer service; expenses for specialist's children education and other costs determined by regulatory legal acts of the Russian Federation, the country of construction or intergovernmental agreements.

In the process of developing the costing forms, the authors designed samples adapted to the conditions and requirements of the resource method of determining the estimated cost, used in practice. These samples give an idea of the cost structure for each type of work and for the complex of

works. This development will significantly simplify the further use of costing documentation in the formation of contract prices and calculations for work done.

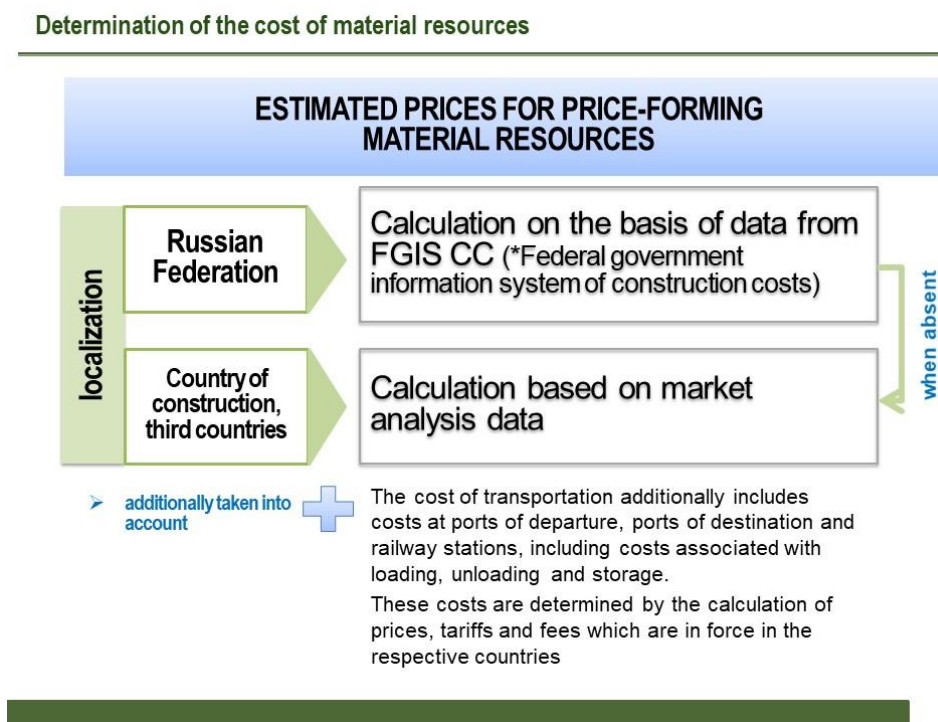


Figure 3. Methodological approaches to the formation of estimated prices for material resources.

For the purpose of formation of actual and modern approaches to calculations of construction costs of overseas objects, the authors considered all offers, remarks, wishes of the third parties coming from specialists interested in the development of this Methodology and from the experts participating in the development of the connected normative legal acts, and from the Federal Executive authorities and experts. The access was provided by the publication of the draft methodology freely accessible on the Internet on the website <https://regulation.gov.ru/>

For a comprehensive review of current and projected issues of foreign capital construction, a working group was formed under the Ministry of Construction of Russia. The group included representatives of the Presidential administration, the Ministry of Construction of Russia, the Ministry of Foreign Affairs, Rosneft, Rosatom, Gazprom and other representatives of the construction community.

Joint effective work of the working group members and the authors of the Methodology made it possible to work out proper mechanisms of price formation for the construction of objects erected abroad. It was done in the framework of the existing system of pricing and costing standardization in construction and also with account of its updated version, as well as during the transition period.

4. Conclusions

This paper presents the authors' Methodology for determining the estimated cost of capital construction facilities located outside the territory of the Russian Federation with the involvement of Russian funding.

The results are obtained by the authors on the basis of a comprehensive analysis of regulatory legal documents, legislative innovations in the field of construction pricing, analysis of domestic and foreign experiences, as well as on the researchers practical experience and the identified problems of

specific costs formation which are characteristic for the calculation of the construction estimated costs of overseas facilities.

The scope of research results application involves the use of methodical provisions while calculating the estimated cost of capital construction objects located abroad, financed with attraction of means of budgets of budgetary system of the Russian Federation, funds of legal entities established by the Russian Federation, constituent entities of the Russian Federation, municipalities, legal entities whose share in the authorized (share) capital of the Russian Federation or the subjects of the Russian Federation or municipal formations is more than 50 percent.

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