

A rationale for choosing the mechanism of public-private partnership for the sustainable development of social infrastructure facilities

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Abstract. Using the mechanism of public-private partnership (PPP) is an effective way to attract investment for the modernization of urban infrastructure in the face of budget shortfalls, which is especially important for the sustainable development of the social infrastructure of the territories. The aim of the study is to analyze the models of public-private partnership (PPP) and substantiate the choice of the model to ensure sustainable development of the social sphere. The life-cycle cost (LLC) model is represented as the most effective one for realizing municipal facilities development projects.

1 Introduction

In modern conditions, the development and implementation of regional and municipal development projects requires the formation of mechanisms for the integration of public and private financial resources, partnership between the state and business in these areas, giving a certain organizational and legal form to these relations, as well as their institutionalization. Effective use of public-private partnership mechanisms will help to relieve the burden on the state budget, while increasing the quality of social infrastructure.

Thus, the relevance of the research topic is due to the fact that at this stage in the Russian Federation, the mechanisms of public-private partnership are insufficiently developed and enshrined in law and are mainly used in the construction of transport and business infrastructure, while social infrastructure is mostly ignored by private investors. And as a result, this fact hinders the full functioning of social infrastructure facilities at both Federal and regional and local levels. Using the mechanism of public-private partnership (PPP) is an effective way to attract investment for the modernization of urban infrastructure in the face of budget shortfalls, which is especially important for the sustainable development of the social infrastructure of the territories.

Public-private partnership is a complex legal institution representing the legally fixed form of interaction between the state and the private sector concerning objects of the state-owned and municipal property, as well as the services performed and rendered by the state and municipal authorities, organizations and the enterprises for the purpose of implementation of socially significant projects in a wide range of types of economic activity

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Despite the fact that the first mention of public-private partnership in the world belong to the V century BC, the most significant development of concession in pre-revolutionary Russia received in the late XIX century. Concession agreements were concluded at the all-Russian level and concerned mostly in the raw material sectors of the economy (coal, oil, precious metals, timber, etc.), and at the provincial (regional) – in the spheres of urban economy and public services. They played a vital role in the development of the economy of pre-revolutionary Russia. The development of social infrastructure at the expense of private capital was quite popular in the Soviet times, when enterprises assumed the functions of the state and at their own expense built and financed kindergartens, sanatoriums, tourist centres, children's camps, as well as built highways outside the enterprises. The use of concessions as a form of PPP is relevant for modern Russia, and now we can expect to receive positive results from the use of this tool. Since the mid-1990s, before the adoption of the Law "On concession agreements" No. 115-FZ dated 21.07.2005 [2], PPP projects in the field of utilities, pipeline systems, electrical power facilities etc. began to be realized, while major projects were implemented in the framework of the model of BOOT (build – own – operate – transfer). However, the adoption of this law was the basis for the formation of the regulatory framework for the use of PPP mechanisms in the development and implementation of major transport projects. And by 2008 some of the most pressing problems of PPP application have been solved at the legislative level, namely: coordination of budget and civil legislation, the use of the Investment Fund, adopted such important for the development of PPP documents as: Decree of the Government of the Russian Federation dated March 1, 2008 №134 "On approval of rules for the formation and use of budgetary allocations of the Investment Fund of the Russian Federation" [3,4,5].

At the same time, there has been an increase in state control over compliance with budgets, the timing and quality of the development and implementation of projects, the targeted nature and efficiency of the use of budget funds. All this has created a positive basis for the use of PPP mechanisms in major transport and infrastructure projects.

2 Methodology

Analysis of literature on the formation and implementation of PPP mechanism [6-11] allows to formulate the features of PPP, namely:

- PPP parties are the state and private business;
- interaction of the parties in PPP is fixed on the official, legal basis (agreements, contracts, etc.);
- the interaction of these parties has the partnership, equal in nature (i.e. must be observed parity and the balance of mutual interests);
- PPP has a public, social orientation (its main goal is to satisfy the public interest);
- in the process of implementing projects on a PPP basis assets (resources and inputs) of the parties have to be combined;
- financial risks and costs, as well as the results achieved in the framework of the public-private partnership project, are distributed among the parties in proportions according to mutual agreements, contracts, etc.

On the basis of the selected features, we can say that PPP is, on the one hand, the principle of interaction between the state and business, and, on the other – a form of such interaction. If we consider PPP as a principle, its content consists in coordination and consideration of mutual interests, in the system of concessions and preferences, which makes it possible to achieve individual and often contradictory goals of the partnership participants. PPP as a form involves the existence of specific mechanisms of interaction between the state and

business, it primarily refers to the legal forms (various contracts provided by the state to the private sector; lease; financial lease (leasing); public – private enterprises; production sharing agreements; concession contracts).

PPP projects are of importance at the local government level. The share of cities and settlements is the main burden on the implementation of many projects of social importance – support in the proper condition of road and transport facilities, social infrastructure, water management and environmental protection, housing, water treatment facilities, energy and gas supply, etc. Therefore, at the level of local government involvement of private capital to address pressing socio - economic problems has become common practice. The spectrum of possible models and the depth of the partnership is very diverse. Characteristic of the main forms of PPP is presented in table. 1.

Table 1. Main forms of PPP.

PPP form	Description
Design/ Build and transfer	The private partner carries out the design and/or construction / reconstruction of the object, which is transferred to the ownership of the public partner for a fee.
BTO	The private partner carries out construction / reconstruction of the object, transfers the object to the ownership of the public partner, carries out the operation of the object and receives income from operation.
BOT DBOT	The private partner performs design and/or construction / reconstruction of the object, carries out operation of the object and receives income from operation, and then transfers the object to the ownership of the partner.
BOO DBOO	The private partner carries out design and/or construction / reconstruction of the object, carries out operation of the object within the term agreed with the public partner and receives the income from operation.
BOL DBOLT DBOL DBOLT	The private partner carries out design and/or construction / reconstruction of the object and leases it to the public partner (with the right of redemption).
BOOT DBOOT	The private partner carries out design and/or construction / reconstruction of the object, carries out operation of the object within the period agreed with the public partner and receives the income from operation, and then transfers the object to the property of the public partner.
Operation and maintenance	The private partner carries out the operation of the facility within the period agreed with the public partner and receives income from operation, the ownership of the facility remains with the public partner.
LABV (Joint venture)	Public and private partners create a joint venture (usually in the form of a company with a target legal capacity), which performs the PPP project. Public and private partners receive income from the invested capital.
DBFO / PFI (life-cycle costing concept)	The private partner carries out the construction of the facility, financing activities, and operation of the facility according to the quality standards agreed with the public partner, and the public partner pays the private partner remuneration.

However, in the development of social infrastructure in the Russian Federation the following models of public-private partnership are used: lease agreement, concession agreement and state contract [12].

1. Lease agreement. The lease agreement can be implemented in the traditional form and in the form of leasing. The peculiarity of the lease relations between the authorities and private business is that, under certain conditions, the private partner receives state or municipal property for temporary use and for a fee. Traditional lease agreements provide for the return of the subject matter of the lease, with the right to dispose of the property retained by the owner and is not transferred to a private partner. In specified cases, the lease relationship may result in the redemption of the leased property. In the case of a lease agreement, the lessee shall always have the right to redeem the state or municipal property.

2. BTO-type concession agreement. In [2] it is stated that after construction the object of infrastructure should be transferred to the ownership of the state, which according to the international classification belongs to the BTO mechanism (build – transfer – operate). After the conclusion of the concession agreement between the public and private partners, financing is attracted under the security of the object, after the completion of construction, the object becomes the property of the state, but the operation of the infrastructure object is made by the concessionaire, that is, the object is transferred to trust management. The concessionaire executes the state order for the entire period specified in the contract, after which the state begins operating the facility independently.

It is necessary to distinguish several characteristic features of concession:

- the subject of concession is always the state (municipal) property, as well as the monopoly activities of the state or municipal formation;
- one of the subjects of the concession agreement is the state or municipality (represented by the relevant Executive authorities);
- the purpose of the concession is to meet the public needs and demands;
- concessions always have a contractual basis (concession agreement);
- the concession is based on the repayment of the subject matter of the agreement, which is provided to the private partner for a fee determined in the agreement.

3. State contract. A public contract is the simplest way of public-private partnership. In administrative contractual relations, ownership rights are not transferred to the private partner, costs and risks are entirely borne by the state. The interest of the private partner is that under the contract it is entitled to a specified share in the income, profit or collected payments. As a rule, contracts with a state or municipal authority is a very attractive business for a private entrepreneur, because in addition to prestige, they guarantee a stable market and income, as well as possible benefits and preferences. Public and private partners enter into a contract under which the private partner is obliged to perform the necessary amount of work, and the public partner is obliged to pay the amount specified in the contract immediately or lump sum payments within a certain period. Regulated by the Law "on placing orders for the supply of goods, works, services for state and municipal needs" №94-FZ of 21.07.2005 [13].

The main feature of the mechanisms of PPP is that one of the parties is the power subject-public law education, which is guided by the interests of the public good, the need to satisfy public demands. The other party to the contract is the entrepreneur who enters a contractual relationship for profit. Another characteristic feature – the subject of the contract are the objects of public property.

Considering the PPP model in the development of social infrastructure, it can be noted that in the case of contracts, lease and contract agreements, the state or municipal entity acts as subjects of civil law and for their effective activity the rules of the Civil code of the Russian Federation are sufficient [14], in the framework of concession, the state is primarily a public authority. In this capacity, it not only confers on the Contracting parties part of its powers as owner, but also delegates to them part of its powers (exclusive sovereign rights).

3 Results

The life-cycle costing (LCC) is a fundamentally new PPP scheme, which has been very popular in Europe in recent years. Especially effective is the use of LCC in transport construction – in the construction of Railways and highways [15,16]. The main feature of the scheme is that the contractor builds a line for their own funds, and the state begins to pay him only from the moment of commissioning, but throughout the "life" of the object – up to 40 years. This contributes to the development of long-term, fruitful and trusting relations between the state customer and the business, which leads to a significant reduction in costs for both sides.

Therefore, LCC is defined as the contractual form of PPP whereby the public partner on the basis of competition concludes with the private partner the agreement for the design, construction and operation of the facility for a period in the life cycle of the object and performs payment for the project in equal shares after object has been put into operation.

Thus, it is possible to formulate the main characteristics of LCC distinguishing this type of contracts from other contractual arrangements of PPP applicable in the Russian Federation:

- this contract covers all three stages of the facility development project – building, construction, operation;
- the private partner for the LCC independently accepts all design and technical decisions necessary for the implementation of the project and bears all technical risks and risks of design decisions.
- initially, the attraction of funding to the project is carried out by a private partner represented by a special design company;
- the state partner makes payments on the project only from the moment of the beginning of operation of the facility;
- payment for the project is an annual (or quarterly) "service fee" and depends only on the performance of the functional requirements of the contract. In case of non-performance, the special design company is subject to penalties stipulated in the contract;
- the LCC does not include operating issues, i.e. the collection of fees for the use of the infrastructure facility. Payments for the service, which is carried out by the state, are tied only to the quality of the object;
- ownership rights to the infrastructure object may arise both for public and private parties depending on the specifics of a particular project;
- payments for services from the state partner must be guaranteed for the entire period of the contract.

The use of LCC provides an effective distribution of risks between the customer and the contractor, allows you to apply a service-oriented approach to management [17] and covers the entire life cycle of the object and combines the design, construction and operation of the object into a single complex, which allows the state to save up to 30–40% of the budget. Citizens, in turn, receive a quality social infrastructure object in the shortest possible time.

The most important advantage of the LCC scheme for the state is not so much the use of deferred payments (the customer begins to pay only after the commissioning of the facility), but, first of all, the correct motivation for the contractor, which is aimed at:

- quick commissioning of the facility;
- high-quality work performed (in the case of a serious failure, the entire burden on the repair of the object will fall on the contractor);
- use of innovations and high technologies, allowing to save on object construction.

The main advantages of LCC for the state are also:

- reducing the cost of the object and its maintenance by 30–40% by combining all the costs of the object in a single complex;

- transfer of technological and design risks to the contractor;
- easing the burden on the budget.

The main advantages for the state and business from the introduction of the LCC concept are the following:

The advantages of the public partner.

1. Public utility. The basis of LCC is based on the principle of social utility of created or reconstructed object. A distinctive feature of the LCC from other PPP mechanisms is the fact that in the LCC the state party needs a certain socially useful service, which is supposed to be provided with the use of the LCC object. This is due to the main advantage of LCC for the state, as a private partner, in fact, helps the state in the implementation of public, socially significant functions. In particular, this advantage is manifested by the example of infrastructure facilities (roads, bridges, ports, airfields): the operation of a large number of such facilities is not economically justified and does not allow in a reasonable time to return the investment invested in the creation of the object. At the same time, the creation of such facilities can play a significant social role in ensuring the transport accessibility of settlements, regions with high passenger and cargo potential or poorly developed infrastructure.

2. Minimization of risks of poor design. Another advantage of LCC is the fact that the state party does not carry out the development of design estimates for the project-this applies to the obligations of the private partner. In fact, the state shifts all design, construction and operational risks to the private partner. The state itself only determines the main technical and functional parameters of the LCC facility and monitors their compliance at the operational stage. Such functional indicators can be defined the capacity of the airport or the railway, the maximum number of road accidents on the motorway etc.

3. The absence of a gap in the responsibility of the private partner for design and construction. In accordance with the traditional scheme of the state contract, the contractor is selected separately for the development of design estimates and, on the basis of a separate tender, for the construction of the facility. In contrast to the state contract, a single tender for the design, construction and operation of the facility is held at the conclusion of the LCC. Accordingly, the private partner is motivated to perform high-quality design, as he is responsible for all three stages (design, construction, operation). Thus, the risk of rupture of responsibility for design and construction is virtually eliminated in the framework of the LCC.

4. Payment under the contract only if the object is maintained in accordance with the functional parameters. Due to the fact that the subject of the LCC is responsible not only for the design, construction or reconstruction of the property, but also the maintenance of its functional characteristics, the state partner makes payments on the project only from the beginning of the operation of the object. In this case, the amount of payment may be reduced if the private partner does not comply with the functional requirements and parameters. This design is extremely beneficial for the state partner, as it does not bear the financial risks of improper operation of the facility.

5. Payment under the contract "in installments". One of the significant advantages of a public partner in the use of the LCC scheme, unlike, for example, traditional public procurement, is also that the state does not need to immediately reserve a significant amount in the budget for the construction of an infrastructure facility, since the payment occurs from the moment of commissioning of the facility and is divided into smaller tranches paid in the established time periods.

However, the main advantage of LCC over the state contract is that after the commissioning of the infrastructure facility created by LCC, the burden of maintaining the facility in full lies on the private partner. Unlike the LCC expenditure and the cost of the repair and maintenance of the facility created under the state order, depends on how well

contractors are implementing state contracts carried out work on the design and construction of the facility, and the burden of maintenance of the site rests with the state.

Advantages of a private partner.

1. The possibility of obtaining from the state a large contract for building–construction–operation. The life cycle contract is beneficial for the private partner, as it allows him / her to perform the design, construction and operation of the facility on the basis of a single tender, receiving guaranteed payments from the budget after its commissioning (if the contract conditions are fulfilled).

2. Freedom in the choice of design and technical solutions. Since the LCC scheme assumes that the private partner independently develops design and estimate documentation, he is free to choose his design technical solutions and independently develops a methodology for achieving the functional indicators defined in the LCC.

3. The possibility of attracting funding on favorable terms. The availability of financial obligations of the state on the LCC allows a private partner to raise borrowed funds to finance the project on more favorable terms.

4. Lack of demand risk. The main advantage of LCC for the private partner is that it does not bear the risk of demand for the service provided. The operator of a LCC facility is a public partner or its designated operator company. The state receives all revenues from the operation of the facility. The private partner has an obligation to ensure the proper quality of the object and to comply with the functional requirements of the object. In this case, it receives the fee for the service provided by LCC in full, without collecting income from the end users of the service provided. The lack of necessity and obligation of exploitation of the object of LCC leads to such positive effect for the private partner as the simplification of its functional structure.

5. The possibility of reducing the cost of construction and operation due to high-quality design and the use of advanced technologies. Since, as noted, the private partner is selected for all three stages of the project implementation on the basis of a single tender, he has the right to offer his high-quality design solutions that will optimize the process of construction and operation of the facility.

4 Discussion

Despite the fact that at the moment there are no fundamental restrictions on the implementation of LCC in Russian legislation, moreover, two or more private entities can implement LCC on the basis of the norms of civil legislation, this mechanism is not fully used as one of the main socio-economic mechanisms that ensure the sustainable development of social infrastructure.

Thus, the transition to the use of life cycle cost contracts for the population will have a positive effect in improving the quality of infrastructure and, accordingly, improving the quality of service.

Among other things, LCC stimulates engineering and innovation initiative, as a private company to maximize profits, it is necessary to reduce costs, subject to constant payments from the state.

Thus:

- the contractor is interested in rapid construction: the sooner he finishes the construction of the object, the faster he / she will start receiving money;
- the contractor seeks to optimize the price / quality ratio: if he will build poorly, he will have to spend more on repairs;
- by removing the pressure from the contractor building codes, the state customer stimulates the introduction of new technologies that reduce the cost of construction and / or increase the durability of the object;

- correct formulation of the terms of the life cycle cost contract allows to carry out planned activities on the maintenance of the facility as painlessly as possible for users (for example, to repair roads – at night); for this you just have to fine the performers for the lack of access to the object at the set time.

5 Conclusion

The experience of developed countries shows that the partnership between the state and business has always been in the field of special attention of the authorities. The problems of improving the management of state property and the possibility of attracting private capital to the implementation of public interests and public initiatives required regular conceptual study. The partnership did not develop spontaneously, but was included in the General processes of financial decentralization of public power, the transfer of a number of state powers from the Central level to the local level, partial privatization of some state functions.

Thus, the use of PPP, as well as life-cycle contracts as one of the mechanisms of public-private partnership, can contribute to the sustainable development of social infrastructure, which in turn can accordingly improve the living standards of the population.

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