The Efficacy of Public-Private Partnership Implementation in Infrastructure Improving

UDC: 338.49:336.13

Slađana Benković[1]
[1]*Faculty of Organizational Sciences, Belgrade*

Public-private partnership is a concept that evolves. From the rudimentary partnership which is characterized by a high level of informality, a public-private partnerships have turned into a contractual relationship institutionalized by public and private sectors and now include a wide range of organizational models. Some of them can be said to include significant public and private responsibilities related to planning, financing and implementation. So far a great variety of new models of public-private partnershiphave been developed to address the various challenges, that are set before the public-private partnerships in specific situations and sectors. Consequently, the synergy created within the partnership can be extended to specific niches of infrastructural development. Models of public-private partnerships differ depending upon the participation of private capital in the project realisation and those related to infrastructural projects will be the subject of this paper.

1. Introduction

Applying project financing as a modality of financing has in the past decades become an attractive method of financing, construction and maintenance of the public sector infrastructure, as well as of building industrial facilities. A Long-term business association between the private sector and public institutions aims to make use of the available private sector managerial and financial resources that often are a significant constraint from the point of view of the Government or local autonomies. The organizational structure of such a partnership is a formal system of obligations defining individual positions of entities and their reciprocal liabilities. This results into a distribution of responsibilities related to supplying the necessary resources, risk allocation among entities and, finally, the execution of the project for the purpose of meeting the needs of the public sector.

Synonyms for the notion defined by the contract bond between the public and the private sectors differ from one part of the world to another. They all have their roots in the English language. Thus we often find terms such as: [10]

- Private Participation in Infrastructure imposed by the World Bank experts, and rarely used outside the financial-developmental sector except in South Corean project financing programmes.
- Private-Sector Participation, a term most often used in the development and banking sector.
- Privately Financed Projects, a term most often used by Australian experts, hence it is encountered chiefly in that area.
- Private Finance Initiative, a term coming from Great Britain and now frequently used in Japan and Malaysia.
- Public-private Partnership (PPP or P3), a term characteristic of the United States of America region. Originally it was related to mutual public-private funds meant for the development of education, extended to cover the financing of public utilities in the 1950s as well. Since 1960s it has been broadly used and is now also used to denote public-private partnerships in the reconstruction and improving of urban areas.

Public-private partnership can be defined in both broad and strict senses. Strictly speaking, the central idea of partnership is in cooperation, where the partners retain independent identities, but cooperate in achieving mutual business goals and results. [7] The term is so popular that it is often used incorrectly and denotes even those types of relationship that are far from being collaborational. Commercial relationships between public agencies and private contractors, for example, can hardly be termed partnership. [7] Hence the strict definition of partnership means that infrastructure projects of the public-private partnership type need not by nature be partnerships.

The broader definition, at the same time, includes not only mutual, but also complementary goals of interest parties in the project or programme, thus profiling the partnership relations. Thus a concession for the highway construction and management has different goals and meaning for the private sector in comparison with that of the public one. While the Government or a local autonomy are concerned with an acceleration of economic growth, the quality of services delivered and as

low a road toll as possible, the private investors are exclusively interested in financial goals, i.e., the profitability of the project. Not only do these goals fail to be mutual, but they are even adverse to some extent. Nevertheless, if the public sector is not capable of ensuring the capital to finance the highway construction, it is possible, from the aspect of the social community, to find a certain complementarity of interest for such a partnership and denote this relationship as partnership.

All definitions of public-private partnership share some mutual features such as: (1) public-private partnership is always related to the cooperation of two or more entities (of which at least one is a public entity); (2) each entity is a principal; (3) the relationship is of a long-term character, stable and based on mutual or complementary interests; (4) the entities transfer tangible and intangible resources to the partnership; and (5) risk and liability are distributed to all the participants in the partnership. [1]

2. Public-private partnership structure and implementation

The idea that private companies should be included into the realization of traditionally public infrastructure projects resulted in the emergence of public-private partnership. As a model of financing, public-private partnership is most frequently applied in financing capital projects of common concern such as: highways and motorway facilities (bridges, tunnels) where it is possible to charge the toll for exploitation, railways, ports, airports, gaspipes, refineries, electric power plants, social infrastructure (hospitals, schools, prisons, various-purpose social facilities for certain categories of population), communal infrastructure (water supply network, waste water disposal, waste disposal) and facilities used by government institutions and other specialized service sectors. [11]

Since the major motive of private entiries to participate in the infrastructure projects realization is an adequate financial return rate, proportional to what can be earned by investing into alternative projects of similar risk, the structure of the partnership between the public and the private capitals is formed in such a manner that it ensures and adequate return rate. Consequently, the partnerships between the state and the private capital can be described as joint ventures in which entrepreneurs and the state cooperate, jointly contributing to a faster and more efficient infrastructure project realization. [2] According to Miller and Lesard (2003), the private share in the total investment into infrastructure towards the end of the last millenium varied from 9 and 13 per cent in Germany and France, to 47 and 71 per cent in the USA and Great Britain, respectively. [9]

The partnership between the public and private sectors is an agreement between a state and a private subject(s) where the private partner is entitled to perform certain operations in the project realization (design and planning, construction works, financing, managing and maintenance, collecting receivables). Such a type of contract is meant to earn the benefits such as the opportunity for the private sector to ensure more favourable options of long-term financing and the insurance of such financing in a much faster and more flexible manner. The public-private partnership contracts are concluded on a long-term basis, for a space of time of 25 to 30 years.

According to Finerty (2007), a typical financial contract concluded on the public-private financing concept has the following characteristics: [5]

- The contract defines the obligation of the financially liable party to complete the project and, for that purpose, to provide all the funds necessary to complete the project successfully;
- On completion of the project, i.e., since the moment its exploitation begins, the financially liable party is obliged to ensure that the built facility works. Thus it will generate sufficient cash to cover the operational costs of the project as well as service the debts it incurred during the construction. The expected cash equivalents should siffice to meet the due expenses even in case the project fails due to force majeure, or any other similar reasons;
- The guarantees that in case the works are stopped and additional capital necessary to put the project into operation needs to be raised, the financially liable parties shall provide the capital through insurance premia, advance payments for future delivery or in any other way.

Defining an adequate structure of public-private finance is a complex task, since it is necessary to bring into accord and adjust the goals of a large number of participants simultaneously. Among the private sector ones these are usually investors, lenders, companies involved in the construction of the facility or provision of a certain operation service. On the part of the public sector there are usually the government institutions that create and implement various policies of public-private partnership. Finally, there is the public, that is, the future consumers of the facilities built through the public-private partnership.

The public sector is assumed in many countries to be in charge of delivering the basic types of services. The manner of creating and delivering services, however, changes. The needs and desires of the public sector to cooperate and make use of the advantages of the pri-

vate sector are increasingly evident, hence an ever greater number of contracts on joint operations of the public and private entities for the purpose of mobilzation of the capacities and the financial means of the private sector. The forms of these partnerships differ, however, new structures emerge continually to meet the conditions of the environment in which the project is being developed in the best possible manner. This means that partnership is a dynamic form which does not recognize the "best model", nor can the approach of the most adequate structure selection be standardized.

The general postulates that allow for the understanding and facilitate prioritizing in the selection of an adequate structure of public-private finance start from the notion that: [4]

- Each public-private partnership structure has its strengths and weaknesses that must be identified and integrated;
- Public-private partnership does not ensure that the problems will be solved promptly and is implemented in cases of apparent and clear benefits, in relation to the traditional direct financing;
- The public-private partnership structures must be adapted as regards the sector and the context of implementation;
- The desired impact and the expected benefit of the public-private partnership concept implementation has a decisive role in the selection of the structure and plan of financing.

The following Table [4] presents the basic characteristics of the implementation of the public-private partnership model, with the implementation proposed for a specific sector. The selection of the appropriate structure is a complex task and is based on individual project characteristics and needs.

Public--private partnership model	Major characteristics of the public-private partnership model	Public-private partnership model implementation	Strengths of the public-private partnership model	Weaknesses of the public-private partnership model
Contracting provision of services	Concluding contract with a private entity for the design and construction of a public facility; Facility is funded and is the ownership of the public sector ; The key motive for such contracting is the transfer of design and construction risks	Suitable for large projects with small operational requirements; Suitable for large projects in which the public sector tends to retain operational liability	Transfer of project design and construction risks; The model has a potential to accelerate construction programme;	Possible conflict between the planned and the ecological requirements; Operational risk can be higher; The start-up phase is highly critical; Not atrractive for financing by the private sector
BOT	Concluding contract with a private sector entity for the design, construction, and managing of a public facility during a defined period of time, upon which the facility is transferred to the public sector; Facility is funded by the public sector and is public ownership during the contract period; The key motive for such contracting is the risk transfer with the risk of project design and construction.	Suitable for projects with considerable operational contents ; Especially suitable for the water supply and waste treatment projects;	Transfer of project design, construction and realization risks; The model has a potential to accelerate construction programme; Transfer of risk affects the adoption of cost approach to project cycle; The model promotes the innovation of the private sector and higher value of invested capital; The model fosters the improvement of the quality of business operations and maintenance ;	Possible conflict between the planned and the ecological requirements; Contracts are more complex and tender process is longer; Requires a system of monitoring the management and operations; The cost of new entrance into business if the entity fails to satisfy ; Not attractive for private financing, imposes the need of long-term financing to the public sector;

DBFO	Concluding contract with a private entity for the design, the construction, business operations and financing of the facility for a defined period upon which the facility is returned to the public sector; The facility is the ownership of the private sector during the contracted period by which it covers the expences through public subsidies; The key motive is using private financing and transfer of the risks of project design, construction and work; Different varieties of liabilities are included.	The model is suitable for projects with considerable operational contents; The model is especially suitable for road building, water supply networks and waste treatment projects;	Same as for the BOT model; The model attracts finances from the private sector; It especially attracts debtor finance; It provides a predictable and consistent cost profile; Increases the potential of the accelerated construction programme; Risk transfer is larger, which encourages the private entity to adopt the cost principle during the project design phase;	Possible conflict between the planned and the ecological requirements; Contract can be more complex and the tender procedure can be londer; Requires a system of monitoring the management and operations; Cost of new entrance into business if the entity fails to satisfy; Guarantees for financing may be required; Requires a system of management replacement/change;
Concession	Same as for DBFO, except when the private sector covers the expences via charging the service to the consumers; The key motive is the "polluter pays" principle, followed by private financing, and transfer of operational, design and construction, risks.	The model is suitable for the projects allowing for charging the consumers for use; Especially suitable for road building, water supply networks and waste treatment projects;	Same as for DBFO model; Facilitates the "polluter pays" principle implementation; Raises the demand risk level and helps generate the income of the third party;	Same as for DBFO model; Model can be politically unacceptable; Requires a more effective use of alternatives/replacements, for example, alternative routes, alternative options of waste disposal;
Contracting certain risk-bearing works	Concluding contract with a private entity for the design and construction of a public facility; The facility is funded and is the ownership of the public sector; The key motive for such contracting is the transfer of design and construction risks.	Suitable for large projects with small operational requirements; Suitable for large projects in which the public sector tends to retain operational liability.	Transfer of design and construction risk; The model has a potential to accelerate construction programme;	Possible conflict between the planned and the ecological requirements; Operational risk may increase; The start-up phase is critical; Not attractive for private finance

Public-private partnership creates a platform for exploring, forming, financing, and construction of new infrastructure projects that would otherwise be for decades delayed or would never be built. Numerous public-private partnership modalities have been developed so far to respond to different challenges set before the public-private partnership in specific situations and sectors. [3] Hence this model of financing is especially applicable to the developing countries with a clear need for building or improving their infrastructure, [8] which encouraged a vigorous involvement of the private sector capital into the infrastructure projects renewal, development, and realization. [6]

3. Implementation of public-private partnership models in traffic projects

Some of the most important issues that have a major role the selection of the preferred organizational form public-private partnership in the traffic projects realization result from the size and the scope of the project, possibility of charging the consumers for the service of using the traffic network and the expected level of project risk. The traffic systems meant for mass usage are adequate to the traditional project development and financing scheme, to a larger or smaller extents. Operational costs of one such scheme are relatively low in comparison with the costs of the capital required for the construction of such a traffic system. The traditional contracts on construction are the extention of the now ruling conventional approach and an attempt to transfer the planning and construction risks to the private sector by the fixed-price contracts. Even in such cases the liability for the infrastructure maintenance rests with the public sector. In some cases the construction of especially large road networks can be partly or entirely funded by user charges. The chance to choose the road communication using bridges and tunnels is a visible benefit for the user which is related to the possibility to charge the use of the route selected. In such circumstances the public sector has to make a decision as regards the transfer of project financing liabilities, but also the road toll charges, to the private sector partner.

Varied types of contracts are already in use in Europe. The concession contracts for toll highways are appropriate where the private sector will finance a large road network system, collect the toll and bear the risk of the possible charge of such a service. The BOT (Build-Operate-Transfer) contracts are most appropriate where the public sector charges for the services provided, which serves as basis for paying the private-sector investor. The DBFO (Design-Build-Finance-Operate) contracts, or organizational models, are such models where the Government provides incentives for the private entities to build traffic infrastructure, in order to pay the entity off later, by imposing additional obligations to drivers through higher price of fuel or the car registration. The private sector partner takes over part of the risk of collecting the receivables. The users of the road are not charged to pay for the use of the road. This type of model was implemented to build a certain number of major routes in England, Finland, Scotland, Spain and Portugal. This model, however, has a number of weaknesses. They stem from the fact that the public sector still bears a higher risk in charging the dues, as well as that the drivers do not pay the economic price of the built infrastructure. It is in this sense that the implementation of this model may result into a non-rational investment allocation in the infrastructure project realization.

4. Implementation of public-private partnership model in water-power supply projects realization

Public-private partnership has been a model of financing the water-power supply sector for decades. Thus the first concession for the development and water-power and waste water treatment plants management was granted to the private sector entity in France 40 years ago. This led to the rise of large and diversified private utility companies. The EU Drinking water directive and the Urban areas waste water directive had a significant impact upon the changes in terms of the public sector liability concerning these issues. Meeting the requirements of the Directives means investing considerable capital into new facilities of the water-supply network and the waste water treatment capacities, in a large number of countries. Hence the countries that have not so far included the private sector into the water supply and waste water treatment operations now analyse the private sector potentials and its financing capacity in order to meet the requirements of the Directives.

Considerations on the selection of a preferred form of public-private partnership in the water supply project sector are similar to those characteristic of the traffic sector, hence they also take into consideration the size and the scope of the project (including operational contents), possibilities of collecting the dues from the consumers and the expected level of risk transfer. The construction of a water-supply network or a waste water treatment plant using the public-private partnership model is usually related to the level of availability of information on the structure and operation of the existing networks. If the available information is not sufficient, then the traditional agreements on financing and construction of such facilities may prove to be more adequate. On the other hand, contracts on water supply and building the waste water treatment plants are most often adequate for the BOT (Build-Operate-Transfer) and DBFO (Design-Build-Finance-Operate) models. Besides, concession contracts too are characterised by a specific form of execution, that is, where it is possible to introduce the user charge. The water supply network facilities and the waste water treatment plants are not suitable for the traditional ways of project realization. The risk of the increase in the complaxity of the treatment process rests with the public sector and is not included into the design flow of these processes.

5. Implementation of public-private partnership model in landfil projects realization

The implementation of public-private partnership is stimulated in those sectors in which the burden on the public sector has increased significantly. This is especially evident in the urban waste disposal projects. Due to economic and ecological reasons, public agencies tend to abandon solving this problem by building landfils, which used to be a traditional way od waste disposal problem solving. New methods of waste treatment, such as conversion of waste into useful energy or recycling, require substantial investments and specialzed technical skills, i.e., know-how.

Considerations on the selection of the preferred public-private partnership form in the landfil building projects sector are similar to those in the traffic and water-suply sectors. They include the size and the scope of the project (including operational contents), the possibility of user charge and the required level of risk transfer. The projects in the waste treatment sector are more adequate for higher-developed forms of public-private partnership in which it is possible to transfer a significant level of operational risk. The implementation of a concession allows for the financing of the project on the "polluter pays" principle; hence the process of risk assignment related to the scope of waste materials. This type of project financing is predominant in Great Britain.

6. Conclusion

A successfully selected public-private partnership model is one in which the liability, obligations and risk distribution are assigned to the entity that can manage them best. Hence it is important that the contract should be carefully planned and defined and an adequate monitoring and regulation of liabilities agreed to in the contract be ensured. The Government sector that analyses the opportunities to start a public-private partnership should first take into consideration the technical, the financial, the economic, and the legal feasibility of the project and adjust the goals of the Government to the interests of the private investor. The best public-private partnership option can be selected only via a comprehensive feasibility analysis, and this analysis will in turn start the remainder of the process. Well concieved and defined project structures of public-private financing allow for the creating of an appropraite monitoring and performance measuring mechanism via the set key performance benchmarks.

By meeting these preconditions the ultimate goal of partnership is achieved – the improved project efficiency employing the resources in private sector ownership. Here we primarily mean capital and a specific know-how based on the experience in one business field. The private sector is considered to be more successful in doing business and copes better with the burden of risk management (such as construction risk or standard quality maintenance risk), whereas a regulatory risk is better managed by the public sector. A correct estimate of the strenghts of each of the involved parties and their managerial skills directly impacts the selection of the public-private partnership model as well as the success of of the entire project.

REFERENCE

[1] Akintoye A, Beck M, Hardcastle C: „*Public Private Partnerships: Managing Risks and Opportunities*", Blackwell Publishing Company, 2003.

[2] Benković S, Milosavljević M, Barjaktarović Rakočević S: „*Partnerstvo javnog i privatnog kapitala u finansiranju infrastrukturnih projekata*", Megatrend revija, Vol. 7 (2), 2010.

[3] Deloitte: „*Closing America's Infrastructure Gap: The Role of Public Private Partnership*", A Deloitte Research Study, 2009.

[4] European Commission: „*Guidelines for Successful Public-Private Partnerships*", January 2003.

[5] Finerty J: „*Project Financing-Asset Based Financial Engineering*", Wiley & Sons Inc, New Jersey, 2007.

[6] Gil N, Beckman S: „*Infrastructure Meets Business: Building New Bridges*", Mending Old Ones, California Management Review, Vol. 51, No. 2, 2009.

[7] Jupp B: „*Working Together: Creating a Better Environment for Cross-sector Partnership*", Demos, London, 2000, pp. 13-14.

[8] Merna T, Njiru C: „*Financing Infrastructure Projects*", Thomas Telford Publishing, London, 2002.

[9] Miller J. B: „*Applying Multiple project Procurement Methods to a Portfolio of Infrastructure Projects*", Procurement Systems: A Guide to Best Practice in Construction, E&N Spon, 1999.

[10] Mullin S: „*Public-Private Partnerships and State Economic Development*", US Economic Development Administration, Philadelphia, 2004.

[11] The World Bank and the International Finance Corporation: „*Investing in the Environment*", The World Bank, Washington, D.C, 1992.