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Critical Success Factors of Public Private Partnership (PPP) Implementation in Bangladesh

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ABSTRACT
Research on key success factors (CSFs) for public-private partnership (PPP) initiatives in developing nations is lacking, especially in South Asian countries like Bangladesh, despite the necessity of such studies. The purpose of this research is to learn how different public and private sector actors in Bangladesh view the CSFs and how those views affect the implementation of PPP projects in the country's infrastructure. To learn how public and private sector actors view the CSFs and SSFs of PPP projects, a questionnaire survey was used. After reviewing the literature, we were able to identify CSFs and SSFs and test the level of agreement between public and private sector respondents. We utilized SPSS software to rank the CSFs and SSFs and look at the perceived disparities between the sectors; 59 responses were usable in total. According to the findings, "economic viability" was the most important criterion, followed by "suitable risk allocation," "sound financial packages," "promising investment environment," and "dependable concessionaire" in that order. The perceptions between the sectors are likewise found to be mixed. In Bangladesh, key parties must be engaged and consensus must be reached over this finding

1. Introduction

In light of the government's limited financial resources and the pressing need to address inefficiencies, public-private partnerships (PPPs) are gaining popularity as a means for policymakers to accomplish large-scale public projects (Terry, 1996; Alfen et al., 2009). There has been an uptick in the interest in public-private partnerships (PPPs) by the government of Bangladesh (GoB) with regards to infrastructure development [1-5]. The SDGs Financing Strategy estimates that $928.48 billion is needed to achieve the goal (PPP Authority, 2021). By 2030, the 17 Sustainable Development Goals (SDGs) will have been accomplished thanks to five potential funding mechanisms that the GoB has identified. Partnerships aim to get 5.5% of the 85% domestic funding (PPP Authority, 2021). Consequently, the private sector is anticipated to provide nearly half of the overall finance for the SDGs, with a contribution of 42% and a contribution of 5.5% from PPP. Consequently, the GoB must play a significant role in luring private investment and facilitating their ability to do so in order for the country to achieve its SDG commitments.

To make up for the lack of investment, especially in infrastructure development, governments in poor nations are turning to public-private partnerships (Akintoye & Kumaraswamy, 2016). When it comes to public-private partnership (PPP) initiatives in Bangladesh, the PPP Authority is there to lend a hand to the relevant line ministries and contracting authorities. The PPP pipeline currently includes seventy-seven projects in varying stages of development. A total of USD 38.77 billion is anticipated to be invested. Two more public-private partnerships (PPPs) were inked in 2022, bringing the total to seventeen, with an expected investment of $4.5 billion (ADB, 2022). Only one of the ten initiatives is up and running; the rest are in various stages of development. According to reports, 19 projects have entered the procurement stage, while 40 projects are in different phases of development. Despite PPPs' rising profile, very little is known about what makes them work in Bangladesh. A solid understanding of CSFs connected to PPPs is necessary for the efficient execution and completion of the planned infrastructure projects (Wetangula & Mazurewicz, 2017) [6-10].

The government is no longer considered as the exclusive provider of public works and services. Public-private partnerships, or PFIs, have been recognized as important ways for governments to address their challenges in delivering infrastructure systems (Ho, 2006). Algarni, Arditi, and Polat (2007) and Zhang (2005) note that there has been a notable shift toward private sector involvement in the development of public infrastructure and services in an effort to lessen the strain on state finances. Several reasons have contributed to this trend, such as insufficient funding, infrastructure affected by deregulation, and the influence of global markets. The significance of private funding has grown as a result of this trend[11-15].

There are several factors that can affect the success of public-private partnerships (PPPs), including the number of partners involved, the level of competence and knowledge needed, the number of unknowns, and the emergence of new problems on a global scale. Despite this, the worldwide trend toward PPPs makes it imperative that we immediately implement a realistic and successful procurement plan to enhance processes in future PPP projects. An essential step in

developing such a protocol is the process of discovering, evaluating, and categorizing numerous components that are critical to the overall functioning of PPPs. Time, money, and quality are just a few of the factors that can make or break an infrastructure project (Zhang, 2005). By determining the CSFs for these objectives, we can more effectively allocate limited resources. Both quantitative measurements and expert judgment can be used to determine the CSFs (Chua et al. 1999). For example, Chua et al. (1999) surveyed construction industry experts on CSFs using an analytical hierarchy technique[16].

According to research by Marks and Sparkman (2021), public-private partnerships (PPPs) involve non-state actors working together with public agencies to build infrastructure or provide services in order to attain mutually beneficial outcomes. Competent public-private partnerships (PPPs) are essential in Bangladesh's rapidly evolving market so that the country's diverse range of industries, services, and infrastructure can keep up with the demands of its expanding population. Important particular elements, called Critical Success Factors (CSFs), determine whether a PPP project succeeds or fails. In order to better understand PPP ventures in Bangladesh, our research sought to identify these critical success criteria. Finding relevant Critical Success Factors (CSFs) and Success Subfactors (SSFs) for PPP projects in Bangladesh is the main objective of this research. Also attempted was the provision of a roadmap for the effective completion of the PPP projects.

2. Literature Review

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The first line of each paragraph shall be indented by one character, approximately the length occupied by two lower-case letters here.

According to the PPP Act of 2015, the primary goal of public-private partnerships in Bangladesh is to preserve budgetary viability while ensuring a faster and more inclusive economic trajectory and better meeting the need for upgraded, high-quality public services. In order to improve existing practices and guarantee the fulfillment of its definitive goal, the government of Bangladesh has consistently reviewed and changed the PPP arrangements for tremendous expansion of PPP implementation in Bangladesh. In response to the pressing need to improve PPP processes, this study focuses on the critical success factors (CSFs) for PPP projects in Bangladesh.

According to Jefferies et al. (2002), Li et al. (2005), and Rockart (2022), the "success factor" idea was initially proposed by Daniel (1961). In 1979 and 1981, Rockart further improved this process into essential success factors. The year 1995 saw Johnson and Friesen apply this idea across a wide range of industries (Johnson & Friesen, 1995). When businesses prioritize these CSFs, project success is guaranteed (Rocakart, 2022). According to Zhang's (2005) research, five CSFs—economic viability, risk allocation, financial instruments, concessionaire consortium, and favorable investment environment—are essential for public-private partnerships (PPPs) in infrastructure development. A number of studies, including Zhang, have found CSFs for various forms of PPP. According to Tiong's (1996) research on Build-Operate-Transfer (BOT) contract negotiations and competitive tendering, the private sector needs six critical success factors (CSFs): entrepreneurial spirit and leadership, project selection, consortium structure, technology transfer, financial flexibility, and solid guarantees. In their study on BOT projects, Qiao et al. (2001) identified eight critical success factors (CSFs). These include: "identifying the right project; stable political and sound economic situation; diversified financial package; level of toll or tariff; risk allocation; selection of right subcontractors; control of management; and transfer of technology." The Accor Stadium (formerly Stadium Australia) was studied by Jefferies et al. (2002). It was built under the build-operate-own-transfer (BOOT) PPP method. "Compatibility skills among the key parties, technical innovation to overcome project complication, and efficient approval process" were three of the most important CSFs among the fifteen he catalogued. Environmental impact, political stability, political and economic framework, trust, strategic alliances, efficient management of resources, community support, feasibility study, financial competence, technology transfer, and consortium structure are other significant CSFs. He contended that infrastructure projects backed by private investment do not necessarily succeed. He went on to say that the win-win premise is what makes public-private partnerships work. A study using a BOOT system was carried out by Jefferies et al. (2002) to investigate the CSFs once more. While the study did include the same CSFs, it also added the following new factors: "negotiation, client brief or outcome, feature of bid, business diversification, viability of business, competition, credit rating, teamwork, present infrastructure, asset delivery, growth of investment, and identification of project" Jefferson et al. (2006).

In a 2010 study, Zhao et al. compared the CSFs of two BOT-powered PPP power plants. Out of the thirty-one elements he considered, he settled on "the necessity of project, expected debt-paying ability, and financial capacity of contractor" as the most important three. Furthermore, he contended that project-specific CSFs exist. Project financial management, contractor qualification, contractor competency, contractor investment capacity, project profitability, legal environment, and effectiveness of business operations are all factors to consider.

In order to identify CSFs in PPP contracts for the UK construction sector, Hardcastle et al. (2005) utilized a factor analysis approach. He concluded that the PPP project's success depends on a number of things, including a "effective procurement process," the project's ability to be implemented, a guarantee from the government, stable and sound economic conditions, and an available financial market.

The majority of research on public-private partnerships (PPPs) in the built environment has concentrated on five main areas: "(1) risks allocation; (2) relationships among the parties; (3) critical success factors (CSFs); (4) challenges of PPP; and (5) financing/value for money." Finding the right projects for PPP, the right private sector player, the ability of risk management, and the management of all participants were all considered crucial in order to achieve "value for money"—a challenging goal in light of the extensive and time-consuming procedures involved (Grimsey & Lewis, 2005). As a result of these problems, PPP gained popularity; many nations, both established and developing, see it as a way to lessen their economic load, including Bangladesh. Allocation of risk, value for money, prompt service delivery, and fostering private player innovation and managerial competence are among other difficulties that have been noted.

Much of the research focused on the effects of CSFs in industrialized nations, such as the UK (Hartcastle et al., 2005; Li et al., 2005; Cheung et al., 2012). Bangladesh is still in the early stages of building and establishing legislative frameworks, which will allow it to grow project plans, concepts, and PPP Unit hubs, despite the fact that PPP studies have emerged in developing nations, especially in South Asia and countries like Pakistan and India. We did not find enough literature that discusses CSFs in a South Asian context.

Additionally, it has been noted that the majority of PPP studies carried out in Asia have utilized survey instruments exported from industrialized nations. This research aims to address that knowledge vacuum by investigating the CSFs that impact the implementation of PPP projects in Bangladesh.

2.1 Aims and Objectives

In order to better understand how CSFs impact the implementation of PPP projects in Bangladeshi infrastructure, this study seeks to gather insights from both public and private sector participants. Two distinct goals have been defined in order to reach the overarching objectives. The study has two main goals. The first is to determine which key success factors (CSFs) are essential for public-private partnerships (PPPs), and the second is to determine which success subfactors are important for PPPs.

3. Methodology

Research instrument

The necessity to determine the CSFs of PPP is a major theme running across the literature we looked at. Remember that PPPs aren't always easy to evaluate objectively. The CSFs are crucial to the success of a public-private partnership initiative. A thorough evaluation of related prior research served to identify the initial components. The researcher utilized the elements outlined by Zhang (2005), taking into account the thoroughness of the criteria and the advice of the PPP specialists. Due to its widespread use in studies on construction management, this study relied on a questionnaire survey to collect data on CSFs for PPPs (Zhang, 2005). Government officials, architects, developers, engineers, and construction and operation managers were among those who contributed to the creation and refinement of the questionnaire.

Sample and collection procedures

A non-probability sampling technique was used to administer 120 surveys. We received 59 responses that were useful in all. Email and postal addresses were used to gather the completed surveys. Mails returned due to incorrect or incomplete addresses, participants whose jobs had ended, those who were not in the office, and those with little to no knowledge of PPP were all considered ineligible and removed from the final analysis in order to reduce the impact of the unacceptable sample on the overall sample.

Data analysis

The CSF and SSF variables were asked to be rated on a five-point Likert scale by the participants. The range of possible values was from "not applicable" (value 0) to "extremely critical" (value 5). The data was analyzed using the SPSS software, which stands for Statistical Package for the Social Sciences. Using descriptive statistics using means, we examined data from five-point Likert scales regarding the significance of each success element. Afterwards, factors were ranked according to their relevance based on the opinions of both the overall respondents and the individual groups of public and private stakeholders.

4. Findings and Discussions

Here we will go over the analysis's findings and how they connect to the literature review. Developing a framework to guide the state and non-state sectors in Bangladesh, the study sought out and analyzed the CFSs that impact PPPs.

The criticality indices and ranks of the five primary success criteria, broken down by total respondents, state sectors, and non-state sectors, are displayed in Table 1. The following is the formula for calculating the index, also known as criticality, of all success factors:

$CI = (5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1) / 5(n_5 + n_4 + n_3 + n_2 + n_1)$.

Note: CI= Criticality Index where n_5 = extremely critical, n_4 = very critical, n_3 = critical, n_2 = fairly critical, and n_1 = not critical.

Index of success subfactors (SSFs) was calculated through formula proposed by Zhang (2005). In this formula, “5”, “4”, “3”, “2”, “1”, and “0” have significance indexes of 100, 80, 60, 40, 20, and 0, respectively.

$SI = (0R_{i0} + 20R_{i1} + 40R_{i2} + 60R_{i3} + 80R_{i4} + 100R_{i5})/(R_{i0} + R_{i1} + R_{i2} + R_{i3} + R_{i4} + R_{i5})$

Note: SI = “Significance Index” where R_{i0} = “number of responses as ‘0’ for the *i*th factor or subfactor”; R_{i1} = “number of responses as ‘1’ for the *i*th factor or subfactor”; R_{i2} = “number of responses as ‘2’ for the *i*th factor or subfactor”; R_{i3} = “number of responses as ‘3’ for the *i*th factor or sub factor”; R_{i4} = “number of responses as ‘4’ for the *i*th factor or subfactor”; R_{i5} = “number of responses as ‘5’ for the *i*th factor or sub factor”.

A. CSFs of PPP implementation

While the public and private sectors gave equal weight to the "economic viability" criteria (0.897 and 0.883, respectively), the private sector gave the "favorable investment environment" the lowest possible score (0.613) and the public sector gave it a score of 4 (0.785). To determine if a project is worth investing state resources in, several governments perform economic viability evaluations. The World Bank (2022) states that for a project to be considered economically feasible, its benefits must outweigh its costs.

According to World Bank (2022), the first inputs of the cost and demand estimations developed for the economic viability evaluation will both enhance value for money analysis of PPP and financial modeling. In addition, according to El-Kholy et al. (2021), the host country's economic, political, and administrative factors greatly affect the critical risk factors of economic viability.

Table 1. Perception of interviewee regarding the relative importance of CSFs of PPP

Success factors	Public Sector		Private Sector		Overall Respondents	
	C.I.	R.	C.I.	R.	C.I.	R.
"economic viability"	.897	1	.883	1	.889	1
"appropriate risk allocation"	.881	2	.807	2	.839	2
"sound financial package"	.833	3	.783	3	.805	3
"reliable concessionaire consortium"	.769	5	.765	4	.685	5
"favorable investment environment"	.785	4	.613	5	.767	4

Note: C.I. = "criticality index", R.= "ranking"

Table 1 clearly shows that all five CSFs were deemed "extremely critical" or "very critical" by respondents in order for PPP projects to be implemented successfully. According to the survey takers, a trustworthy concessionaire consortia and an inviting investment climate are two "fairly critical" project success criteria.

"Appropriate risk allocation" ranks as the second most important success element for PPPs in Bangladesh, according to Table 1. In order to compare the effects of eighteen potential CSFs, Li et al. (2005) surveyed people in the United Kingdom. According to the findings, one of the three most important aspects is allocating risks appropriately. "Favorable investment environment," "economic viability," "reliable concessionaire consortium with strong technical strength," "sound financial package," and "appropriate risk allocation" are the five primary CSFs identified by Zhang (2005) through the systematic research approach. The findings show that respondents from both the public and private sectors, as well as the general sample, agree on the importance of this issue.

Table 1 shows that respondents chose "sound financial package" as the third most important consideration. In their research, Zhang (2005), Tiong (1996), and Li et al. (2005) emphasized the importance of this aspect for the implementation of PPP projects. Financial considerations, rather than physical design or building costs, are the usual determinants of a PPP project's viability. To construct effective financial packages, Zhang (2005) drew ten components and suggested including them. The following are included: "financial analysis," "sensible schedules for investment, payment, and drawdown," "appropriate combination of financing sources and standby facilities," "high equity-debt ratio," "stable currencies of debts and equity finance," "low financial charges," "fixed and low interest rate financing," "long-term debt financing that minimizes refinancing risk," "ability to deal with fluctuations in interest and exchange rates," and "appropriate payment structures."

Table 1 show that the public and private sectors' rankings of the criteria were very different. There are other elements that impact the implementation of PPP projects, and public sector players do not think the "reliable concessionaire consortium" component is that crucial. They placed it at number five, while private sector actors were at number four. The "Favorable investment environment" component also shows similar differences. Here, private sector actors placed this factor fifth, while public sector players ranked it fourth. Although these two factors are certainly important for PPPs to be successful in Bangladesh, the current political climate is relatively stable, and the government backs PPPs, so these may not be as crucial as they otherwise would be. The Pamir Private Power Project in Tajikistan is an example of a successful PPP project that occurred in an environment that was conducive to private sector investment (world Bank, 2022).

B. SSFs of PPP implementation

Table 2 displays the responses from the public sector, the private sector, and the entire sample. In addition to summarizing the respondents' rankings of the SSFs, it also includes the importance indices. Nearly all respondents (94%) saw the SSF's "stable political system" as a crucial component in creating an enabling climate for public-private partnerships (PPPs), particularly in the infrastructure sector. While public and private actors did not agree on the relative importance of several SSFs, they did agree that a "stable political system," a "favorable economic system," and "predictable risk scenarios" were necessary for a PPP to be successful. Both industry participants selected "promising economy" as the eighth most important factor.

Evidence suggests that "economic viability" is a key factor in PPP projects' success rates. Several sub-factors are necessary for this component to succeed (Zhang, 2005). Table 2 shows that when it comes to the SSFs of PPP applications in Bangladesh, public and private actors' perspectives are very comparable. With respect to the criteria of "long-term cash flow" and "sufficient profitability to attract investors," the two companies in the industry diverge marginally. The "long-term cash flow" component was more important to the public sector than to the private sector. In contrast to their public sector counterparts, private sector

actors placed a higher priority on the element of "sufficient profitability to attract investors".

Table 2. Summary of responses on significance indexes of SSFs under respective CSFs

Success subfactors	Public Sector		Private Sector		Overall	
	S.I.	R.	S.I.	R.	S.I.	R.
Favorable investment environment						
"stable political system"	92.5	1	94.7	1	94.0	1
"favorable economic system"	91.7	2	88.3	2	89.7	2
"government support"	89.3	3	79.0	4	83.3	3
"the project is in public interest"	84.5	4	74.7	6	81.3	4
"predictable risk scenarios"	83.7	5	78.3	5	80.5	5
"the project is well suited for privatization"	81.3	6	81.3	3	79.0	6
"adequate local financial market"	79.7	7	67.1	8	75.0	7
"predictable and reasonable legal framework"	79.0	8	72.0	7	72.5	8
"supportive and understanding community"	73.3	9	62.0	10	67.3	9
"predictable currency exchange risk"	70.1	10	65.3	9	66.7	10
"promising economy"	60.5	11	60.1	11	62.3	11
Economic viability						
"long-term demand for the products/services"	87.7	1	88.3	1	88.1	1
"long-term cash flow"	86.1	2	85.3	3	85.7	2
"sufficient profitability to attract investors"	84.5	3	86.5	2	85.7	3
"long-term availability of suppliers"	67.7	4	74.7	4	71.7	4
"limited competition from other projects"	59.0	5	69.0	5	64.7	5
Reliable concessionaire consortium						
"good relationship with host government authorities"	89.3	1	82.0	2	85.1	1
"strong and capable project team"	86.1	3	84.1	1	85.1	2
"leading role by a key enterprise or entrepreneur"	87.7	2	80.6	3	83.7	3
"effective project organization structure"	79.7	5	78.3	4	79.0	4
"sound technical solution"	80.5	4	73.1	7	76.1	5
"cost-effective technical solution"	77.3	6	74.7	5	76.0	6
"low environmental impact"	76.5	7	74.1	6	75.1	7
"public safety and health considerations"	65.3	9	72.0	8	70.5	8
"multidisciplinary participants"	69.3	8	71.3	9	69.1	9
"partnering skills"	62.1	11	69.4	11	69.1	10
"innovative technical solution"	66.1	10	71.3	10	66.3	11
"rich experience in international PPP project management"	57.3	12	60.7	12	59.3	12
Sound financial package						
"appropriate toll/tariff level(s) and suitable adjustment formula"	92.5	1	85.3	1	88.3	1
"abilities to deal with fluctuations in interest/exchange rates"	87.0	2	83.7	2	83.7	2
"sound financial analysis"	81.3	3	83.1	4	82.3	3
"investment, payment, and drawdown schedules"	79.7	4	78.3	5	80.5	4
"sources and structure of main loans and standby facilities"	76.5	5	83.6	3	79.0	5
"long-term debt financing that minimizes refinancing risk"	75.7	6	77.1	6	76.5	6
"stable currencies of securitization (debts and equity finance)"	72.5	7	76.7	7	74.0	7
"fixed and low interest rate financing"	69.3	8	72.5	8	71.1	8
"low financial charges"	60.5	9	70.1	9	66.1	9
"high equity/debt ratio"	57.3	10	70.1	10	64.7	10
Appropriate risk allocation						
Suitable and dependable risk allocation in:						
"concession agreement"	85.3	1	80.7	1	82.7	1
"off take agreement"	77.3	3	72.5	7	79.0	2
"guarantees/support/comfort letters"	80.5	2	77.7	3	78.3	3
"loan agreement"	76.5	4	79.5	2	75.5	4
"shareholder agreement"	75.0	5	73.7	5	76.5	5
"operation agreement"	73.3	7	77.1	4	74.1	6
"insurance agreement"	74.1	6	73.7	6	74.0	7
"design and construct contract"	69.3	8	62.0	8	65.1	8
"supply agreement"	64.5	9	58.3	9	61.0	9

Note: S.I. = "significance index, R.= "ranking"

While it is within the government's purview to encourage non-state actors to build public infrastructure, it is the non-state actors themselves who are essential to the effective implementation of PPPs (Zhang, 2005). For a public-private partnership (PPP) project to run well, selecting a reliable concessionaire is essential. Both the public and private sectors had divergent opinions on nine out of twelve SSFs

when it came to the CSF "reliable concessionaire consortium," as seen in Table 2. Concerning the last three SSF, namely "partnering skills," "innovative technical solution," and "rich experience in international PPP project management," the two industries gave identical ratings. The results show that the concessionaire needs good management abilities. An effective project organization structure, strong relationships with government agencies or authorities, partnership skills, multidisciplinary participants, solid experience in international PPP project management, a strong project team, and a leading role by the entrepreneur or enterprise are all subfactors that need to be considered when building a reliable concessionaire consortium, according to the analysis.

For public-private partnerships (PPPs) to be effective in Bangladesh, the financial package is the most crucial CSF. Both companies in the industry scored all SSFs very highly and thought they were very significant, as seen in Table 2. There is a clear trend showing that the financial package significantly affects the feasibility of PPP projects. If we want to speed up the capital expenditure of an infrastructure project, Zhang (2005) says we should put all SSFs in a strong financial package.

Projects involving public-private partnerships clearly include a number of risks. Risk allocation is thus crucial for public-private partnership risk management. Regarding the aspect of "appropriate risk allocation," this study came to a very different conclusion. In Table 2, we can see that there is a wide range of opinions among respondents regarding what constitutes an appropriate allocation of risk. Respondents from both industries placed the "concession agreement" element first. Public and private sector respondents were in strong agreement that PPP projects must have an agreement of shareholders, insurance, and supply, and that the design and construct contract is a key component influencing these projects.

Among all the percentages of importance, 59.3% stands out as the lowest. That all of the SSFs on the list are important proves that they are fundamental to PPP success.

C. Agreement analysis

To examine the level of agreement in ranking these criteria between public and private participants, a sequential rank agreement study was conducted using Spearman's rank correlation coefficient (rs). When rs is positive, it means that the two groups are in agreement. extreme agreement is represented by an rs value of one, and extreme disagreement by an rs value of zero. Table 4 shows the success subfactors of rs, while Table 3 shows the success factors overall. Notably, the lowest rs value is 0.74, which indicates that the two groups, the public and private sectors, have a balanced agreement in ranking.

Table 3. Agreement analysis of ranking of CSFs

Success factors	Public Sector		Private Sector		Agreement analysis
	S.I.	R.	S.I.	R.	
"economic viability"	0.895	1	0.882	1	$r_s = 0.89$
"appropriate risk allocation"	0.879	2	0.806	2	
"sound financial package"	0.831	3	0.782	3	
"reliable concessionaire consortium"	0.767	5	0.764	4	
"favorable investment environment"	0.783	4	0.612	5	

Note: C.I. = "criticality index, R.= "ranking", r_s = "Spearman's coefficient of rank correlation"

Table 4. Agreement analysis of ranking of SSFs

Success subfactors	Public Sector		Private Sector		Agreement analysis
	S.I.	R.	S.I.	R.	
Favorable investment environment					
"stable political system"	93.7	1	95.7	1	$r_s = 0.91$
"favorable economic system"	92.7	2	89.3	2	
"government support"	90.3	3	79.0	4	
"project is in public interest"	85.5	4	75.7	6	
"predictable risk scenarios"	84.7	5	79.3	5	
"project is well suited for privatization"	82.3	6	82.3	3	
"adequate local financial market"	80.7	7	68.1	8	
"predictable and reasonable legal framework"	79.0	8	72.0	7	
"supportive and understanding community"	74.3	9	62.0	10	
"predictable currency exchange risk"	71.1	10	66.3	9	
"promising economy"	61.5	11	61.1	11	
Economic viability					
"long-term demand for the products/services"	88.7	1	89.3	1	$r_s = 0.89$
"long-term cash flow that is attractive to lender"	87.1	2	86.3	3	
"sufficient profitability of the project to attract investors"	85.5	3	87.5	2	
"long-term availability of suppliers"	68.7	4	75.7	4	
"limited competition from other projects"	59.0	5	69.0	5	
Reliable concessionaire consortium					
"good relationship with host government authorities"	90.3	1	82.0	2	

"strong and capable project team"	87.1	3	85.1	1	
"leading role by a key enterprise or entrepreneur"	88.7	2	81.7	3	
"effective project organization structure"	80.7	5	79.3	4	
"sound technical solution"	81.5	4	74.1	7	
"cost-effective technical solution"	78.3	6	75.7	5	
"low environmental impact"	77.5	7	75.1	6	$r_s = 0.91$
"public safety and health considerations"	66.3	9	72.0	8	
"multidisciplinary participants"	70.3	8	72.3	9	
"partnering skills"	63.1	11	70.5	11	
"innovative technical solution"	67.1	10	72.3	10	
"rich experience in international PPP project management"	58.3	12	61.7	12	
Sound financial package					
"appropriate toll/tariff level(s) and suitable adjustment formula"	93.5	1	86.3	1	
"abilities to deal with fluctuations in interest/exchange rates"	87.0	2	84.7	2	
"sound financial analysis"	82.3	3	84.1	4	
"investment, payment, and drawdown schedules"	80.7	4	79.3	5	
"sources and structure of main loans and standby facilities"	77.5	5	84.7	3	
"long-term debt financing that minimizes refinancing risk"	76.7	6	78.1	6	$r_s = 0.94$
"stable currencies of securitization (debts and equity finance)"	73.5	7	75.7	7	
"fixed and low interest rate financing"	70.3	8	73.5	8	
"low financial charges"	61.5	9	71.1	9	
"high equity/debt ratio"	58.3	10	71.1	10	
Appropriate risk allocation					
Appropriate and reliable risk allocation in:					
"concession agreement"	86.3	1	81.7	1	
"off take agreement"	78.3	3	73.5	7	
"guarantees/support/comfort letters"	81.5	2	78.7	3	
"loan agreement"	77.5	4	80.5	2	
"shareholder agreement"	75.0	5	74.7	5	$r_s = 0.74$
"operation agreement"	74.3	7	78.1	4	
"insurance agreement"	75.1	6	74.7	6	
"design and construct contract"	70.3	8	62.0	8	
"supply agreement"	65.5	9	59.3	9	

Note: C.I. = "criticality index", R.= "ranking", r_s = "Spearman's coefficient of rank correlation"

5. Conclusions

The five CSFs proposed by Zhang (2005) for effective PPP implementation in Bangladesh were the subject of this study. Every one of these aspects was deemed "very critical" or "extremely critical" according to the finding. According to the results, financial feasibility is the most important consideration. The findings from the two rankings of sectors are contradictory.

Public and private actors did not agree on how to rank the success factors and subfactors, although they did score a small number of elements similarly.

Although the public and private sectors are ranked differently, this only serves to highlight the fact that both play an important and varied role in the implementation of PPP projects in Bangladesh. In addition, there is a chasm in perceptions between the commercial and public sectors due to the difference in their perspectives. If we want to reach an agreement and involve the right people in Bangladesh, we need to close this gap.

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