

ANALYTICAL STUDY ON CRITICAL SUCCESS FACTORS OF PPP

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ABSTRACT

A Private and Public Relationship arrangement includes various viewpoints, such as conflict processes, high performance, efficiency and sustainability problems, which can be more consolidated. On an overall level, private and public collaboration in India's road projects will give local and universal designers a vast spectrum of interest if an overarching thinking and a flawed approach is utilized. Both the project implementers agree that a strong economic environment and a strongly developed capital market must be established to facilitate the funding of the ventures. This study analyzed the Critical success factors in PPP in India.

Keywords: Critical success factors, Private and Public Partnership, Infrastructure, etc.

I. INTRODUCTION

Private and Public Partnership perceive that the private and the public parts each have certain preferences, comparative with the other, in performing explicit errands. The administration's commitment to a Private and Public Partnership may appear as capital for investment (accessible through duty income), an exchange of advantages, or different responsibilities or in-kind commitments that help the partnership. The legislature likewise gives social obligation, local information, natural mindfulness, and the ability to activate political help. The private area's obligation in the partnership is to utilize its information and capability in management, commerce, advancement, and tasks so as to maintain the business all the more expertly and proficiently. Likewise, the private accomplice may contribute investment capital dependent on the type of agreement. Any contract by EPC resource that isn't held by the private segment following 3 yrs. from finish of

development or any game plan for supply of services or goods for a time of as long as 3 yrs. or any course of action or agreement that just accommodates a contract or lease or rent of a benefit with no performance

commitments and other basic highlights of a PPP doesn't go under the meaning of PPP.

The Private and Public Partnership pattern is worldwide, quickening and enveloping a wide scope of infrastructure areas. Applying Private and Public Partnerships in social infrastructure divisions have somewhat decreased the convergence of Private and Public Partnership projects at the focal government level. Expanding number of local specialists is participating in Private and Public Partnership courses of action to obtain genuinely necessary local infrastructure.

II. RELATED LITERATURE

Inderjeet Singh Sodhi, (2008) in his paper, "Public-Private Partnerships in India: How to guarantee Transparency and Accountability", focusses on the factors that are influencing straightforwardness and responsibility in PPP projects. This article talks about in detail straightforwardness and responsibility in the PPP based projects and conspires, and analyzes the feasibility of PPP for different parts. Absence of straightforwardness and responsibility could prompt inefficiency and diminished development.

Yogendra Sharma, (2008) "Private Public Partnership in Infrastructure", shares his encounters of the successful initiatives by the Indian railroads in drawing in PPP in the arrangement of rail route infrastructure. He gives the successful instances of Kutch Railway Company, a joint endeavor of the Ministry of Railway, Government of Gujarat, Kandla Port Trust and Mundra Port. The book likewise talk about in detail different legal systems, issues identified with railroad activities, imaginative strategies for tasks and maintenance, and setting up of new benchmarks. It likewise gives appropriate point of view to the forthcoming investors, project execution offices, and banks/financing foundations, preparing organizations and so forth, the nation over and abroad too.

David J. Spielman et al (2010), in their article, "Private Public Partnerships and Developing-Country Agriculture: Evidence from the International Agricultural Research System", look at the job of PPP in advancing master poor efficiency upgrading mechanical advancements in the agricultural research framework. The paper talks about the

effect on International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Hybrid Pearl Millet Research Consortia, which is found to have added to the development of a serious private industry that currently supplies most of improved pearl millet and sorghum crossover seeds to smallholders in India's dry and semi-parched tropics.

Skelcher, Chris (2010) expounds on Private and Public Partnership success from another point – that of the governance of Private and Public Partnership. Recognizing the presence of a wide scope of Private and Public Partnership structures.

Anthony AdomiMbina, (2015) investigated the effect of PPP in the travel industry development in the paper, "Public-Private Partnership in Sustainable Tourism Development: A Panacea of Poverty Alleviation in Cross River State, Nigeria"²⁰, by giving a roadmap to control visitors, building and running of lodgings, producing work for residents, arrangement of the travel industry laborers and data, among others. This has advanced great quality of life, expanded confidence and certainty, offers individuals the chance to settle on their own decisions, gives fulfillment, satisfaction and joy, empowers individuals to get associated with and feel some portion of the network, and so on.

World Bank (2017), The life cycle of the PPP was shown to boggle and set up the traps. Analysts are required to continue to track the PPP's span of development, to consider future problems and strategies to promote progress in improving PPP infrastructure. The literature review is a systematic and effective method of finding

knowledge differences and presenting insight in prospective research. This technique was used by various scientists to examine the progress made in the PPP region. In this time (e.g. 1990-2014), an increasing trend can be seen that crested between 2012, and a rapid downturn between 2012 and 2014. However, in consideration of significant infrastructure demands around the world a steady growth may be counted on over the years. In general, billions of citizens require access to safe water, energy and other environment roads, as suggested by the World Bank (2017). This critical problem was resolved by the 2014 Global Infrastructure Facility (GIF), which was developed to provide open stage organized tools for the establishment of complex PPP universal infrastructure projects by key multilateral development banks, private investors and governments.

Abhishek and Rajanikant (2018) expressed that Road and transportation infrastructure construction is exceptionally capital serious, wherein the legislature alone can't meet its finishes and started Private Public Partnership (PPP) for its execution directly from arranging and structuring to its maintenance through different PPP models. In the course of the most recent couple of years a large number of the granted road projects through PPP model experiences been in difficulty as a result of different reasons. This paper essentially centers on finding the basic success and disappointment factors which are associated with PPP projects in road part. From thorough literature review and conversation with PPP specialists, 11 basic factors of success and 10 basic factor of risks are recognized. Utilizing poll study and RII strategy for ranking, the most

noteworthy factor for successful execution of PPP road project is sharing of risk between private and public part and most risky factor is construction cost overrun. The examination presumed that After RII investigation, sharing of risk among private and public part is most basic factor among every single successful factor for Road projects of Private and Public Partnership and limit and experience of the concessionaire is second most basic factor. Among all factor of risks, construction cost overrun is the most urgent factors for disappointment of Road projects of Private and Public Partnership and traffic revenue risk, insufficient conveyance of duties and risk between the two divisions are second most critical factors. Along these lines, for successful usage of Road projects of Private and Public Partnership we need to predominantly concentrate on private segment duties, past work understanding and shared position and their obligation among private and public parts. For, decrease the risk of disappointment for Road projects of Private and Public Partnership we need to focus and discover the arrangement on lacking revenue age from traffic issues and additionally purposes behind cost overrun.

ShamsidaSaidanKhaderi et al (2019) expressed that Private Public Partnerships (PPP) in Malaysia have been immersed by different debates and reactions from the earliest starting point. A significant number of the limitations that happen in Private and Public Partnership projects is because of the disappointment in offering stage. Offering or delicate for a Private and Public Partnership project is generally significantly more mind boggling than a conventional public-part project including the arrangement of top guides and

originators at an incredible charge in the readiness of nitty gritty structure, far reaching arranging, broad offer documentation, and protracted explanations. These issues similar to the explanation for a few prominent withdrawals during the early Private and Public Partnership tenders, bringing about some favored bidders being chosen by defaults as different contenders pulled back. Base on the above reason, this examination endeavors to propose Private and Public Partnership offering process improvement in Malaysian construction industry. This paper targets giving a review about literature on offering process in Private and Public Partnership /PFI. The goals of the examination are to recognize and understand the Private and Public Partnership execution rehearses in Malaysia; to decide issues and difficulties in Private and Public Partnership offering stage; and to propose Private and Public Partnership offering improvement. The methodology depends on the examination of the relevant publications on the topic. Three principle interest areas can be found in the literature which is; offering technique, issues and difficulties, and methodologies that could be upgrade Private and Public Partnership offering process in the Malaysian construction industry.

III. AIM OF THE STUDY

The main of the study is to analyze and identify the factors of Critical Success in PPP.

IV. RESEARCH METHODOLOGY

The current segment aims to recognize and break down factors of Critical Success for road projects in Telangana for private-public partnerships. In order to understand the perception these officials have created in Telangana with the view to literature review and meeting of high-ranking members affiliated with road-base ventures of the Private Public Partnerships in Telangana, 250 public sector interviewees, private sector partners and road-based agreement producers were surveyed. This detail has been broken down and decrypted in a similar manner using SPSS (ver.22).

V. ANALYSIS AND INTERPRETATIONS

5.1 Identification of Vital Success Factors

In the key progress in the private and public partnerships road project in Telangana are currently established and segregated in a careful manner. By literature review, meetings and meetings with PPP experts in Telangana, within and within Telangana, at first 42 factors were identified over the various phases of the project that were regarded as essential to the progress of private and public relations road projects. Around that time a survey was developed that relied on these success factors of the BOT projects and interviewees were approached to identify these factors. After consultations with road experts in Telangana, growth, land accessibility and correct understanding of concessions, standardization of contracts were discussed.

Tendering Phase
Competitive tendering system
Sufficient long term demand for the project services

Acceptable Toll and Tariff
Sufficient profitability to attract investors
Transparent procurement process
Investment, payment and draw down schedule
Preliminary qualification phase
Stable government
Proper project Identification
Predictable and reasonable frame work of legislation and Regulation
Stable Economic Situation
Availability of funds for infrastructure projects
Capacity and Experience of the concessionaire with road projects
Construction phase
Suitable contractors
Availability of Land
EPC contractors Standardization
Insurance agreement
Innovative and proven technical solution
Multidisciplinary participants
Concession phase
Appropriate risk allocation
Precise concession agreement
Strong and efficient Private consortium
Guarantees by the government
Exit clause in the agreement
Availability of Model concession agreement
Availability of project finance
Penalties
Sufficient exit options to the lender
Availability of long term debt financing
Sources and structure of Finance
Appropriate toll / tariff level(s) and suitable adjustment formula
Inflation
Fixed and low interest financing
Transfer phase
Handing over the road in Good condition
Technology transfer
Division of Escrow account
Dilution of SPV
Operation Phase
Dispute mechanism
Good governance and Management control
Safety considerations
Trained staff for maintenance of highway
Transparency in Operation and toll collection

In view of the factors recognized from the above table a survey was directed and the information accordingly acquired was dissected for descriptive statistics like

standard deviation, mean, and standardization of most extreme and least scores is performed on the basic factors of success dependent on the reactions given

by the members across different phases. It is done as (Mean Response Score-Minimum Response score)/Difference Minimum & Maximum reaction score. Reactions underneath a standardized score

of 0.5 are disregarded. The information was additionally broke down for ranking the basic factors utilizing coefficient of difference technique as introduced in Table beneath:

Table 1: Identification of Critical Success Factors (CSF) using coefficient of variance methodology

Variable	Normalized Value	Mean	Std. Deviation	Factors Ranking
Availability of land	1.00	4.43	0.71	1
Appropriate risk allocation	1.00	4.43	0.60	1
Stable government	0.80	4.09	0.75	4
Proper project identification	0.92	4.29	0.78	3
Acceptable Toll and Tariff	0.78	4.03	0.77	6
Management control and good governance	0.80	4.08	0.85	5
Availability of Project finance	0.75	3.98	0.80	8
Dispute mechanism	0.75	3.99	0.80	7
Strong and efficient Private consortium	0.70	3.89	0.67	10
Guarantees by the government	0.73	3.94	0.76	9
Predictable and reasonable frame work of legislation and Regulation	0.60	3.71	0.86	12
Stable Economic Situation	0.61	3.74	0.83	11
Competitive tendering system	0.59	3.70	0.89	14
Division of Escrow account	0.59	3.70	0.86	13
Capacity and Experience of the concessionaire with road projects	0.56	3.65	0.76	16
Sources and structure of main loans	0.59	3.69	0.96	15
Investment, payment and draw down schedule	0.54	3.61	0.81	18
Fixed and low interest financing	0.56	3.65	0.86	17
Multidisciplinary participants	0.54	3.60	1.08	20
Inflation	0.54	3.61	0.91	19

Of Table 1 above, the most basic factors of success were considered to be the suitable risk share with the average land availability in 1, the 3rd was the valid project defining facts, and the fourth was stable government 5th because broad control of management and good governance, the important toll and taxes were placed in sixth place. Such aspects

were contrasted with and analyzed previously and found that the proper allocation of threats and availability of land are generally important for Telangana projects.

5.2 Critical Factors of Success Factor Analysis

Evaluation of factor is used to identify a relatively limited number of factor groupings that can be used by several interrelated factors to refer to the relations. This method has been added to the data of

the analysis to examine the potential grouping limit of the variables. The first KMO and Bartlett test was performed to check the magnitude of the example as seen in Table 2 below:

Table 2: Bartlett's Test and KMO

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.973
Bartlett's Test of Sphericity	Sig.	.000
	Approx. Chi-Square	19981.124
	df	861

Another indicator of the consistency of the relationship between variables is the Bartlett test. For a sufficient factor review to proceed, the KMO reports the inspection amplex that would be more notable than 0.5. For now, the value of 0.973 indicates that plenty is paramount. That checks the null hypothesis that a matrix of characters is the matrix of association. From the table above, we can see that the sphericity check of the Bartlett

is important, that is, its associated likelihood is less than 0.05. Which says matrix of differentiation is not matrix of personality. Small significance level values (under 0.05) indicate that an interpretation of the element may be beneficial with the current results. The Eigen values are seen in Table 3 below, all out variation explained by the variables omitted.

Table 3: Extracted Factors Representing Total Variance

Component	Extraction Sums of Squared Loadings			Initial Eigen values					
	Variance %	Cumulative %	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %	Total
1	2.383	88.238	2.383	2.383	88.238	1.001	43.466	88.238	18.256
2	85.854	85.854	36.059	85.854	85.854	36.059	44.772	44.772	18.804
3				1.361	92.954	.572			
4				1.466	91.592	.616			
5				1.889	90.127	.793			

The actual 88.238 per cent discrepancy from Table 3 above is clarified by two factors. Factor One renders the overall variance 85,854% visible and Factor Two allows 2 383% of combined variance apparent. Because they do not add to the

established entire variation, residual variables are negligible. Two main progress factors in Telangana for private and Public Partnership Roads ventures are seen in the screen map in Figure 1 below.

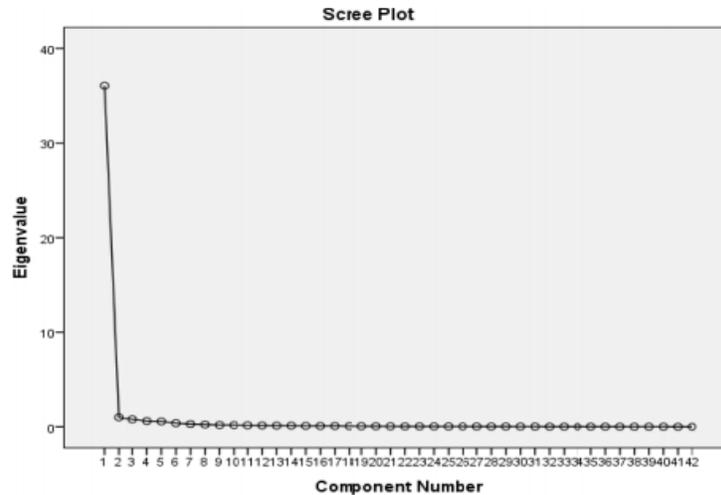


Figure 1: Critical Factors of success Scree Plot

5.3 Perception of Critical Factors of Success Discrepancies Analysis between the Groups

Having analyzed the opinions of the interviewees on Critical Success Factors as set out it should be noted that there are any substantial differences between the groups.

In this way, ANOVA was done with the following hypothesis: H_0 : There is no substantial difference between the perception of fundamental performance factors between the interviewees of the public section, the private portion and the policy maker.

Table 4: Perception of Critical Factors of success

One-Way ANOVA						
Factors of success (Between Groups)	Mean Square	F.	Sig.	Squares Sum	df.	Output
Government Stability	0.159	0.283	0.754	0.318	2	Not Significant
Proper Identification of Project	0.055	0.090	0.914	0.111	2	Not Significant
Reasonable and Predictable System of Regulation and Legislation	1.440	1.835	0.162	2.879	2	Not Significant
Economic Condition Stability	0.703	1.020	0.363	1.405	2	Not Significant
Projects of infrastructure Funds Availability	0.725	1.214	0.299	1.451	2	Not Significant
Road Projects concessionaire Experience and Capacity	0.651	1.119	0.329	1.303	2	Not Significant
Tendering System Competition	2.982	3.714	0.026	5.965	2	Significant
Toll and Tariff Acceptability	0.130	0.159	0.853	0.261	2	Not Significant
Project Service's sufficient long term demand	0.314	0.309	0.734	0.628	2	Not Significant

Payment, Investment and Draw Down Schedule	0.044	0.066	0.936	0.087	2	Not Significant
Advance Technical Solutions	0.427	0.436	0.647	0.855	2	Not Significant
Agreement of concession Precisely	0.032	0.059	0.943	0.065	2	Not Significant
Procurement Process Transparency	2.389	3.399	0.035	4.778	2	Significant
Government Guaranty	0.193	0.329	0.720	0.385	2	Not Significant
Risk Allocation Appropriation	2.165	3.638	0.028	4.329	2	Significant
Concession Agreement Model Availability	0.084	0.099	0.906	0.168	2	Not Significant
Efficient and Strong Private consortium	0.059	0.131	0.878	0.118	2	Not Significant
Penalties	3.346	3.873	0.022	6.693	2	Significant
Agreement of Exit Clause	0.077	0.078	0.925	0.155	2	Not Significant
Debt Financing Long Term Availability	1.053	1.670	0.191	2.106	2	Not Significant
Project finance Availability	1.765	2.802	0.063	3.529	2	Significant
Suitable Adjustment Formula/Tariff and Toll Appropriation	0.242	0.570	0.567	0.483	2	Not Significant
Lender Exit Options Sufficiency	0.421	0.436	0.648	0.843	2	Not Significant
Financing Low and Fixed Interest	0.734	0.986	0.375	1.468	2	Not Significant
Main Loans Structures and Sources	0.253	0.275	0.760	0.506	2	Not Significant
Land Availability	0.025	0.051	0.951	0.051	2	Not Significant
Inflation	2.031	2.497	0.085	4.061	2	Significant
Agreement of Insurance	0.850	0.760	0.469	1.699	2	Not Significant
Suitable Contractors	0.387	0.309	0.735	0.775	2	Not Significant
Multidisciplinary participants	1.015	0.866	0.422	2.031	2	Not Significant
EPC contractors Standardization	0.128	0.126	0.881	0.256	2	Not Significant
Good Governance and Management Control	0.721	1.000	0.370	1.442	2	Not Significant
Proven and Innovation Technical Solutions	0.261	0.353	0.703	0.522	2	Not Significant
Toll Collection and Operation Transparency	0.241	0.232	0.793	0.482	2	Not Significant
Dispute Mechanism	0.262	0.410	0.664	0.525	2	Not Significant

Considerations of Safety	1.253	1.451	0.237	2.507	2	Not Significant
Highway Maintenance Trained Staff	0.261	0.273	0.762	0.523	2	Not Significant
Good Condition Road Handing	0.926	1.565	0.212	1.852	2	Not Significant
Transfer of Technology	3.879	3.137	0.046	7.759	2	Significant
Escrow Account Division	0.464	0.620	0.539	0.927	2	Not Significant
SPV Dilution	5.492	4.742	0.010	10.983	2	Not Significant

From Table 4. it is found that out of 42 factors, the three classes of interviewees interpreted just 8 factors differently. The eight factors i.e., availability of project funding, growth, transition of creativity, sufficient toll and levy with flexible formula, extreme tendering system, clear

procurement mechanism, suitable risk distribution and punishments are seen distinctly among interviewees of the public, private and government. T-Tests are led to see the discrepancies between two different interviewees and presented below in Table 5:

Table 5: Different Variables T-Test

Variable	Respondent Type 1 – Respondent Type 2	Mean Difference	Significance
Availability of Project finance	Public – Policy	-0.603	0.006
Inflation	Public – Private	-0.276	0.091
Technology Transfer	Public – Policy	-0.916	0.037
Acceptable Toll & Tariff	Public – Private	-0.48	0.048
Competitive Tendering System	Public – Private	-0.75	0.027
	Private – Policy	1.1	0.001
Transparent Procurement	Public – Private	-0.52	0.044
Appropriate Risk Allocation	Public – Private	-0.58	0.036
	Public – Policy	0.39	0.056
	Private – Policy	0.97	0.012
Penalties	Public – Policy	-0.45	0.045
	Private – Policy	-0.57	0.033

The following Table 5 points out that the supply of community support in comparison to those that were consulted in the public sector has been substantially expanded by politicians. No major variations in the other two grades. Plan financing has now been given fair

weighting by the legislation and the private branch. By contrast with public-sector interviews, private sector interviewer perceives inflation as a slightly greater consideration as corporate wage rates are offset by low productivity prices. Policymakers have assigned a significantly

higher weight to the innovation transformation associated with both public and private sectors. In contrast with those consulted in the public portion, policy implementers have given considerably greater weight to the SPV weakening. In contrast with the public sector, the private sector calculated respectable tolls and taxes as a key CSF. The open tendering scheme, as well as policy developers, was seen by the private sector as a major and fundamental success factor compared to the public part. Private section finds a simple procurement tool to be a CSF when the public sector is not completely regarded. Public scores for successful risk control strategies have greatly increased than public parties and results have often become better than those of policy making. By contrast with those polled in both the public and the private sectors, government leaders have assessed sanctions as strong CSF.

VI. CONCLUSION

Private and public partnerships are growing rapidly in India and Telangana in building new roads and sustaining established ones. The concept of the private and public collaboration has not yet been thoroughly explored and is a fertile field for potential work in India. We concentrate mainly focused on the land transport aspect of the PPP models. There are so many other fields that PPP is reflective of and then in potential the other aspects should be looked at including airports, fuel, health care and guidance. The research is limited to private and public collaboration ventures in the roads of Telangana. Research into numerous departments and separate Indian States may be expanded in the future.

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