

# ANALYSIS OF PUBLIC PRIVATE PARTNERSHIP (PPP) MODE FOR HOUSING PROJECT

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**Abstract**—In order to solve the housing problem for urban poor, government's resources is not sufficient. Public private partnership (PPP) is the best procurement approach for the affordable housing project, because two major problems such as finance & risk are solved by implementation of PPP. Implementation of PPP model on housing projects is less due to various constraints, so in order to successfully complete a project the study identify critical success factors. The study also identifies the reasons & constraints for adopting PPP. A questionnaire survey was conducted among construction experts for data collection and collected data are analyzed by mean score method.

**Index Terms**—Public Private Partnership, Critical Success Factors, reasons, constraints, Project Management

## I. INTRODUCTION

In developing countries like India, we face a problem of affordable housing due to attraction of people to urban area in search of employment & facilities. A public-private partnership (PPP) is a contractual agreement between public & private sector for delivering public facility. The private sector is able to manage massive funds for large scale projects. Also the private sector is able to provide better quality services compare to public sector because private sector adopt latest technologies, which results into improved quality & service delivery.

## II. LITERATURE REVIEW

The aim of literature review is to study the critical points of previous study including findings as well as theoretical information related to this topic. It is necessary to study the literature to understand the fundamentals related to PPP, Affordable Housing and Critical Success Factors, Reasons & Constraints for adopting PPP.

Prof. Trymbak B. Dhavale et al. <sup>(17)</sup> identified the critical areas that affect the project performance and plan carefully to overcome such risks.

Ping Tao et al. <sup>(12)</sup> analyzed the financing cost-effectiveness model for both BOT (Build-Operate-Transfer) and BOO (Build-Own-Operate) modes which are the most two common form of PPP.

Nilesh A. Patil et al. <sup>(9)</sup> the main focus of the author is to find shortcomings of infrastructure development through PPP in promoting sustainable development. Author explores the relationships between the PPP mode of infrastructure project procurement and the concept of sustainable development.

Osei – Kyei Robert et al. <sup>(11)</sup> explores the key reasons for adopting PPP for construction projects in Ghana.

Diana Car-Pusic et al. <sup>(4)</sup> primarily deals with the potential risks in the public infrastructure sector. He divided the risks which occur in PPP model into four groups, and also suggest required measures to overcome such risk.

Suhaiza Ismail et al. <sup>(16)</sup> scrutinize the challenges in implementing PPP by examining the factors that hinder the successful adoption of PPP.

Florence Yean Yng Ling et al. <sup>(6)</sup> investigate pre-contract problems faced in PPP infrastructure projects in Singapore.

## III. PROBLEM STATEMENT

In a competitive atmosphere as well as to meet growing demand of population, governments around the world are concentrating on new ways to finance projects, building infrastructure and deliver services. In developing India, we faced the problem of shelter to accommodate growing migration of people in Cities for the search of employment and facilities.

## IV. RESEARCH METHODOLOGY

1. Define the problem statement with study of literature.
2. With the help of literature and discussion with experts, critical success factors, reasons & constraints for housing project based on PPP will be found out for making questionnaire.
3. Preparation of questionnaire.
4. Then Questionnaire survey is carried out for collection of data from engineers and contractors.
5. Mean score method is used for ranking of critical success factors, reasons & constraints.

## V. QUESTIONNAIRE APPROACH

In achieving the objectives of the study, a questionnaire survey was used. The questionnaire consisting introduction of survey, details of respondents. A Likert scale to measure the critical success factors, reasons & constraints on a likert scale of 1 to 5, where '1' is not important to '5' is extremely important. A total of 275 questionnaires were distributed to the engineers & contractors. At the end of the survey, 162 completed questionnaires were successfully collected representing a response rate of 58.90%.

The formula for the calculation of Mean Score is given below:

$$\text{Rank Sum} = \sum n W \quad \dots (1)$$

$$\text{Mean Score} = \sum n W / N \quad \dots (2)$$

Where, n = Highest attainable rating (i.e. 5 in this case),

W = Corresponding weight of rank category

N = Total Number of respondents.

**Table 1 Mean Score of Critical Success Factors**

Sr.no	Critical Success Factors	Mean
1	Pre-Analytical study of project	3.46
2	Planning and design with approvals	4.28
3	Funding and its provisions	4.17
4	Demand of project	3.42
5	Duration	3.59
6	Favorable locations	3.41
7	Favorable economic conditions	3.59
8	Competition	3.43
9	Audience Acceptance	3.46
10	Public guarantee's for loan	3.50
11	Complex decision making	3.42
12	Wide gap between public and private sector expectations	3.45
13	Formation of strong partnership (contracts)	4.25
14	Appropriate risk allocation and risk sharing	3.68
15	Selecting the right partner	4.19
16	Delaying Project approvals and permits	2.79
17	Delay in land acquisition	3.18
18	Profit assurance for private sector	3.29
19	Management transfer from public to private sector	3.16
20	Governing body	3.59
21	Guaranteed revenue stream	3.47
22	Commitment and responsibility of Public and private sectors	4.18
23	Legal framework	3.69
24	Statutory and political Environment	3.25
25	Geotechnical Conditions	3.51
26	Quality risk	4.20
27	Workmanship	3.64
28	Availability of Resources	3.54
29	Transparent Procurement	4.06
30	Latest Technology	3.56
31	Operational cost over-run	4.25
32	Operating productivity	3.39
33	Execution	3.50
34	Safety consideration	4.19
35	Assistance in PPP	4.19
36	Political and social support in drafting phase	3.09

**Table 1 Mean Score of Reasons for adopting PPP**

Sr.no	Reasons for adopting PPP	Mean
1	Reduces public sector administration cost	4.22
2	Allows for shared risk	4.28
3	Reduces the problem of public sector budget constraint	4.08
4	Private sector possess better resource mobility	4.14
5	Private sector has ability to raise funds for projects	3.47
6	Offers benefit to local economic development	3.36
7	Improves public infrastructure management and maintenance	4.06
8	Facilitate creative and innovative approaches	3.61
9	Enhances government integrated solution capacity	3.50
10	Provides government assistance in financing	3.54
11	Enhances technology transfer to the local enterprise	2.92
12	Increases access to the public sector market	3.38
13	Saves time in delivering public project	3.44
14	Reduces the total project cost	3.62

**Table 1 Mean Score of Constraints for adopting PPP Arrangements**

Sr.no	Constraints for adopting PPP Arrangements	Mean
1	Reduce the project accountability	3.8333
2	High risk relying on private sector	3.8086
3	Very few schemes have actually reached the contract stage	4.037
4	Lengthy delays because of political debate	3.9321

5	High project costs	3.9321
6	Lack of experience and appropriate skills	3.7469
7	Confusion over government objectives and evaluation criteria	4.0864
8	Lengthy delays in negotiation	4.2222
9	Lack of government guidelines and procedures on PPP	4.2716

## VI. RESULTS

The top ten critical success factors from analysis are, Planning and design with approvals, Operational cost over-run, Formation of strong partnership (contracts), Quality risk, Selecting the right partner, Safety consideration, Assistance in PPP, Commitment and responsibility of Public and private sectors, Funding and its provisions, Transparent Procurement.

The paper concludes the five key reasons for the adoption of PPP in construction project are, Reduces public sector administration cost, Reduce problem of public sector budget constraint, Private sector possess better resource mobility, Facilitate creative and innovative approaches.

The top five constraints based on analysis are, Lack of government guidelines and procedures on PPP, Lengthy delays in negotiation, Confusion over government objectives and evaluation, Very few schemes have actually reached the contract stage, Lengthy delays because of political debate.

## VII. CONCLUSION

From this study, both the sectors (i.e. public & private) can identify critical area that affect the project performance and plan in advance to overcome the risk associate with the critical area. If government & private sector take necessary action to overcome the identified constraints, it may be helpful for both the sectors to achieve benefits & successfully complete a construction project.

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