iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** V **Month of publication:** May 2018

DOI: http://doi.org/10.22214/ijraset.2018.5353

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue V, May 2018- Available at www.ijraset.com

Analysis of Critical Success Factors for Effective Public Private Partnership in Redevelopment of Government Buildings

Pritesh. D. Aher[1], Vaishnavi. P. Naik[2]
[1, 2]*Civil Engineering Department, Nashik District Maratha Vidya Prasarak Samaja's Karmaveer Adv, Baburao Ganpatrao Thakare College of Engineering, Nashik*

Abstract: ***Post-independence urbanization began to accelerate in India, due to the development of the private sector as the country started following and accepting mixed economy. Urbanization is rapidly growing in India. To meet ever increasing demand of land, more of agricultural land has to be urbanized. In the absence of redevelopment and densification of available lands, land remains underutilized and thus contributing to shortage of land and to high land prices. But there are many existing plots in the core of the city which can be redeveloped using Public Private Partnership models for efficient use of land. Critical Success Factors in housing and redevelopment sector are identified and analysed using SPSS software and criticality of factors is determined.***

Keywords: ***Public Private Partnership, Redevelopment, Critical Success Factor, SPSS, Relative Important Index***

I. INTRODUCTION

After independence, India witnessed tremendous poverty, unemployment, and economic instability. For economic development, India adopted mixed economy and people started moving to cities. As per Government's estimates, there is a shortage of more than 25 million housing units for the present population. The Government or the Private Sector independently cannot handle problem of this large magnitude. So Public-Private Partnership (PPP) is appropriate way to address this problem.

Public Private Partnership is a contractual agreement between private firm and Government aimed towards designing, financing, managing, operating, implementing infrastructure services and facilities that were traditionally managed and provided by public sector. PPP emphasizes a range of possible relationships among public and private entities regarding infrastructure, other services and facilities. Public private partnership is a form of private involvement in public project in which the public sector and private sector actually form a partnership and work together towards achieving a common goal. PPP aims to club the skills, expertise, and experience of both the public and private sectors to deliver higher standard of services to customers or citizens. Increasing urbanization is leading to scarcity of land, housing units and commercial centres. In every new development plan, exterior of prevailing areas is brought under development which requires huge funds for infrastructure. But there are many existing plots in the city which can be redeveloped using PPP models for efficient use of land.

II. LIITERATURE REVIEW

A. Critical Success Factors

A critical success factor is an element of management which is necessary to achieve the desired goal of company or the firm.

(Olaniyan 2013) defines critical success factors as "those key areas of activity in which favourable results are absolutely necessary for a particular manager to reach his/her goals.

B. Review of Technical Papers

1) *Olabode Emmanuel Ogunsanmi (2014)*: The author proposes CSSFs to recommend to all stakeholders and practitioners for their use and adoption in future PPP projects and governments must consider for future PPP projects such concessionaires that will provide realistic cost benefit assessments of the projects. Criticality index (CRI) methodology for ranking of critical success factors by conducting a questionnaire survey. Results suggest that CSSFs for successful implementation of PPP project are integrity, complexity of project, project management expertise, realistic cost/benefit assessment, government guarantee private sector financial capability and adequate financial market that must be considered by all stakeholders.
2) *Robert Osei-Kyei, Albert P.C.Chan (2013):* This paper describes Critical Success Factors for Public–Private Partnership which are major research interest worldwide therefore this paper aims to methodically review studies on the CSFs for implementing

PPP from some selected top tier academic journals from 1990 to 2013. The mostly identified CSFs are risk allocation and sharing, strong private consortium, political support, community/public support and transparent procurement. Finally the research approaches adopted are case study, questionnaire survey and mixed methods. The findings provide an overview of CSFs for PPPs in order to enhance future implementations.

3) *LiYaning Tang, Qiping Shen, Martin Skitmore; and Eddie W. L. Cheng (2013)*: The authors in this paper shows Public-private partnerships (PPPs) are increasingly used to procure Australian infrastructure projects. As the early briefing stages are often the most crucial in determining a successful outcome in construction projects. There is a lack of systematic research on the type and nature of the critical factors affecting the effectiveness and efficiency of PPP during this period. A literature review is presented of PPP in Australia, in which four main categories of factors (procurement, stakeholder, risk, and finance) are identified, each with several sub-factors. A questionnaire survey involving state government stakeholders is also described, and a mathematical model that ranks the factors involved is developed. This is followed by an examination of the potential of the factors to help improve the PPP briefing stage for both public and private sectors.
4) Jui-Sheng Chou, Dinar Pramudawardhani: This paper studies Public-private partnerships (PPPs) are an effective and established strategy for procuring infrastructure. For this study, authors compared the categories of key drivers, critical success factors (CSFs), and preferred risk allocation in PPPs established in Taiwan, Singapore, China, the United Kingdom, and Indonesia. Mean value analysis, confirmatory factor analysis, and dimensional importance were used to analyse and compare these categories. This study provides useful information for people seeking to invest in PPP projects, enabling them to enhance their understanding of key drivers, CSFs, and risk allocation in the researched countries. Based on findings, international investors can apply investment strategies by considering the similarities and differences in each country.
5) *Xiaodan Li, Hao Yang, Wenjing Li, Zhiting Chen (2016):* This paper studies the residential Brownfield redevelopment (RBR) which is rapidly growing in US. The paper also throws light on the opportunities and challenges in restructuring RBR's ecological environment and economic benefits. To meet the requirement a collaborative model of public private partnership is adopted. It creates an institutional framework in which the public sectors provide strategic profits to the private sectors, while the private entities implement and develop the public sector's plan. Two case studies are selected for RBR that are Summerset at Frick Park and Hazelwood, both in Pittsburgh, Pennsylvania, for analysis purpose using PPP. The successful case in restructuring ecological environment and promoting sustainable development also provides a paradigm for other cities that are withstanding similar RB or RBR issues.

III. PROBLEM STATEMENT AND METHODOLOGY

A. Problem Statement

Increasing urbanization is leading to scarcity of land, housing units and commercial centres. In every new development plan, exterior of prevailing areas is brought under development which requires huge funds for infrastructure. But there are many existing plots in the city which can be redeveloped using PPP models for efficient use of land.

B. Methodology

The research will be carried out in the following manner :

1) Defining the problem statement with the help of literature.
2) Through expert interviews and literatures, factors are found out and a questionnaire is prepared using importance index.
3) A questionnaire survey is carried out which includes respondents like Government officials, contractors, builders etc.
4) Collected responses are analysed using SPSS software to find the mean of all responses.
5) Ranking of these analysed factors is calculated to find critical factors.
6) Then rating is given according to the mean.

IV. DATA COLLECTION AND DATA ANALYSIS

A. Data Collection

Critical factors in housing sector using Public Private Partnership are studied by collecting the data in the form of questionnaire survey from Government officials, contractors, builders, top managerial authorities. For questionnaire 43 factors are collected which are arranged under heads of General factors, Technical factors, Managerial factors, governing factors, Contractual factors, Financial factors, Operational factors and Other factors.

B. Data Analysis

Questionnaire is prepared and responses are taken from 87 respondents in order to assess the factors in housing sector depending on Relative Importance Index. Criticality of success factor is determined depending on mean values. Each CSF is grouped into five categories like extremely critical, Very critical, average critical, fairly critical and not critical. The forthcoming tables elaborate the data interpretation using the statistical parameter. Mean of an attribute indicate the average value got to the question based on responses in SPSS software.

Table I Descriptive Statistics

	N	RANGE	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION	VARIANCE
PRE-PROJECT ASSESSMENT	87	3.00	2.00	5.00	3.8276	.78068	.609
AVAILABILITY OF FINANCE & ITS PROVISION	87	3.00	2.00	5.00	3.8046	.74458	.554
AUDIENCE ACCEPTANCE	87	4.00	1.00	5.00	3.3103	1.08167	1.170
DIFFERENCES IN WORKING	87	4.00	1.00	5.00	3.0000	1.03430	1.070
POOR DECISION MAKING	87	4.00	1.00	5.00	2.9655	.93321	.871
PLANNING & DESIGNS WITH APPROVALS	87	4.00	1.00	5.00	3.4713	.91294	.833
APPLICABILITY	87	4.00	1.00	5.00	3.3908	.95669	.915
PUBLIC GUARANTEE FOR LOAN	87	3.00	2.00	5.00	3.8506	.86976	.756
PROJECT DURATION	87	3.00	2.00	5.00	4.5862	.69134	.478
GEOTECHNICAL CONDITIONS	87	3.00	2.00	5.00	3.7701	.74242	.551
CONSTRUCTION TECHNOLOGY & METHOD	87	43.00	1.00	44.00	3.9425	4.42865	19.613
DESIGN DEFICIENCY	87	3.00	2.00	5.00	3.7126	.80562	.649
POOR QUALITY OF WORKMANSHIP	87	3.00	2.00	5.00	3.4253	.87114	.759
RESOURCE AVAILABILITY	87	3.00	2.00	5.00	3.6092	.86745	.752
TRANSPARENT PROCUREMENT PROCESS	87	4.00	1.00	5.00	3.3448	.92545	.856
LATEST TECHNOLOGY	87	4.00	1.00	5.00	3.0460	1.35465	1.835
COORDINATION IN SYSTEM WITHIN CONSORTIUM	87	3.00	2.00	5.00	4.1264	.83254	.693
SCHEDULING AND CONTROLLING	87	2.00	3.00	5.00	4.5402	.58676	.344
PROCEDURES FOR TRANSFERRING PROJECT TO CLIENT	87	4.00	1.00	5.00	3.5977	.85535	.732
DISPUTE RESOLUTION SYSTEM	87	4.00	1.00	5.00	3.3793	.83862	.703
RISK RESOLUTION	87	4.00	1.00	5.00	3.0690	1.05426	1.111
GOVERNING BODY	87	4.00	1.00	5.00	3.0115	.99410	.988
UNSTABLE GOVERNMENT	87	4.00	1.00	5.00	2.1839	1.07323	1.152
LEGAL FRAMEWORK	87	4.00	1.00	5.00	3.9310	.83238	.693
POLITICAL ENVIRONMENT	87	4.00	1.00	5.00	2.9540	.79106	.626
INVESTMENT SCHEDULE & GUARANTEE REVENUE SYSTEM	87	3.00	2.00	5.00	3.8161	.65643	.431
GUARANTEE	87	3.00	2.00	5.00	3.7816	.85488	.731
GOVERNMENT ACTS EX RERA	87	4.00	1.00	5.00	2.6322	1.24932	1.561
PREQUALIFICATION OF CONTRACTOR	87	3.00	2.00	5.00	4.0805	.70246	.493
PARTNERSHIP FORMATION	87	3.00	2.00	5.00	3.8966	.80744	.652
DELAY IN APPROVALS PERMITS	87	4.00	1.00	5.00	3.8966	.83575	.698
FORMATION OF CLAUSES	87	3.00	2.00	5.00	3.9425	.91951	.845
INFLATION	87	3.00	2.00	5.00	3.7471	.68571	.470

PRICE CHANGES& TARIFF CHANGES	87	3.00	2.00	5.00	3.8621	.79493	.632
PUBLIC CREDIT	87	4.00	1.00	5.00	3.7356	.81354	.662
CONCESSIONAIRE CHANGES	87	3.00	2.00	5.00	4.1034	.79291	.629
ESCALATION	87	4.00	1.00	5.00	3.2874	1.01050	1.021
OPERATIONAL COST OVERRUN	87	3.00	2.00	5.00	4.0460	.72989	.533
SAFETY CONSIDERATION	87	3.00	2.00	5.00	3.8851	.85488	.731
ASSISTANCE IN PPP	87	4.00	1.00	5.00	3.2874	1.17045	1.370
FORCE MAJEURE	87	3.00	2.00	5.00	3.8736	.77467	.600
POLITICAL & SOCIAL SUPPORT IN DRAFTING PHASE	87	4.00	1.00	5.00	3.5517	.94940	.901
GOOD GOVERNANCE	87	3.00	2.00	5.00	3.8966	.68258	.466
VALID N (LISTWISE)	87						

From these mean values ranks are given to the critical success factors. Following table shows the ranks of critical success factors in descending order of mean value.

Table Ii Ranking Of Critical Success Factors

FACTORS	RANKS IN DESCENDING ORDER	MEAN VALUE
PROJECT DURATION	R1	4.5862
SCHEDULING AND CONTROLLING	R2	4.5402
COORDINATION IN SYSTEM WITHIN CONSORTIUM	R3	4.1264
CONCESSIONAIRE CHANGES	R4	4.1034
PREQUALIFICATION OF CONTRACTOR	R5	4.0805
OPERATIONAL COST OVERRUN	R6	4.0460
FORMATION OF CLAUSES	R7	3.9425
CONSTRUCTION TECHNOLOGY AND METHOD	R8	3.9424
LEGAL FRAMEWORK	R9	3.9310
PARTNERSHIP FORMATION	R10	3.8966
DELAY IN APPROVALS PERMITS	R11	3.8966
GOOD GOVERNANCE	R12	3.8966
SAFETY CONSIDERATION	R13	3.8851
FORCE MAJEURE	R14	3.8736
PRICE CHANGES AND TARIFF CHANGES	R15	3.8621
PUBLIC GUARANTEE FOR LOAN	R16	3.8506
PRE-PROJECT ASSESSMENT	R17	3.8276
INVESTMENT SCHEDULE AND GUARANTEE REVENUE SYSTEM	R18	3.8161
AVAILABILITY OF FINANCE AND ITS PROVISION	R19	3.8046
GUARANTEE	R20	3.7816
GEOTECHNICAL CONDITIONS	R21	3.7701
INFLATION	R22	3.7471
PUBLIC CREDIT	R23	3.7356
DESIGN DEFICIENCY	R24	3.7126
RESOURCE AVAILABILITY	R25	3.6092
PROCEDURES FOR TRANSFERRING PROJECT TO CLIENT	R26	3.5977
POLITICAL AND SOCIAL SUPPORT IN DRAFTING PHASE	R27	3.5517

PLANNING AND DESIGNS WITH APPROVALS	R28	3.4713
POOR QUALITY OF WORKMANSHIP	R29	3.4253
APPLICABILITY	R30	3.3908
DISPUTE RESOLUTION SYSTEM	R31	3.3793
TRANSPARENT PROCUREMENT PROCESS	R32	3.3448
AUDIENCE ACCEPTANCE	R33	3.3103
ASSISTANCE IN PPP	R34	3.2874
ESCALATION	R35	3.2874
RISK RESOLUTION	R36	3.0690
LATEST TECHNOLOGY	R37	3.0460
GOVERNING BODY	R38	3.0115
DIFFERENCES IN WORKING	R39	3.0000
POOR DECISION MAKING	R40	2.9655
POLITICAL ENVIRONMENT	R41	2.9540
GOVERNMENT ACTS (EX RERA)	R42	2.6322
UNSTABLE GOVERNMENT	R43	2.1839

V. RESULT AND DISCUSSION

The results of this paper shows that 6 factors out of 43 are found out to be extremely critical then 33 factors are very critical and 4 are average critical. The extremely critical factors require higher degree of attention and control to manage the funds and resources in most efficient manner as compared to very critical and average critical.

Table Iii Rating Of Critical Success Factors According To Their Criticality

MEAN VALUE	IMPACT
0-1	NOT CRITICAL
1-2	FAIRLY CRITICAL
2-3	AVERAGE CRITICAL
3-4	VERY CRITICAL
4-5	EXTREMELY CRITICAL

Table Iv Rating Of Critical Success Factor And Their Numbers

CSF	TOTAL NUMBER
NOT CRITICAL	0
FAIRLY CRITICAL	0
AVERAGE CRITICAL	4
VERY CRITICAL	33
EXTREMELY CRITICAL	6

VI. CONCLUSION

The findings of the study shows that the critical success factors help the project manager and top authorities to identify the critical areas that affect the performance of the project. Also CSF are very important to identify and analyse the potential risks that may occur in any project. Also the manager can apply degree of control to CSF according to their criticality.

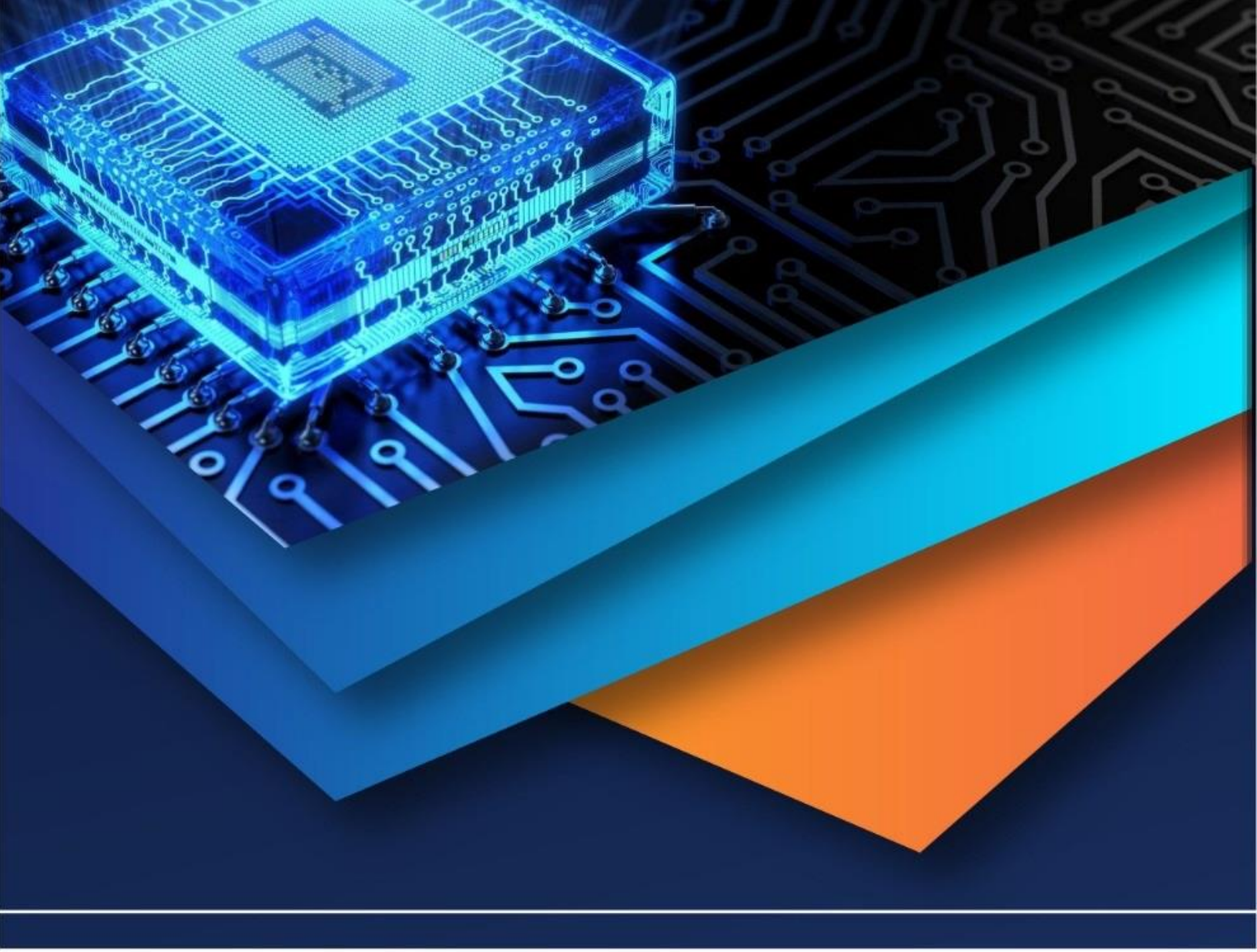
VII. ACKNOWLEDGMENT

We thank PWD Nashik who provided insight and expertise that greatly assisted the work, although they may not agree with all of the interpretations of this paper.

REFERENCES

[1] Olabode Emmanuel Ogunsanmi, "Stakeholders Perception of Critical Success Sub- Factors (CSSFs) for Implementation of Public –Private Partnership Projects", DBA Africa Management Review August 2014, Vol 4 No 2. Pp 89-102

[2] Robert Osei-Kyei , Albert P.C. Chan,"Review of studies on the Critical Success Factors for Public–Private Partnership (PPP) projects from 1990 to 2013 "J. Manage. Eng., 2013, 29(2): 164-171
[3] LiYaning Tang, Qiping Shen, Martin Skitmore; and Eddie W. L. Cheng, "Ranked Critical Factors in PPP Briefings", J. Manage. Eng., 2013, 29(2): 164-171
[4] Jui-Sheng Chou, Dinar Pramudawardhani,"Cross-country comparisons of key drivers, critical success factors and risk allocation for public-private partnership projects" , Elsevier Ltd 2014
[5] Xiaodan Li, Hao Yang, Wenjing Li, Zhiting Chen, **"**Public-private partnership in residential brownfield redevelopment: case studies of Pittsburgh", International Conference on Sustainable Design, Engineering and Construction, (2016) pp 1534 – 1540



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY