

## GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES STUDY AND ANALYSIS OF PUBLIC PRIVATE PARTNERSHIP CONSTRAINTS IN INFRASTRUCTURAL PROJECTS IN MAHARASHTRA REGION

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### ABSTRACT

Public Private Partnership is the most favourable inclusion in the world of construction industry and infrastructural development across the country. The government has started a number of schemes in joint collaboration with private sectors in order to develop the infrastructure of India.

Public Private Partnership has become the demand of developing India. In order to implement the public private partnership it has been observed that there are some constraints that affect the implementation of Public Private Partnership. So the main objective of this research work is to identify various constraints that affect the Public Private Partnership model in Maharashtra region.

*Keywords: Public private partnership, PPP constraints.*

### I. INTRODUCTION

“Public Private Partnership is a joint collaboration between public and private sectors so as to meet the paucity of capital investment to fulfil the requirement of infrastructural development.” To bridge the gap of the basic services the Government is using the concept of PPP. The PPPs have come into existence from over a decade but it has been more successful from past few years. PPPs are one of the best efforts that have been taken by the Government of India. Such measures are necessary for the growth and development of the growing economies in our country [5].

#### Objective of Study:

The main objective of this paper includes

- 1) To identify various constraints which affect the implementation of Public Private Partnership.
- 2) To carry out the Statistical analysis of identified constraints

### II. LITERATURE REVIEW

An overview of past study has been done the various researchers have discussed major issues of Public Private Partnership in their studies are given below;

**Zohra bi, Rebecca Theodore, Sogara Bi;2015[1]** analysed that private participation in infrastructure has increased, number of Public Private Partnership projects have also been increased. Whereas the growth of core industries connected to infrastructure sector do not have a remarkable impact on growth of Public Private Partnership Projects. The study also includes the state wise distribution of the Public Private Partnership projects including sectors. Various Public Private Partnership models are also been discussed which are implemented successfully in different states sector wise.

**Sudhansu Sekhar Nanda, 2015 [2]** has focused on the challenges in Public Private Partnership in India which one of them was pin pointed to finance. This came into the result that if to maintain the effective and efficient functioning of Public Private Partnership in the infrastructure then various Public Private Partnership constraints were stated, which came into result that financial constraint was one of the main constraint to be focused on . therefore financial support scheme should be taken into consideration such as viability gap funding (VGF), Indian infrastructure project development fund (IIPDF), Indian Infrastructure finance company limited (IIFCL).the

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researcher described the viability gap funding where it is stated that the total viability gap funding provided under the scheme is up to 20% of the total capital cost of the project and the IIPDF assist up to 75% of the project development expenses ordinarily.

**Karunendra Pratap Singh 2011[3]** focused on analysis of Public Private Partnership in Infrastructure modernization and development which is the key driver of all the growth and economic activity. Further he states that as the public sectors alone can't meet the required funds and technology for the projects. So the Government decided to accomplish this business by collaborating with the sector which could provide this requirement which was none other than the private parties. Thus PPP emerged. the concept and growth of Public Private Partnership was been elaborated along with the Analysis of various Public Private Partnership models as per industry requirements.

**Tharun Shastry L 2014[4]** divulge that it is a necessity to have Public Private Partnership as it aims to have many merits in large and small investment. the impact of PPP on Indian Infrastructural projects are been discussed along with the Advantages and Disadvantages of PPP in India as followed

#### Advantages

- 1) Value for Money: The important advantage of PPP is the creation of value for money. This means delivering a project with the superior quality for same amount of money.
- 2) Risk Transfer: Risk will be transferred to third party who is best able to manage risk at least cost.
- 3) Private sector management skills: This allows the project to be delivered well ahead of time. By using PPP Government will have access to new skills.
- 4) Competition: Generally competition is associated with private sector, like lower prices, Innovative Practices, Increased Investment, Better services etc.
- 5) Cost Efficiencies: PPP leads to cost efficiencies which are as a result of increased competition, increased proportion of risk transfer, and closer integration of various aspects.
- 6) Time to Delivery savings: PPP projects can be delivered quicker than under conventional procurement because of better project management, better management of project risks and because the service provider is not paid until the project is completed.
- 7) Reduction on the public Treasury: PPP helps reduce the capital demands on the public treasury for infrastructure development.
- 8) Broad support: PPP are broadly supported by central, state and local bodies.
- 9) Others: Innovation, Private sector project development skills, Transparency of process, Involvement of third party financiers etc.

#### Disadvantages

- 1) Higher transaction cost: PPP's try to reduce total project cost, however trending costs and developing costs are generally higher.
- 2) Lack of coordination: As there are two or more parties involved in PPP there are chances of misunderstandings.
- 3) Inefficiencies: PPP can lead to Inefficiency due to lack of contestability and competition.
- 4) Culture Gap: There exists a culture gap between public and private sector which may result in loss of confidence in each other.
- 5) Different Objectives: The private sectors motive to take part in PPP is to mainly make profits but the motive of public sector is service oriented.
- 6) Corruption: PPP projects are always behind the risk of corruption as there are too many people and processes involved in the completion of the project.
- 7) Political and Legal Problems: Changing Governments and major changes in law has sometimes a very bad impact on PPP projects.

**Dr. Tilak Ch Das<sup>1</sup> Sujit Sikidar<sup>2</sup> 2014 [5]** sights that PPP mode has attained quite a degree of success during the last ten year period and the model would continue to serve the nation in creating development in infrastructure also

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tracing the history and evolution of PPP model has been done and to examine its execution at different project level in real life situation also focus on its challenges and constraints in financing the desired projects was carried out it overall concludes that PPP is one of the instruments of delivering public service blending together the benefits of both the world of public ownership of assets with private enterprising zeal and sprit.

**Suhaiza Ismail\*, Fatimah Azzahra Harris 2014 [6]** have sighted that the main focus has been carried out on finding of the constraints for adopting Public Private Partnership it has been done through a questionnaire survey and has been analysed by mean score and mean score ranking RIT by the spss software. It is observed that the Government or the private sector providers, to take the necessary measures as an effort in overcoming the identified constraints to ensure maximum benefit is achieved from the PPP projects.

**Damilolo Akerele and Kassim Gidado1 2003 [7]** focused on constraints and risk differs in the public and private sectors. The public sector seems to underestimate the extent of risk and constraints that need to be seriously addressed before considering implementing a reliable PPP/PFI project. The results from the analysis show the following severity indexes for the key risks, constraints and funding agreements affecting the implementation of PPP/PFI.

### 2.1 Constraints Faced by Public Private Partnership.

Public Private Partnerships in India face barriers posed by the absence of a sufficiently sophisticated financial sector, fiscal barriers, red tape and procedural inefficiencies that have contributed to project delays and discouraged private investors, and. constraints arising from the absence of adequate infrastructure regulation that aggravates risks and uncertainties for investors. Maharashtra state has lined up many projects for private investment under the Public Private Partnership mode. These projects have either been launched or awaiting the nod and are spread over all major sectors like power, transport, education, tourism, infrastructure, urban development and health

The constraints faced by PPPs in India are described under the following headings by the deep study of various literature survey:

1. Political constraints
2. Legal constraints
3. Financial constraints
4. PPP policy framework constraints
5. Social environmental constraints

To conduct the study, a questionnaire were prepared to understand the perception of authorities private as well as public towards Public Private Partnership. On the basis of this questionnaire different types of constraints were formulated to achieve the objectives of the study.

The questionnaire includes the perception of public and private authorities regarding various constraints for public private partnership implementation. These are given below :

#### A] Political

1. To perceive the Support from central government and state government.
2. To perceive government support on on-going project.
3. To perceive problems occurring with timely development of project.
4. To perceive effect of red tapism on implementation of public private partnership project of public and private authority.
5. To perceive the co-ordination between central and state government department regarding public private partnership projects of public and private sector authority is good.
6. To perceive Lack of awareness and poor understanding by decision makers.

#### B] Legal

1. To perceive Adequacy of environmental protection laws.

- To perceive Coverage of public private partnership legal regime / Institutional framework.

### C] Financial

- To perceive Provision in the state government budget for cost escalation of Public and private sector.
- To perceive Provision in the state government budget for cost overrun of public and private sector.
- To perceive Availability of bond market for public private partnership project of public and private sector authority.
- To perceive Public sector project development funds.

### D] Policy framework

- To perceive Necessity of clarity of public private partnership of public and private sector.
- To perceive Necessity of clarity of various stages of project identification ,selection and contracting of public and private sector authority.
- Need of model concession agreement.

### E] Social environment

- To perceive Public support and coordination for public private partnership project of public and private sector authority
- To perceive Role of government in conducting public private partnership awareness program is important.

### F] general

- To perceive public private partnership is much suitable for which projects? Brief?
- To perceive public private partnership which model is likely to be preferred.

## 2.2 Formulation of the questionnaire

The basic objectives of the study is studying the constraints to Public Private Partnership (PPP) and to understand consumers' perception regarding the need to involve private partners for providing infrastructure facilities in various sectors. Together, these objectives will help in suggesting a framework for successful implementation of PPP projects. To achieve this objectives, a questionnaires was formulated.. The constraints identified from the literature review were incorporated into the questionnaire. This questionnaire is designed to study the perception of authorities regarding the various constraints to implement PPP. This questionnaire is administered managerial staff in government departments and private companies that has either expressed interest, or is involved in the development of PPP projects. To check the suitability, clarity and appropriateness questions, drafts of the questionnaires were discussed with the managerial level staff of government agencies and private agencies having experience in PPP. The questionnaire was subsequently refined. the questionnaire were designed in a four point Likert scale. A Likert style of questionnaire was chosen because of the advantages in regard to the elicitation of respondent's extent of agreement or disagreement with a statement; facilitating the production of hierarchies of preferences of the respondents; and generating a hierarchy of preferences for different categories of respondents in the sampling space that can be compared.

## III. METHODOLOGY

The data collected is to determine the most influential factors affecting on the implementation of Public Private Partnership of the project was done through a survey by explorative questionnaire to the respondents involved in daily activities of construction firms in various regions. The questionnaire was designed so that respondents can give the rank to their answers based on their opinions. The analysis of these data was done in tableau software10.2.

### 3.1 Data collection

The research includes an extensive literature study, conducting questionnaires survey from the respective experts in the field as chief Engineers and architects, project managers and general managers of organizations in public and private sector on the factors affecting in implementation of Public Private Partnership also , analysis of this information to develop findings, and Extending these for supporting decisional process about the adoption of PPP projects.

The questionnaires have targeted 50 respondents, out which 13 respondents from government/public authorities and 18 respondents from private authorities respondent 21 respondents did not respond. The collected data was analyzed by using the tableau software 10.2.

*Table 3 respondents list*

<b>Government authority</b>		
<b>number responded</b>	<b>Designation</b>	<b>Work experience</b>
4	Executive engineer	8 to 10 yrs.
5	Deputy engineer	5 to 8 yrs.
4	Junior engineer	3 to 5 yrs.
<b>Private authority</b>		
<b>number responded</b>	<b>Designation</b>	<b>Work experience</b>
5	Project manager	5 yrs. and above
4	Project engineer	5 to 10 yrs.
7	Junior engineer	3 to 5 yrs.
2	Architects	5 to 10 yrs.

### 3.2 Data analysis

The data has been analysed by the tableau software 10.2

Data Visualization is an inevitable aspect of business analytics. As more and more sources of data are getting discovered, business managers at all levels embrace data visualization softwares, that allow them to analyze trends visually and take quick decisions. Currently, the most popular tools for visualizations / data discovery Is Tableau.

### 3.3 Result

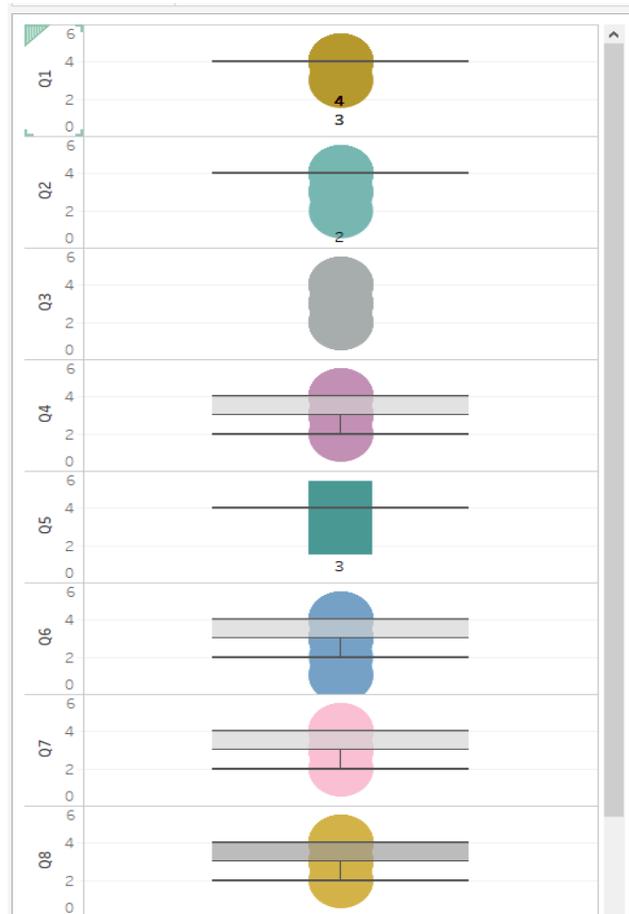


Fig 3.1 highest and lowest whisker point

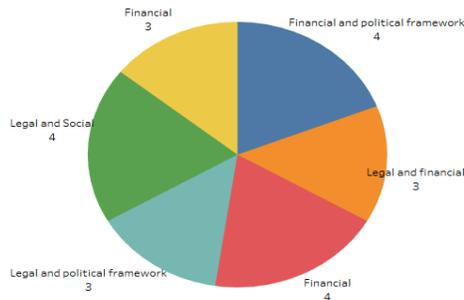


Fig 3.2 highest and lowest constraints

The pie diagram and bubble diagram shows that the most important constraints political, social, financial are being vanquished accordingly, whereas the constraints such as legal and policy framework are lacking behind. In order to get more precise results, more number of respondents are being targeted as well as a software which can give more precise results is to be used.

## IV. CASE STUDY

### 4.1 Introduction

Aurangabad is a city in Maharashtra state in India. The city is a tourism hub, surrounded by many historical monuments. Aurangabad city has developed as an important city of the state with multiple functions as administrative headquarter, Centre for education, trade and commerce, industry and tourism. Historically, too it has developed as the center for administration, trade and commerce. The construction of Meter Gauge railway during the Nizam's rule gave further impetus to its development.

Aurangabad city was rich in lands and the urban local body was developing the infrastructure on their own.

Earlier all the development was carried out by the Urban local body but the construction which started to develop in a stereotype manner in order to change the face of the city and to make the infrastructure development of the city on an higher side the local body decided to develop it in Public Private Partnership and Most Preferably in Build Operate Transfere Model

### 4.2 Aurangabad water supply project

The Agreement was made on the day 22septemper 2011 in Aurangabad, Maharashtra. Agreement was done between Aurangabad city water utility company limited and Aurangabad municipal corporation. Aurangabad municipal corporation (AMC) manages 6 administrative divisions 370 employees water supply department is responsible. AMC draws 156MLD of water, with 10,00000 water connections under its jurisdiction it is computerised in water billing as per water audit report 2007.

There is 50% of the non revenue water accounts of ex treatment supply and around 33% are the real losses also 17% are commercial losses are been carried out.

#### 4.2.1 Objectives of the water supply project

The objectives to be accomplished by the water supply project are as follows

1. Reduction of non-revenue water by reduction of technical losses through leakage management and reduction of commercial losses through identification and legalization of illegal connections metering and improvement in billing connection systems.
2. Refurbishment and expansion of transmission and distribution network each in the manner and to extent set forth in the agreement

#### 4.2.2 Action at execution of this agreement

Certain action were been taken at the time of the agreement which are as follows

1. The Concessioner has to give Aurangabad Municipal Corporation the amount of 79, 22, 00,000 rupees deposit.
2. This will be Valid till the commercial operation date not less than 12 months
3. The agreement It has to be renewed every year.

#### 4.2.3 Reasons for the failure of the project

After certain successful running of the project as time passed the project tend to fail due to Violation of the agreement. After discussion with the concern respective authorities it came into knowledge that certain violation of laws were elaborated which are described below:

1. Their conditions were favouring to the private authority.
2. Water content supply was less.
3. delay of work
4. The tax revenue was not deposited in the join account of the AMC (Aurangabad municipal corporation) and water utility company.

## V. CONCLUSIONS

In the study by literature review and discussions with the public and private authorities major 5 constraints were analyzed including 18 sub constraints. The result were analyzed that major constraints are legal and policy frame work and later political, financial and social. As compared to the case study and the water supply project failed due to the legal constraint and policy frame work which matched the work and analysis carried out. The public as well as private authority has to take into consideration about the constraints and overcome them in order to have a efficacious infrastructural development.

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## REFERENCES

1. Zohra Bi, Rebecca Theodore, Sogara Bi “A Study of the Growth of Private-Public Partnership in India” Assistant Professor, Alliance University, Bangalore \*\* Faculty, Bishop Cotton Women’s Christian College. AEIJMR – Vol 3 – Issue 9 – September 2015 ISSN - 2348 –
2. Sudhansu Sekhar Nanda “Infrastructure Development In India : The Role Of Public-Private Partnership” International Journal Of Core Engineering & Management (IJCEM) Volume 2, Issue 6, September 2015
3. Karunendra Pratap Singh “Issues And Prospects Of Public Private Partnership In India” Assistant Professor, Department of Business Administration, Technical Education & Research Institute, Post Graduate College Ghazipur, Uttar Pradesh, India
4. Tharun Shastry L “A Study on Public-Private Partnerships with Reference to Indian Infrastructural Projects” Term-I PGDM Student, IFIM B School, Bengaluru,
5. Dr. Tilak Ch Das, Sujit Sikidar “Public Private Participation (Ppp) In India-Its Operational Mechanism And Challenges Ahead” Challenges in implementing public private partnership (PPP) in Malaysia.
6. Damilolo Akerele and Kassim Gidado “The Risks And Constraints In The Implementation Of Pfi/Ppp In Nigeria.”