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Study on Planning & Development of Infrastructure Projects under PPP Mission Mode

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***Abstract*—** It has been observed throughout the world that it is difficult for the private sector to meet the financial requirements of the infrastructure while isolating the risks inherent in the construction of the infrastructure. Therefore, the PPP model has become a logical, viable and necessary option for the government and the private sector to work together. Public-private partnership project (PPP) according to the Government of India, a project based on a long-term contract or a concession agreement, between a government or a statutory entity on the one hand and a private company on the other hand, for the provision of an infrastructure service against the payment of usage fees. The grant agreement is specifically designed to finance, design, implement and operate infrastructures, and collaboration initiatives are based on the agreed allocation of resources, risks and returns. In this article, the author emphasizes the concept and growth of public-private partnerships, the analysis of various models of public-private partnership according to the requirements of the sector, the advantages and disadvantages of public-private partnerships in the developing economy . development like India, investigating the problems of the public-private partnership model in India and suggesting probable solutions..

Keywords*—PPPs (Public Private Partnership); BOOT (Build Own operate Transfer); BOT (Build Operate Transfer), Infrastructure development, Public services, PPPAC, VGF* etc.

I. INTRODUCTION

Public-private partnership is a joint collaboration between the public and private sectors to address the lack of capital investment to meet infrastructure development requirements. To bridge the gap in basic services, the government is using the concept of PPP. PPPs have existed for more than a decade, but have been more successful in recent years. PPPs are one of the best efforts made by the Indian government. These measures are necessary for the growth and development of growing economies such as India. It has been observed throughout the world that it is difficult for the private sector to meet the financial requirements of the infrastructure in isolation, while addressing the risks inherent in the construction of infrastructure. Therefore, the PPP model has become a logical, feasible and necessary option for the government and the private sector to work together.

It has been observed throughout the world that it is difficult for the private sector to meet the financial requirements of the infrastructure in isolation, while addressing the risks inherent in the construction of infrastructure. Therefore, the PPP model has become a logical, feasible and necessary option for the government and the private sector to work together. A public-private partnership project (PPP) according to the Indian government indicates a project based on a long-term contract or a concession agreement, between a government or legal entity on the one hand and a private sector company on the other, to provide an infrastructure service. In paying user fees. The concession agreement is specifically aimed at financing, designing, implementing and managing infrastructural facilities and the collaboration companies are based on the allocation of mutually agreed resources, risks and returns. In this article, the author emphasizes the concept and growth of public-private partnerships, the analysis of different models of public private companies according to the needs of the sector, the advantages and disadvantages of public-private partnerships in the economy in development path as India, investigating the problems of the public-private partnership model in India and suggesting probable solutions.

Public-private partnership defined as legal agreements between public and private entities that offer the provision of physical infrastructure and services to the company in terms of specific duration. There, the private sector functions as financing, maintenance, administration, construction and other public sectors, providing full social and environmental support to PPP projects. PPP projects develop high-quality infrastructure projects, such as roads, highways, ports, airports, subways and other sectors, and in the sectors of health, education, child development, skills development, sanitation, etc. All PPP projects improve the quality of life of the citizen. Public-private partnerships are not simply tools to finance projects, but require the total commitment of all partners to complete the project. The continuous growth of the national economy depends on the availability of qualitative and sustained infrastructures and basic services. PPP is the best answer to meet the requirements that are essentially necessary for the best economy and continuous. The PPP or P3 is recommended for the implementation of infrastructure projects. The public-private partnership in the modern era is the best way to implement several government regimes in partnership or in partnership with the private sector. In PPP projects, both the public and private sectors play an important role in providing services to most of the projects related to the formulation and implementation of the strategy.

II. LITERATURE REVIEW

PPPs refer holistically to long distance, legally binding organizations, between public and private offices, which focus exceptionally on financing, planning, execution and work services and services that are usually provided by the Government and / or its offices. These community-oriented efforts are based on the ability and limit of the company's accomplices and depend on a legally binding assertion, which guarantees an adequate and commonly concurred share of the assets, hazards and returns. This methodology of creation and work of open public services and the framework of the private segment in pleasant terms and conditions for both the legislature and the private area is called PPP.

The Public-Private Partnership (PPP) writings show that PPPs are difficult to characterize (Evans and Bowman, 2005, Hodge, 2005, Jefferies and McGeorge, 2008). Bettignies and Ross,

(2004) point out the way in which the PPP has been characterized in a distinctive way by scholastics, public offices and global associations, with the result that a comprehensive definition to which all concur is subtle. Weihe (2008) assumes that a legitimate meaning of PPP, one that encompasses all the various varieties of the idea that is currently being used, is still not conceivably conceivable. Hodge and Greve (2005) characterized the PPP as an institutional collaboration between the public and private segments with the intention of expanding competition and the viability of the provision of public services. Hayllar (2010) characterizes PPP as a legally binding game plan that includes the private division in the transport of public services, taking into account an organizational methodology in which public and private services share the duty to provide services, both of which convey their responsibilities. Additional skills to the company. Van Ham and Koppenjan (2001) characterized the PPP as a collaboration or something that affects the hardness between the open and private interpreters in which together they create elements and services and share risks, costs and resources that are related to these products.

III. OBJECTIVE

The proposed Study of paper work has been carried out with following objectives:

1. To study the concept and growth of the public-private partnership and its importance.
2. Analysis of different models of public-private partnerships based on the needs of the sector.
3. Study the advantages and disadvantages of public-private partnership in the development of the economy such as India.
4. Evaluation of public-private partnership models (PPP) and explain the current scenario of PPP projects. In particular in the area of infrastructure development.
5. Analyze various opportunities and problems. Before the Public Private Partnership (PPP) especially with Regarding the development of Indian rural infrastructure

IV. METHODOLOGY

Expert systems:

Expert systems are developed using historical data and experience assisted by specialists in each discipline of a construction team to try to identify possible risks. They tend to be expensive to produce, particularly in the construction industry due to their natural nature. Expert systems can not reveal hidden risks because they tend to focus on obvious risks that have occurred previously in other historical projects or in the area of expertise of the specialist who assembled the package.

Currently, expert systems are improving and development continues, especially using software packages. There is little evidence to suggest that expert systems will identify all the risks inherent in a construction project, but will only show standard risks. These models should be used very carefully.

Risk identification techniques:

The identification of risks is the first step in any risk management process. It mainly deals with the knowledge of the various risks in the work in progress. These risks should be separated after a thorough examination of the project. There are several risk identification techniques such as,

- Check list
- Delphi technique.
- Interviews
- Expert system
- questionnaires

Sensitivity analysis:

The NPV of a project is based on the series of cash flows and the discount factor. Both determinants depend on many variables such as sales income, production costs, competition, etc. Given the level of all these variables, there will be a series of cash flows and, therefore, there will be a NPV of the proposal. However, if any of these variables change, the value of the NPV will also change. It means that the value of NPV is the sensitivity to all these variables. However, in most cases, the value of the NPV will not change in the same proportion for a given change in one of these variables. For some variables, the NPV may be less sensitive, while for others, the NPV may be more sensitive. Sensitive analysis (SA) refers to the consideration of the sensitivity of the NPV in relation to the different variables that contribute to NPV.

Steps required to apply the Sensitivity Analysis to the Capital Budget proposals:

1. Based on expectations for the future, cash flows are estimated in relation to the proposal.
2. Identify the variables that affect the cash flows of a proposal? For example, some of these variables may be the sale price, the cost of inputs, the market share, the market growth rate, etc.
3. Establish the relationship between these variables and the output value, that is, the effect of these variables on the NPV value of the proposal.
4. To find out the range of variations and the most probable value of each of these variables, and
5. Discover the effect of the change in one of these variables on the value of the NPV. This exercise must be done individually for all the factors

Results are only possible if the simulation is performed a large number of times.

Decision tree Analysis

Very often, a company may have to make a sequential decision, ie the current decision is influenced by decisions taken in the past or affects the future decisions of the same company. In capital budgeting, project evaluation often requires sequential decision-making in which the decision to accept and reject is taken in stages. Instead of making a decision once and for all, it is divided into several parts and phases. At each stage there may be more options available and the company has to decide every time which option should be taken. This can be explained with the help of a simple situation.

A company has devised a new product. It reads for the pilot production company, which is estimated to cost 10 million rupees and will take a year. If the results of the pilot production were encouraging, the next step would be to test the product market. This will cost 4 million rupees and the last two months. Depending on the outcome of the marketing test, it is possible to make a production decision. However, the company can skip the marketing test phase and make a decision about the production of the product or not. If the company decides to manufacture the product commercially, it addresses two options: a small plant or a large plant. This decision depends mainly on the size of the market. Although the level of short-term demand can be measured by the test

market results, long-term demand will depend on initial user satisfaction.

If the company initially builds a large plant, it can meet the needs of the market when the growth in demand is favorable. However, if demand is weak, the plant would operate at a low level of capacity utilization. To start with, if the company builds a small plant, it does not have to worry about a weak market and the consequent use of low-level capacity. However, if the market becomes strong, you will have to build another plant soon (and then incur a larger total outlay) to save yourself from competitive invasion. To examine such situations in which sequential decision-making is involved in the face of risk, the analysis of the decision tree is a useful tool.

An analytical technique used in sequential decisions is the decision tree. The decision tree approach can deal with multi-stage decisions. The focal point of the decision tree takes its name from the similarity with a tree that has several branches. A current decision depends on the past decision and its results. Decision trees are diagrams that allow to clearly assign the different decision-making alternatives, their results and the probabilities of their occurrences. In a typical decision tree, the project is divided into clearly defined phases and the possible results in each phase are listed with the probabilities and the effect of the cash flows of each result.

VFM Post facto analysis

The VfM assessment of the Amritsar intercity bus terminal was carried out qualitatively, mainly due to the limited financial information available in the public domain. The analysis of VfM is based on the expected benefits of this project. The main benefits that have been accumulated as a result of this project are:

- Guarantee income to the contracting authority through lease payments.

During the concession period, the concessionary agency receives a rent of R $ 50,000 per month from the private operator for the use of the project site. This is in addition to the Rs 35 lakh project development fee paid by the private operator to the concession authority. Therefore, during the duration of the project, the concession authority is guaranteed a fixed payment in addition to a last generation intercity bus terminal that it would obtain at the end of the concession period.

- Development of a modern intercity bus terminal with O & M efficiently.

managed by the private operator. The current Amritsar bus terminal was built in 1965 and was unable to meet the growing demands and increased passenger traffic in the city of Amritsar. In addition, with the expected growth of the city planned for the coming years, the concession of this terminal to a private operator has allowed the development of a modern intercity bus terminal that is better equipped to handle the growing volumes of passenger traffic. The terminal offers a comfortable, safe and convenient environment for passengers boarding and disembarking in this terminal. This is a major update of the infrastructure of the existing Intercity bus terminal in Amritsar. In addition to improving basic passenger services, such as the provision of adequate seats, designated bus locations, electronic screens, and parking areas for cars and bicycles, this terminal also provided catering services for passengers. Drivers that require overnight.

- No cash outlay for the concession authority during construction

as a period of O & M As a consequence of the development of the modern intercity bus terminal through the BOT route, the concessionaire agency had no cash exposure in the project either during the construction phase or during the O & M period. During the concession period, the intercity bus terminal complex would be transferred to the concession authority without capital expenditures.

Demonstration effect: the Amritsar Bus Terminal was only the second project of this type to be carried out in India and it got a good response with the effect that a number of other bus terminals in Punjab and other cities in India They were fired in a similar way.

Project life Cycle	Activities
Inception Feasibility Procurement Development Delivery Exit	• Project conceived by DoT, GoP and PIDB and configured through project advisor in 2002 • 2 Stage Bidding Process started in November 2002 • Concession Agreement signed in February 2004

V. RESULT & DISCUSSION

1. Facilitation provided by the government to ensure efficient execution. In the case of the development of Amritsar intercity bus terminal, the government provided the necessary facilities to guarantee an efficient lease of land to the private operator, the necessary approvals for the development of the project and the support of the private operator during the construction phase . as well as the O & M phase of the project. This was a critical element in the timely execution of the project and the private operator could To complete the construction in advance and to a large extent within the budgeted costs.

2. Favorable political environment to guarantee the flow of income. As part of the terms of the concession agreement, the government issued notifications that all intercity buses would be necessary for the withdrawal and re-routing of passengers to the new intercity bus terminal. The terms of the grant also specified "adda taxes" and user fees for specific passenger services with guaranteed escalation during the concession period. In addition, uncertainties related to the political environment were also addressed in the concession contract in which any change in the level of the policy with a direct impact on the profitability of the project and that occurred after the signing of the concession contract would have been compensated by the concession authority.

3. The structuring of the flexible project was carried out to facilitate the financing of the project.

In the case of the Amritsar intercity bus terminal project, the government has adopted the necessary provisions under the concession agreement to facilitate project financing through loans. Since the collection of "adda taxes" was similar to the collection of tolls in road projects, credit institutions were provided with sufficient security through access to project income sources and replacement rights were provided in case of non-compliance. . of the private operator.

4. Need to develop a monitoring and implementation mechanism. According to preliminary estimates, Amritsar intercity bus terminal would have had to drive from 2000 to 3000 buses per day according to the pre-established schedule of the Department of Transportation, Government of Punjab. However, at present, the Intercity Bus Terminal handles around 1700 buses per day. While the recent economic slowdown has had an impact on the arrival of buses, part of these lower bus numbers is due to the inability of the private operator to ensure that all buses use intercity bus facilities as scheduled. Several buses collect and leave passengers outside the complex of the Intercity bus terminal, thus avoiding the payment of "adda fares". In addition to issuing notifications, it is necessary to create a monitoring mechanism to ensure that all buses comply with notifications. The necessary enforcement mechanism among the various governmental divisions should also be identified and implemented to ensure the effective implementation of predetermined schedules and the imposition of sanctions for non-compliance with these programs. This would help improve the financial sustainability of such projects and mitigate the risks associated with these events.

5. Detailed and clear definition of the design and scope of the project. The detailed definition of the scope of the project and the provision of complete design specifications for the construction phase, as well as the performance parameters for the O & M period, are crucial in the projects that are being carried out for the first time in the private sector. . This is to ensure that the project is developed in accordance with the expectations of the licensed authority and that the private operator maintains the necessary standards both for the development of the project and for delivery.

Identification of risk

• Risks vary widely from one sector to another, from one project to another and from one phase to another, and must be identified by the appropriate qualitative technique.

• The potential impact and its probability of occurrence must be evaluated and classified accordingly.

Risk Assessment

- Risks having high degree of impact are to be selected and their impacts need to be measured in terms of cost and time by means of various quantitative techniques.

Risk Mitigation

- In BOT projects risks are to be allocated to the party who is capable of handling the risks.
- Some risks are to be avoided, some are to be transferred or shared between the parties or by third parties such as insurance agencies and others are to be retained.
- Some of the risks to be mitigated by various Agreements, Guarantees and through Government support.

Financial analysis

- The financial sustainability of the proposed project depends on the service of the debt and the expected return of the project. Any risk directly or indirectly affects financial profitability.
- Every risk has a variable impact on profitability depending on its occurrence, either alone or in combination with other risks.
- The internal rate of return of a project on long-term flows is more sensitive to variations of the revenue in relation to changes in the interest rate, the cost of construction, and the operating cost of the subsidy.

Recommendations

- Any individual risk assessment method is not a sufficient tool per se. The results of all these methods should be considered, and then the appropriate decisions must be made accordingly.
- The probability of occurrence of a risk must be obtained by an expert in the respective field.
- The concession agreement must be balanced by sharing the risk of attracting private participation in BOT / BOOT projects.
- In developing countries where the risk mitigation instruments are rarely available, government can promote PPPs by providing minimum guarantees.
- The agreements that support the BOT parts must be watertight to avoid controversy.

It is the public-private partnership necessary for the development of the necessary structures, the identification and mitigation of risks in infrastructure projects of public-private partnerships and financial evaluation according to the banks, government institutions, financial institutions and private.

But there is much more room for the detailed study of the financial feasibility of various infrastructure projects such as energy, transport, telecommunications, ports, etc. Some of the main components of any financial model, as a means of financing, income projections, depreciation methods, etc. Various for various infrastructure projects. For a detailed analysis of the risks in the financial model, we can use the simulation analysis can handle situations involving too many external variables and complex relationships between variables in infrastructure projects. This study can be further expanded to prepare the ideal financial model to bring these different parameters on the same platform, so that the same financial model is applicable for any project.

CONCLUSION

The PPP agreement was accepted as a substitute for the overall weight of the Indian government for the expansion of world-class infrastructure development. It is the right time to discuss the sudden arrival and relevance of PPPs in India's development strategy and to investigate real alternatives for economic change.

Its share of obstacles and difficulties, but he understood the need for the PPP takes into account the infrastructure needs of India and its features that show how the project should be

- Improving the efficiency of the time,
- Greater practicality,
- Increased Reliability
- Cost savings along with the easy availability of information.

Therefore, based on the results above, it can easily suggest that the Indian government should be ready with increased funding and funding in areas that have been listed above. The Indian government should not hesitate to make the private sector a part of development and growth. However, the participation must be sustainable and mutually respectful partners. The government should also develop mechanisms to encourage the rapid and rapid delivery process and, if possible, minimize bureaucratic obstacles. This document claims that for the

effective and efficient functioning of the JPA in the financial support schemes of the infrastructures and the various PPPs. Schemes like VGF, IIPD and IIFCL are very useful for the PPP scheme.

 This study was done to suggest and develop some tools that will eventually be useful for governments, financial institutions, owners and / or contractors for timely completion of large infrastructure projects at a reasonable cost and a specific quality.
Projects PPP projects are aimed at financing, designing, implementing and managing infrastructure structures and services traditionally provided by the public sector.

 The Indian government is leading the process of promoting PPP projects in India to create a success story. However, the general financial gaps in infrastructure are quite high according to estimates by India's planning commission. The investment needs in infrastructure are huge. India faces a very large financial gap that must be overcome by domestic, foreign and private investments.

BOOT

• Risk management will not eliminate all the risks of the project. Its main objective is to ensure that risks are managed in the most efficient way.

• For successful participation in the BOT / BOOT projects, participants must expand their knowledge base and risk management capabilities that deal with technical, economic, financial, environmental, political and regulatory, organizational, contractual and management. stakeholders

• It is necessary to understand the nature of the participants to clearly identify the interests and risks they would be willing to accept.

• The complex of BOOT structure with a large number of participants and with different degrees of risk in different phases, must be combined and integrated clearly through the various arrangements such as the concession contract, the agreement of shareholders, the construction contract, the 'discuss operations and maintenance, etc.

Purpose future of work:

PPPs are not just an option, but a necessity. It is seen that the PPP has many advantages, such a large investment in public infrastructure (both urban and rural), the efficient provision of services, profitability, contracts based on performance, risk distribution, the effective use of activities and opportunities of long standing. Long-term investment Although India follows a mixed economic approach, which depends on private public participation in economic activities, the public-private partnership in infrastructure has now been more than a decade. It seems to create significant value for the Indian government and its citizens

At last the future of PPP projects is very vast because it will give:-

- Better infrastructure
- Increase in GDP
- Attract FDI
- Improve the image of country globally
- More employement generation in different projects
- Catalyst for the economy
- Risk sharing
- Optimum allocation of resources
- Value for money
- Innovations in the field
- Aid in growth of other sector

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