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Comparision of PPP and Cost Plus Contract

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***Abstract*— PPPs and traditional infrastructure procurement are merely two modes to deliver value for money. Therefore, as a matter of principle it seems that the choice between using a PPP or traditional procurement should be simple , governments should prefer the method that creates the most value for money. However, in practice the choice is not always as simple. In practice, the value-for-money objective is very often blurred, and the choice between using a PPP and traditional infrastructure procurement may be skewed by factors other than value for money. As cost plus contract is prevalent practice and also commonly plasticized in government sector, so rather than comparing other contracts with PPP we are preferring cost plus. We will compare cost plus and PPP contracts by considering points cost, time, quality and risk. And feasibility of PPP contract over cost plus contract. As Among these points of comparison based on study on cost is carried on point's financial agency, Maintenance Cost and Cost Escalation and cost per km. of road. This is found out that through PPP contract new financial agencies in the form of private sector is available for better infrastructure development which attends the maximum value for money although the Amount required per Km. of road length is more for PPP contract.**

***Index Terms*— PPP, Cost plus, cost, time, risk.**

I. INTRODUCTION

A. OVERVIEW

Since the early 1990s, but more so since the early 2000s, there has been a significant increase in the use of PPPs. Countries such as Australia, France, Germany, Korea and the United Kingdom increasingly use PPPs to deliver services that they previously delivered through traditional public procurement. For most of the last decade, PPPs in the India constituted approximately 12% of total annual capital expenditure. The drive to use PPPs is increasingly premised on the pursuit of value for as it includes both qualitative and quantitative aspects and typically involves an element of judgment on the part of government, a precise measure for value for money does not exist.

Nevertheless, value for money can be defined as what a government judges to be an optimal combination of quantity, quality, features and price (i.e. cost), expected (sometimes, but not always, calculated) over the whole of the project's lifetime. Thus, the value-for-money concept attempts to encapsulate the interests of citizens, both as taxpayers and recipients of public services. As such, value for money should in principle also be the driving force behind traditional infrastructure procurement. Therefore, any project, whether it is a PPP or a traditionally procured project, should be undertaken only if it creates value for money. With value for money being the objective,

PPPs and traditional infrastructure procurement are merely two modes to deliver value for money. Therefore, as a matter of principle it seems that the choice between using a PPP or traditional procurement should be simple: governments should prefer the method that creates the most value for money. However, in practice the choice is not always as simple. In practice, the value-for-money objective is very often blurred, and the choice between using a PPP and traditional infrastructure procurement may be skewed by factors other than value for money.

Some factors skew choice towards traditional procurement, while others skew it towards PPPs. Factors may include: the legal and institutional set-up that procuring entities face; the range and complexity of the ex ante and ex post value-for-money tests to which PPPs and traditionally procured infrastructure projects are subjected; the roles in the procurement process of the parliament, the finance ministry, the PPP unit and the procuring entities; and the accounting standards applied to both PPPs and traditionally procured infrastructure projects. Political preference for or against PPPs may also play a role in skewing incentives and affecting choice, together with issues such as the availability of skilled staff, the strength of public sector unions, inability to quantify and price project risks, and the general complexity of some projects. With the focus on the attainment of value for money and by exploring the issues raised above, this article sets out to compare the two methods of procurement.

B. OBJECTIVES OF STUDY

- To verify the conditions to choose the type of contracts for a particular construction work or activity.
- To check the feasibility of using PPP over cost plus contract on the basis of cost , quality , time and risk
- To attain value for money by comparing PPP and cost plus contract.

C. METHODOLOGY

To design PPP contract by cost plus contract and cost plus contract by PPP contract We do have other types of traditional contracts but, after discussing with field people and government officers It came to know that cost plus is prevalent practice and also commonly plasticized in government sector. So rather than comparing other contracts with PPP we are preferring cost plus.

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II. DATA COLLECTION

A. For PPP contract I have taken road project of Sinnar to Nashik of N.H.50

Name of the National Highway	[Length (in Km)]	Estimated Project Cost (In Rs. cr.)
Development of Sinnar to Nashik of N.H.50 (From Km. 177/00 to Km.201/350) to 4 lane on PPP following DBFOT (Toll) in State of Maharashtra.	25.31 (including Sinnar Bypass- 9.51 km.)	312.96 Crores (including cost of Sinnar bypass- Rs. 97.76 Crores)

B. For cost plus contract I have taken road project of Dwarka to Nashik road.

Name of the National Highway	[Length (in Km)]	Estimated Project Cost (In Rs. lakhs.)
Widening with paved shoulders with construction of central median with pedestrian guard railing in Km.203/080 to 208/649 of Nashik-Pune road NH-50 in the state of Maharashtra.	5.569	857.47(As per revised estimate)

III. COST ANALYSIS

A. FOR PPP CONTRACT

The main objective of cost analysis is to examine the viability of implementing the proposed four/six laning of the Sinnar Nashik road section of NH-50 on a commercial format. The analysis attempts to ascertain the extent to which the investment can be recovered through toll revenue and the gap, if any, be funded through alternative revenue sources. This covers aspects like financing through debt and equity, loan repayment, debt servicing, taxation, depreciation, etc. The viability of the project is evaluated on the basis of Project IRR and Concession Period. The IRR is estimated using Net Present Value Method, where both costs and revenues have been indexed to take account of inflation. The analysis has been done for the flexible pavement option for the project road as a whole.

3.1.1 Capital Costs and Its Phasing

The capital cost of the project relates to cost of widening of road sections from 2 lane to 4 lane and includes cost of civil works for roads, culverts, bridges, toll plaza etc. The total time period for completion of construction is 24 months.

The construction / improvement is proposed in phases as below :

Year 2011 -50%

Year 2012 - 50%

a) Base Cost

The total cost of the proposed project or the base cost at 2010-11 prices has been estimated at Rs. 256.13 Crore . This cost is phased over a three year construction period from 2011 to 2012 with phasing of 50 percent in 2011 and 50 percent in 2012.

b) Cost Escalation

With a view to account for inflation, the base costs have been escalated at a rate of 5.0 percent per annum to obtain the actual costs in the year of expenditure. This is in line with the inflation rate observed recently.

c) Interest during Construction (IDC)

The interest during construction, which is the cost of funding incurred on the project, has been calculated on the basis of an interest rate of 12% per annum as currently adopted by most financial institutions.

3.1.2 Operation and Maintenance Cost

Routine maintenance costs comprise primarily of maintenance of the pavement, collection of litter, traffic management (policing), accident repairs and all ancillary works including beautification. The annual routine maintenance costs have been taken as per requirement & Ministry's norms for maintenance of highway. The periodic maintenance costs to be incurred in every 5^{th} year relate to costs of functional overlay and repair/renovation of road furniture, drains, building etc. The operation cost for toll plaza includes pay roll cost of the crew, communication and security services. Only one toll plaza is proposed.

3.1.3 Project Revenue

a) Toll Revenue

All categories of fast moving vehicles, except two-wheelers, auto rickshaws, tempo (passenger) and agricultural tractors on the project road will be tolled. The toll rates for the improved 4 lane road are based on the Ministry's circular. Since the cost of Sinner bypass is more than Rs. 50 Crores, separate toll rates are considered for the Sinner Bypass. The toll rates by vehicle type for existing NH length and Sinnar Bypass are presented below:

Toll Rates for Existing NH – 15.80 Kms (Rate given are per vehicle/km)

The toll revenue presented in Table below:

Year	Car	Mini bus	Bus	LCV	2Axle Truck	3Axle Truck	4-6Axle Truck	>6Axle Truck
2007	0.65	1.05	2.20	1.05	2.20	2.40	3.45	4.20

As per the above referred circular, toll rates are inflated by 5% every year. Toll revenue is estimated over the concession period by using toll rates set as described above for the tollable traffic. The revenue stream has been analyzed on the basis of 365 days in the year.

b) Advertisement Revenue

In addition to toll revenue, another source of revenue considered is advertisement revenue. The advertisement revenue can be earned through advertisements on toll plazas,

reverse sides of toll tickets and other suitable locations, without distracting the road users. However toll revenue from advertisement is not considered at present.

B. FOR COST PLUS CONTRACT

The financial analysis of work Widening with paved shoulders with construction of central median with pedestrian guard railing from of Dwarka to Nashik road, defines contract price is calculated using bill of quantities. The contractor is paid for the quantity of the work done at the bill of quantities for each item. If requested engineer, the contractor shall provide the engineer with detail cost breakdown of any rate in bill of quantities.

Payments shall be adjusted for deductions for advance payments, retention, other recoveries in terms of the contract and taxes at source, as applicable under the law. the employer shall pay the contractor the amount certified by the Engineer within 28 days of the date of each certificate. If Employer makes a late payment, the contractor shall pay interest on the late payment .at rate of 12% per annum.

Once project in handed over to state government repair and Maintenance will be carried out by state government.

IV. RISK ANALYSIS

Having identified the risks it will be then necessary to consider the effect on the Project. Risk will either result in an increase in cost; or result in a decrease in revenue. An increase in cost could be either: an increase in capital cost; or an increase in revenue expenditure. Thus the risks left with the Concessionaire must be capable of being managed by the Concessionaire.

Risk	**Allocation in case of PPP**		
	Concessionaire	**Granting authority**	**Concessionaire And Granting authority.**
Permit/ approval	Concessionaire- Permits relating to environmental protection and conservation of the site will be obtained by the NHAI, other applicable permits has to be obtained by the contractor.		
Delay in land acquisition	Granting authority- NHAI will pay damages calculated at Rs 50 per day for every 1,000 sq. m commencing from 91st day of the date of financial closure and until such right–of-way is procured.		
Time overrun during construction	Concessionaire- In the event the concessionaire fails to meet the project milestone, he or she has to pay damage at 0.1% of the performance security amount (which is about 5% of the total project cost) for each day of delay. However, the damages paid will be refunded in case the project achieves completion on or before the scheduled completion date		
Change of scope	Granting authority- Granting authority will bear all the costs arising out of any change of scope order if the costs exceed 0.25% of the total project cost. Otherwise, the costs shall be borne by the concessionaire		
Operation and maintenance risk	Concessionaire – In case of lane closure beyond the specified time limit, concessionaire shall pay damage calculated at 0.1% of the average daily fee for every stretch of 250 m or part thereof, for each day of delay. In case the concessionaire fails to meet the maintenance requirements, it shall pay damage calculated at higher of (a) 0.5% of average daily traffic, and (b) 0.1% of the cost of rectification.		
Competing roads	Granting authority – The granting authority will pay the concessionaire compensation equal to the difference between the realizable fee and the projected daily fee until the breach is cured		
Change in law	Granting authority/ Concessionaire – The effects of the change in law in terms of increase in costs or reduction in costs shall be borne by granting authority and concessionaire as per the agreed schedule.		
Traffic revenue risk	Concessionaire – MCAs provide for extension of the concession period in the event of a lower than expected growth in traffic. Conversely, the concession period is proposed to be reduced if the traffic growth exceeds the expected level.		
Time and cost overrun during construction	Concessionaire- Concessionaire has the right to start construction at its own risk Concessionaire is entitled to receive bonus or incur penalty in early or late completion of construction If the delay of commercial operation date from the scheduled project completion date is in excess of 120 days, then granting authority could terminate the concession agreement and appropriate the performance security		
Delay in payment of annuity	Granting authority- Granting authority is under the obligation to make payment to the concessionaire within 90 days. Granting authority provides a revolving irrevocable letter of credit for one installment of the annuity. Granting authority pays the annuity in two equal semi-annual installments.		
Political risk	Granting authority – The Granting authority will bear the political risk due to any political event which has a material adverse effect. If failure to make good the effects of the political events occurs, granting authority will reimburse the affected party as the provisions of the termination event due to political risk		
Performance standards	Concessionaire- In case of material breach of the operations and management requirements, the granting authority can terminate the agreement. Some of the circumstances leading to material breach include the Riding quality below the prescribed acceptable level.		
Lane availability	Concessionaire – Non-availability of lane for reasons due to concessionaire failure to discharge its obligations leads to deduction in the annuity amount payable to concessionaire		
Interest rate risk	Concessionaire – The interest rate risk has been factored in the annuity quoted by the concessionaire		

Risk allocation framework for PPP Project

Risk allocation for Cost plus Project:
Granting authority's Risk –

A) Risk associated with Natural calamities Such as Flood , Earthquake, Heavy rain Or if there is direct effect of riots and explosions.

B) If there is any design which is exclusively provided by Granting Authority.

C)Maintainace has to be carried themselves.

D) If payment is not within 28 days then has to pay interest of 12% per annum.

Concessionaire's Risk –

A) Delay in payment of annuity – As payment will me made within 28 days of submission of work progress.

B) Time overrun- Delay in payment causes time overrun

V. CONCLUSIONS

The following conclusion was drawn after this work has been carried out:

By comparing PPP and cost plus contract on the basis of points like cost, quality, time and risk. Among these points of comparison based on study on cost is carried on point's financial agency, Maintenance Cost and Cost Escalation and cost per km. of road. This is found out that through PPP contract new financial agencies in the form of private sector is available for better infrastructure development which attends the maximum value for money although the Amount required per Km. of road length is more for PPP contract .And risks involved in PPP contracts are more compare to cost plus contract. But these risks can be eliminated by their proper allocation.

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