

## A PUBLIC SECTORS' PERSPECTIVE OF FACTORS CONSTRAINING USE OF PUBLIC PRIVATE PARTNERSHIP FOR ROAD SECTOR DEVELOPMENT IN INDIA

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**ABSTRACT**

*The importance of the development of road sector for the growth of the economy of a country cannot be undermined. In India, Transportation sector contributes close to 6.4% of the GDP of which 4.7% comes from Road sector alone, much above the 1% contribution from the Railways sector. 65- 70% of the goods traffic and 90% of the passenger traffic is handled by the road sector. India has the second highest road network in the world after USA. Even after such an impressive statistics the road development has not kept pace with the growth of the country. After the introduction of Public Private Partnership (PPP), there was an exponential growth of 69.43% in the length of the National Highways in the 9<sup>th</sup> five year plan. But there after the growth subsided – 14.59% in the 10<sup>th</sup> plan and 15.36% in the 11<sup>th</sup> plan. The number of projects awarded on PPP decreased sharply. This paper aims to investigate factors constraining the use of PPP in the development of road sector. The study is motivated with the country's inability to use PPP to the extent required in the development of road sector. A questionnaire with a list of 13 factors constraining the use of PPP, identified through literature review and discussion with experts, was administered among public sector clients. This paper analyses the views of only one stakeholder - Public sector clients. The questionnaire was tested for its reliability using Cronbach's Alpha. The data was analyzed using statistical tools. The top five factors identified were - Higher charge to the direct users, Much management time in contract transaction, High participation costs, Lack of experience and appropriate skills in handling issues during implementation / work-in-progress and high project costs.*

**Keywords:** Public Private Partnership, PPP, Negative Factors, Road development, Infrastructure

**Introduction**

An efficient delivery of infrastructure services contributes to economic development of a country both by increasing the productivity of the industry and by providing amenities which enhance the quality of life. In that sense transportation plays an important role as any reduction in its cost raises the profitability of production by permitting higher

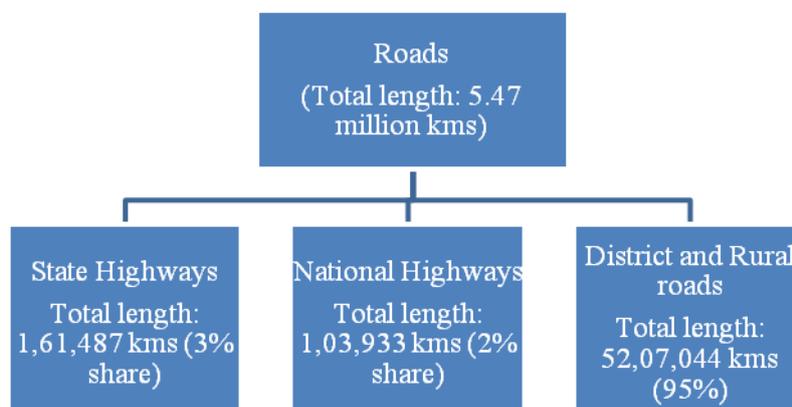
levels of output, income &/or employment. As per Transport Corporation of India report of Feb 2011, a 0.5% reduction in logistical costs will lead to a 2% increase in trade, and a substantial 40% increase in the range of products exported out of the country. Poor transportation facilities have ripple effects creating bottlenecks and slack capacity utilization in all sections of the economy. In India, Transportation sector accounts close to 6.4% of the GDP of which 4.7% comes from Road sector alone, much above the 1% contribution from the Railways sector. The government of India considers road network as critical to the country's development, social integration and security needs (Planning Commission, 2011). 65- 70% of the goods traffic and 90% of the passenger traffic is handled by the road sector ([www.nhai.org/roadnetwork.htm](http://www.nhai.org/roadnetwork.htm)). India has the second highest road network in the world after USA. Even after such an impressive statistics the road development has not kept pace with the growth of the country. Indian road network is not consistent with the development of the economy.

### Indian Road Network

India inherited a poor road network at the time of its independence in 1947. Between 1947 and 1988 not much attention was paid to the roads sector. In earlier years much focus was laid on railways hence road network did not receive enough resources. Most of the roads were single lane and majority was unpaved. India did not have expressways moreover less than 200 kms were 4-lane highways.

There have been substantial imbalances' and inadequacies in the road infrastructure. National Highways that constitutes 2% of the road network handles 40% of the traffic. Despite the fact that

**Figure 1: Indian Road Network**



Source: Ministry of Road Transport and Highways (MoRTH) Annual Report 2016-17, Aranca Research

budget allocation to roads sector has been low as compared to railways, the total road length has increased from 0.4 million kms in 1950-51 to 5.21 million kms in 2017 amounting to a 13 fold increase in road length (Planning Commission, 1981; IBEF, 2017). While this is remarkable, the passenger buses and goods traffic has increased manifold. The roads are of limited value from the point of view of movement of heavy traffic. Only 20% of the surfaced roads are estimated to be in good condition, which

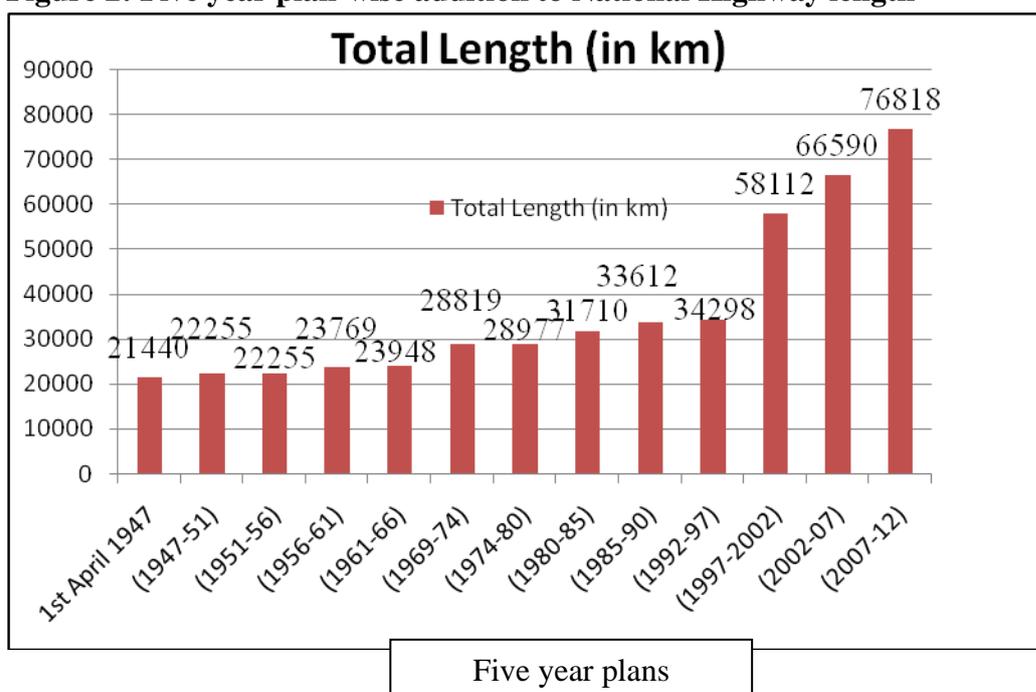
compares unfavorably with other countries viz Indonesia and Brazil 30%, Korea 70%, Japan and USA more than 85% (Planning Commission, 1997)

### Public Private Partnership

World over the provisioning of infrastructure services has been the domain of the Government. Public sector traditionally uses lowest bid method (EPC) to award the contract. But, this encourages parties to use cost cutting measures at the cost of quality enhancing measures which makes it less likely that the contract shall be awarded to the party that delivers highest quality products. The state owned infrastructure utilities suffered problems such low labour productivity, poor service quality, thefts, revenue shortages, inadequate investments, deteriorating equipments. At the time of preparation of 10<sup>th</sup> five year plan, Rs. 1,65,000 crore were estimated for removal of deficiencies for National Highways alone. The huge infrastructure investment requirement, the fiscal constraints and the mounting liabilities faced by the government forced them to think of innovative ways of financing and developing infrastructure. ‘Public Private Partnership’ was one such model introduced by the Government to bridge the gap.

PPP is defined as “the transfer to the private sector of the investment projects that traditionally have been executed or financed by the public sector” (www.imf.org). The National Council for Public–Private Partnership, USA defines a PPP as a “contractual arrangement between a public sector agency and a for-profit private sector developer, whereby resources and risks are shared for the purpose of delivery of a public service or development of public infrastructure. A significant characteristic of PPP is the allocation and sharing of risk among parties (Ke et al., 2010a, 2010b). Unlike other procurement methods, the risks in PPP are identified and allocated to parties best able to manage and mitigate those (Li et al., 2005a).

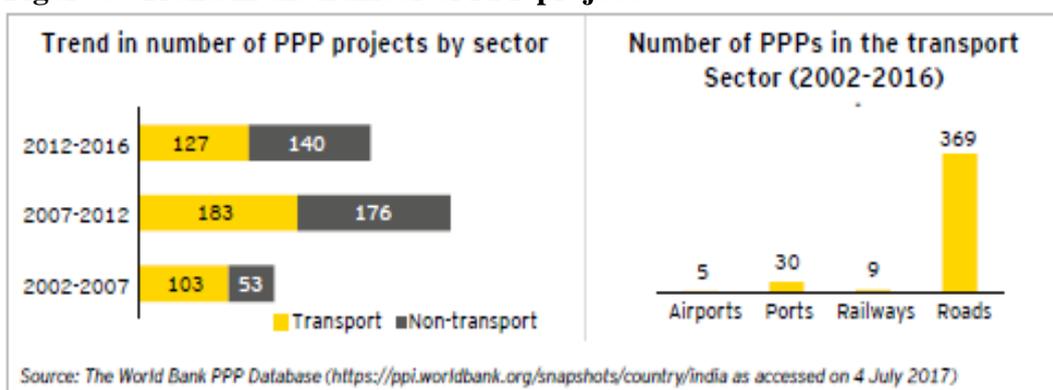
**Figure 2: Five year plan-wise addition to National Highway length**



In 1988 an autonomous entity National Highways Authority of India (NHAI) was established by an act of Parliament, National Highways Authority of India Act and came into existence in 1989. Although the Authority was created not much happened till early 1990s when India introduced widespread economic liberalization. Since 1995 major efforts were made by the Government of India to change India's road infrastructure. India formulated policies in favor of attracting private participation in the infrastructure sectors. After the introduction of Public Private Partnership (PPP), there was an exponential growth of 69.43% in the length of the National Highways in the 9<sup>th</sup> five year plan (1997 – 2002) (refer the figure below); but there after the growth subsided – 14.59% in the 10<sup>th</sup> plan (2002 - 07) and 15.36% (2007 -12) in the 11<sup>th</sup> plan. Government has been making continuous efforts to revive the sector.

India failed to maintain the initial tempo in PPP. GMR & GVK have walked out of mega-highway projects; in 2012-13 thirteen out of twenty-one and in 2013-14 twenty-one National Highways Authority of India (NHAI) projects failed to attract bidders. Out of 1,500 km of highways under build, operate, and transfer (BOT) in the first quarter of 2012-13, the private players submitted bids for only 100 km.

**Figure 3: Trend in the number of PPP projects**



This paper aims to investigate factors constraining the use of PPP in the development of road sector. The study is motivated with the country's inability to use PPP to the extent required in the development of road sector.

### Research Methodology

The public sectors' views on the factors constraining the use of PPP for development of road sector were solicited by way of a questionnaire survey. Factors of constrain that were considered for evaluation were lengthy delays on account of political debate, higher fees to direct users, confusion over government objectives & evaluation criteria, lengthy delays in negotiation, very few schemes reaching contractual stage, high project cost, high risk to private sector, high participation cost, lack of experience and appropriate skills in handling issues during implementation / work-in-progress, excessive restriction on participation, much management time in contract transaction, less employment positions and reduce the project accountability (Li et. al, 2005) .

A questionnaire template designed by Li in 2003 was used for this study with prior permission obtained from the author Dr. Bing Li. Although a fresh questionnaire could

have been developed but there were two advantages to using Li's questionnaire. Firstly, the questionnaire was well accepted as was evidence from the publications using the result of the research findings derived from the questionnaire and secondly, there would be no added advantage to redo the work that has previously been done by some researchers.

#### 4.1. Scope of Study

For this study the region that was considered was the State of Maharashtra and the type of roads that were considered was National Highways. Hence the population consisted of employees working / worked in public sector involved in the development of road projects in Maharashtra through PPP mode.

#### 4.2. Sampling

The chosen sampling method for this study was purposive / judgmental sampling. The reason for this selection was that the pool of respondents is difficult to penetrate and referrals / contacts were the best means of reaching qualified respondents. Purposive sampling is where a researcher selects a sample based on their knowledge about the study and population.

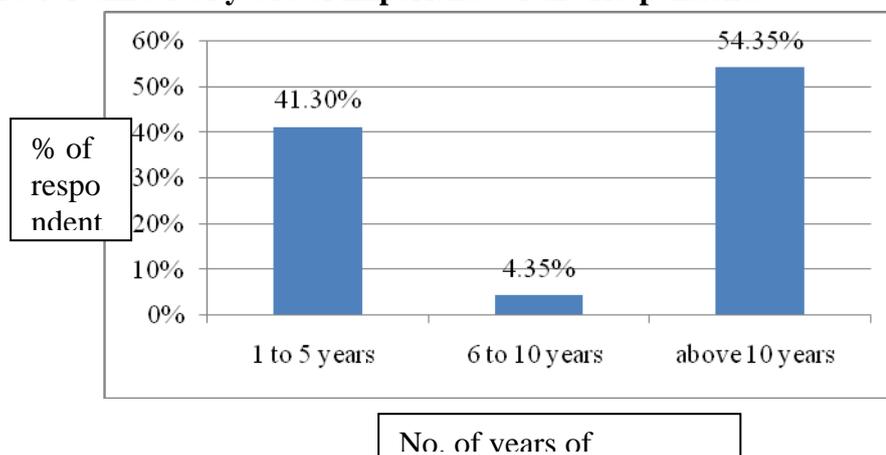
#### 4.3. Collection of data

The questionnaire was sent to 165 respondents. Target respondents were selected based on their direct hands-on experience with PPP projects. The respondents were identified through personal contacts, business oriented social networking website www.linkedin.com, company's websites etc. The respondents were asked to rate their degree of agreement against each of the identified factors using a five-point Likert scale (1 – not important, 5 – extremely important, 0 – not applicable). The respondents were contacted through internet, email, personal calls, sms, personal visits etc. A regular follow-up was done to remind them to fill the questionnaires.

### Analysis and Findings

The questionnaire was subjected to reliability test, Cronbach Alpha. The result of the test was 0.853 which is greater than 0.7 which states that the data collected for the factors is reliable (Norusis, 1992 and Nunnally, 1978). A total of 80 completed responses were received out of which 5 were incomplete. The 75 completed questionnaires were then analyzed using descriptive analysis.

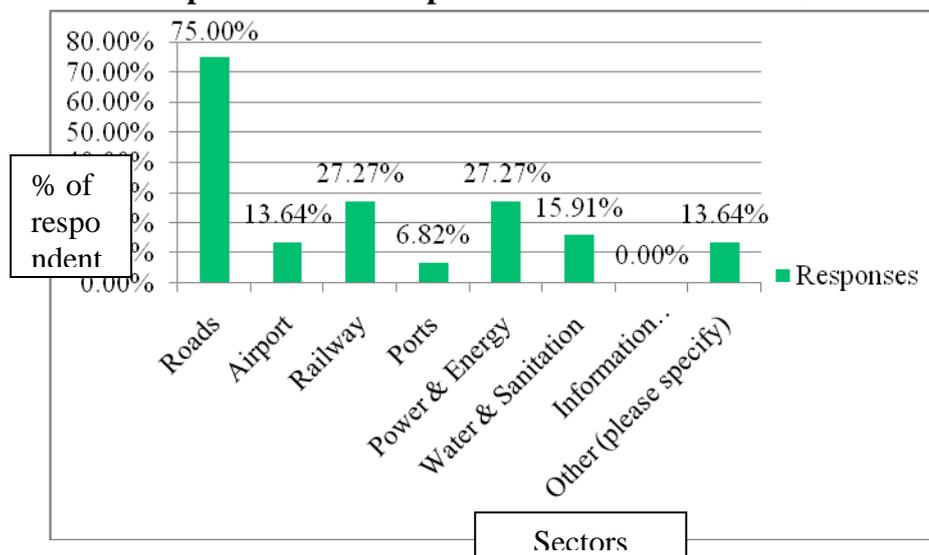
**Figure 4: Number of years of Experience of the Respondents**



The analysis of the profile of respondents depicts that around 59% of the respondents have work experience of more than six years with around 55% having more than 10 years experience. Hence we can conclude that the findings are tuned towards the voice of experienced professionals.

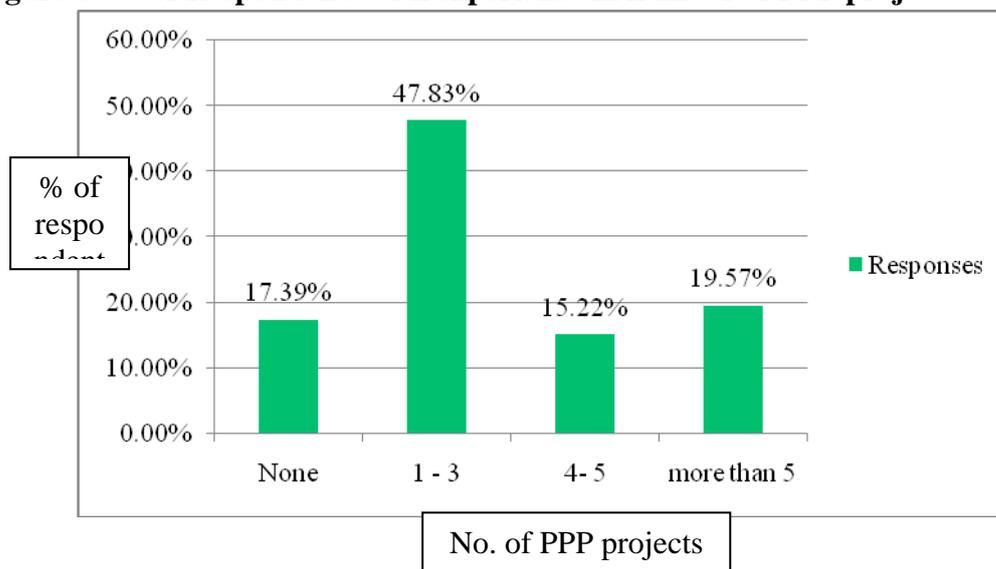
75% of the respondents have been involved in PPP projects in roads which depicts high relevance specific to the PPP and road sector.

**Figure 5: % of Respondents with Experience in Different sectors**



Around 84% of the respondents have been involved in atleast 1 PPP projects. From the figures 4, 5 and 6 we can conclude that the responses to the questionnaire have a rich relevant to the area of study.

**Figure 6: % of Respondents with experience in number of PPP projects**



The 13 factors of constraints were analyzed using mean and the result is as below,

**Figure 7: Ranking of Factors of Constrain**

Factors of Constrain	Public Sector	
	Score	Rank

Lengthy delays by political debate	3.00	6
Higher charge to the direct users	4.67	1
Confusion over government objectives and evaluation criteria	2.00	8
Lengthy delays in negotiation	3.00	6
Very few schemes have actually reached the contract	2.67	7
High project cost	3.33	5
High risk relying on private sector	2.67	7
High participation costs	4.00	3
Lack of experience and appropriate skills in handling issues during implementation / work-in-progress	3.67	4
Excessive restrictions on participation	1.33	9
Much management time in contract transaction	4.33	2
Less employment positions	2.67	7
Reduce the project accountability	0.67	10

### Conclusion

The average value range from 0.67 (reduce project accountability) to 4.67 (High charge to the direct users). The top four factors are High charge to the direct users; much management time in contract transaction; High participation costs

‘High charge to direct user’ is drawn from the fact that Indians have yet to mature to the culture of paying toll for using roads. The importance of toll money for the construction of roads and improvement of the service delivery is yet not completely accepted. Many a times people backed by political parties have opposed toll plazas.

‘Much management time in contract transaction’ reflects that PPP process is rather a bit complex because of the involvement for various stakeholders. An extensive amount of time is consumed by both the public sector and the private sector in bidding, pre-contract negotiation and project monitoring.

‘High participation costs’ refer to high tendering costs, pre-bid preparation cost, administration cost, consultation fees for both the public sector as well as the private sector.

‘Lack of experience and appropriate skills in handling issues during implementation / work-in-progress’ stems from the fact that Dispute resolution mechanisms are slow and not very well developed, often derailing project timelines and freezing funds. As of 2016 road projects worth Rs.25000 crore were held up due to disputes between NHAI and private developers.

‘High Project cost’ due to increasing labor cost and high land prices act as a major roadblock in the national highway expansion. The road transport and highways ministry has seen an *increase* of 30% in total *cost of highway* construction on account of high land *prices* and *increased labor costs*.

### References

1. ([www.nhai.org/roadnetwork.htm](http://www.nhai.org/roadnetwork.htm)) assessed on 10<sup>th</sup> December 2017
2. Indian Brand Equity Foundation (2017), Roads Sector Report.
3. Ke, Y., Wang, S., Chan, A. P., (2010a). Risk allocation in public–private partnership infrastructure projects: comparative study. *J. Infrastruct. Syst.*343.
4. Ke, Y., Wang, S., Chan, A.P., Lam, P.T., (2010b). Preferred risk allocation in China's public–private partnership (PPP) projects. *Int. J. Proj. Manag.* 28(5), 482–492.
5. Li, B., Akintoye, A., Edwards, P.J., Hardcastle, C., (2005a). The allocation of risk in PPP/PFI construction projects in the UK. *Int. J. Proj. Manag.* 23 (1), 25–35.
6. Norusis, M. J. (1992) SPSS for Windows, Professional Statistics, Release 5, SPSS Inc. Chicago.
7. Nunnally, J.C. (1978), *Psychometric Theory*, 2<sup>nd</sup> ed., McGraw-Hill, New York, NY.
8. Planning Commission, (1981), Sixth Five Year Plan, Government of India New Delhi.
9. Planning Commission, (1997), Ninth Five Year Plan, Government of India New Delhi.
10. Planning Commission, (2011), Report of Working Group on Road Transport, Ministry of Road Transport and Highways, Government of India, New Delhi
11. Li, Bing; Akintoye, A; Edwards, P J; Hardcastle, C (2005b), Perceptions of positive and negative factors influencing the attractiveness of PPP / PFI procurement for construction projects in the UK – Findings from a questionnaire survey. *Engineering, Construction and Architectural Management*, Vol 12 No. 2, pg 125 -148