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# Adoption Of Ppp In Infrastructure Projects: A Study Of Transport Sector In India

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## ABSTRACT

In the wake of public sector's growing inefficiencies, the private sector's participation in India's infrastructure development is crucial. Given the public sector's resource limits, PPP (public-private partnership) seems like the best option for infrastructure. High population growth and migration to cities have strained current infrastructure, creating a need for more. Demand for road, rail, and air transportation is high. PPP is the only option to meet transportation and infrastructure needs, and many governments have begun promoting it as a vital mechanism of infrastructure development and economic success. This study will investigate both government measures to encourage and grow public-private partnerships and project implementation and delivery, such as scope, status, etc. The report also looks at PPP projects in the transportation industry.

**Keywords:** private sector, infrastructure development, public-private partnership, transportation infrastructure, economic success.

## 1. INTRODUCTION

It is naive to believe that public-private partnerships are the current paradigm for infrastructure development in view of the fact that the supply of infrastructure is one of the most pressing concerns in the world (Swain, 2009). Through the use of a Public-Private Partnership, an infrastructure project or service that would normally be provided by the public sector is instead offered by the private sector (PPP). According to Das (2012), a public-private partnership (PPP) project is defined as a cooperation between (at least) one government or public institution and a business from the private sector. These aims for the project have been specified. Both parties provide resources and are willing to bear considerable commitments and risks associated with the project. The public-private partnership model has the ability to enhance financing while simultaneously improving resource allocation and asset usage (Public-Private

Partnerships Reference Guide, 2012). Collaborations between the public and private sectors are mutually beneficial for all parties involved, including the government, businesses in the private sector, and the general public as a whole (Sharma, 2009). A few of these include a reduction in expenses, as well as improved quality and system performance, as well as the ability to deliver new technologies (Das and Nandy, 2008), as well as improved services and productivity. Other benefits include the ability to supply new technologies (Gupta and Roy, 2008). However, in order to construct a long-term PPP model and achieve the specified economic development goals, the private sector and the public sector must both share a spirit of partnership. According to Das (2012), the term "partnership" is one of the most important aspects of PPPs. The private business world and the public sector need to collaborate for this issue to be resolved before it can be considered solved.

It is necessary that private sector engagement be sought in the development of India's infrastructure, as the state sector is increasingly unable to do so due to a lack of resources and capacity. It is imperative that private sector engagement be sought in the development of India's infrastructure (Mahalingam, 2010; World Bank Institute, 2012). Given the constraints placed on the resources available from the public sector, public-private partnerships (also known as PPPs) seem to be the most viable option for the provision of infrastructure (Mahalingam, 2010; World Bank Institute, 2012). PPP has, in point of fact, been advocated by a number of countries as an option to economic development (Das and Nandy, 2008). The current infrastructure has been put under strain as a result of urban migration and rapid population expansion, which has necessitated the immediate building of new infrastructure in order to satisfy demand that is only going to increase. Given the increasing number of vehicles on the road, there is no way to overestimate the importance of having dependable roadways, rail lines, and air travel. In this scenario, the only viable option is public-private partnership (PPP), which requires the development of appropriate modes of transportation and supporting infrastructure. The type of project, its current status, and other aspects of project implementation and delivery will be investigated as part of the section of the study that focuses on the efforts made by the Indian government to encourage PPP. The purpose of this study is to determine the quantity of public-private partnership (PPP) activities, particularly within the transportation subsector of the economy, so that transportation infrastructure can be provided.

## **2. LITERATURE REVIEW**

With mounting concerns about public debt during periods of financial instability, public-private partnerships (PPPs) are a relatively new concept, both internationally and in India. They only acquired hold in the second half of the 1970s. PPP was only introduced to the government in 1991, when sectoral reforms promoted the policy framework for PPP for infrastructure development (Lakshmanan, 2008; Iqbal, 2012).

It is possible to think of a country's economic success as being propelled forward by the quality of its infrastructure (Mishra, Narendra and Kar, 2013). Before economic reforms, the government was in charge of infrastructure development and had recognized the

connection between infrastructure and economic development in the very first Five Year Plan it had implemented. In addition, the government has often stressed the importance of building public infrastructure (Pillai, 2008). In the early 19th century, a handful of large PPP projects were started, but the major impetus of the PPP movement emerged only after the 1991 economic reforms and the 1991 Industrial Policy Resolution (Iqbal, 2012). Public-private partnership (PPP) is being encouraged by both the federal and state governments. PPPs in India have been boosted by a number of government initiatives, which have led to the implementation of various PPP projects. According to the World Bank, India had launched 978 projects as of 2018, with 496 of them coming under the transportation sector, which is significantly lower than the total number of projects launched by other developed and developing countries combined as of 2018. There is a pressing need to upgrade urban infrastructure and implement the PPP model because of the immense burden that migration has placed on already-existing urban infrastructure (Mahalingam, 2010).

Indian infrastructure projects are divided into two categories: national and state and local. The national level is handled by the Central Government, while the state and local governments are in charge of the latter. Both fronts have made little progress so far (Mahalingam, 2010). PPP attempts are concentrated in a small number of industries, and the majority of those industries have gotten minimal attention, according to an industry classification. Just over 72.90 percent of all 406 central level projects are allocated to the National Highways sector, with only 17.48 percent allocated to major ports and airports and 4.67 percent allocated to railways, respectively. Urban infrastructure projects account for 30.48 percent of all projects at the state level. That was followed by a 28.84 percent share for the road and 10.12 percent for the electricity sectors. 4.04 percent of all projects were non-major ports, 0.89 percent were airports, and 0.34 percent were railroads.

The current global lingo for infrastructure development is "public-private partnership" (Swain, 2009). One of India's biggest problems is the lack of infrastructure because the public sector lacks the capacity and financial resources to build the necessary infrastructure on its own (Mahalingam, 2010). As a result, the private sector's role becomes crucial for closing India's infrastructure gap (Mahalingam, 2010; World Bank Institute, 2012). Given the public sector's resource limitations, public-private partnerships, or PPPs, appear to be the most practical choice for providing infrastructure (Mahalingam, 2010; World Bank Institute, 2012). In fact, many nations have promoted PPP as a means of advancing the economy in place of economic development (Das and Nandy, 2008). Urban migration and high population growth have significantly strained existing infrastructure, necessitating urgent infrastructure development to meet the demand that is only set to increase. Since demand is rising more quickly than ever, it is crucial to have proper transportation options like roads, trains, and airplanes. In this regard, PPP is the only viable option and the provision of adequate infrastructure and transportation facilities is inevitable.

Among developing countries', strongest market for private infrastructure investment is India because to the policies and initiatives put in place by Central and State

governments. (Mishra, Narendra & Kar, 2013). According to the World Bank's report on private participation in infrastructure, India has been the top receiver of PPI since 2006. With a record investment of \$71.9 billion, India launched 94 new projects in 2010 and accounted for 43 percent of all investments in infrastructure projects with private participation in developing countries. In the last two decades, this is the highest yearly growth rate for any rising country (Mishra, Narendra & Kar, 2013). About half of all projects in developing countries and practically all regional investments went to India during the first semester of 2011, with the country attracting 43 new projects and putting 43 of the region's 44 initiatives into action. The developing world's largest PPI market is still India (PPP & Infrastructure Division, Planning Commission, Govt. of India, 2013).

### 3. RESEARCH METHODOLOGY

The primary focus of the study is on the Indian government's attempts to foster the growth of PPP, in addition to other related problems such as project type, status, and so on. The study also intends to identify the amount of PPP activities, notably in the transportation sub-sector, in order to supply necessary transportation infrastructure. To conduct the study, the researchers used data from academic journals, government websites, and reports from throughout the world. The data has been analyzed and interpreted using Microsoft Excel. Accordingly, only trustworthy websites belonging to the Indian government as well as the World Bank, Asian Development, etc. have been accessed for the purpose of verifying the data.

### 4. DATA ANALYSIS AND INTERPRETATION

Figure 1 shows the number of PPP projects in India's transportation sector and their proportionate investment.

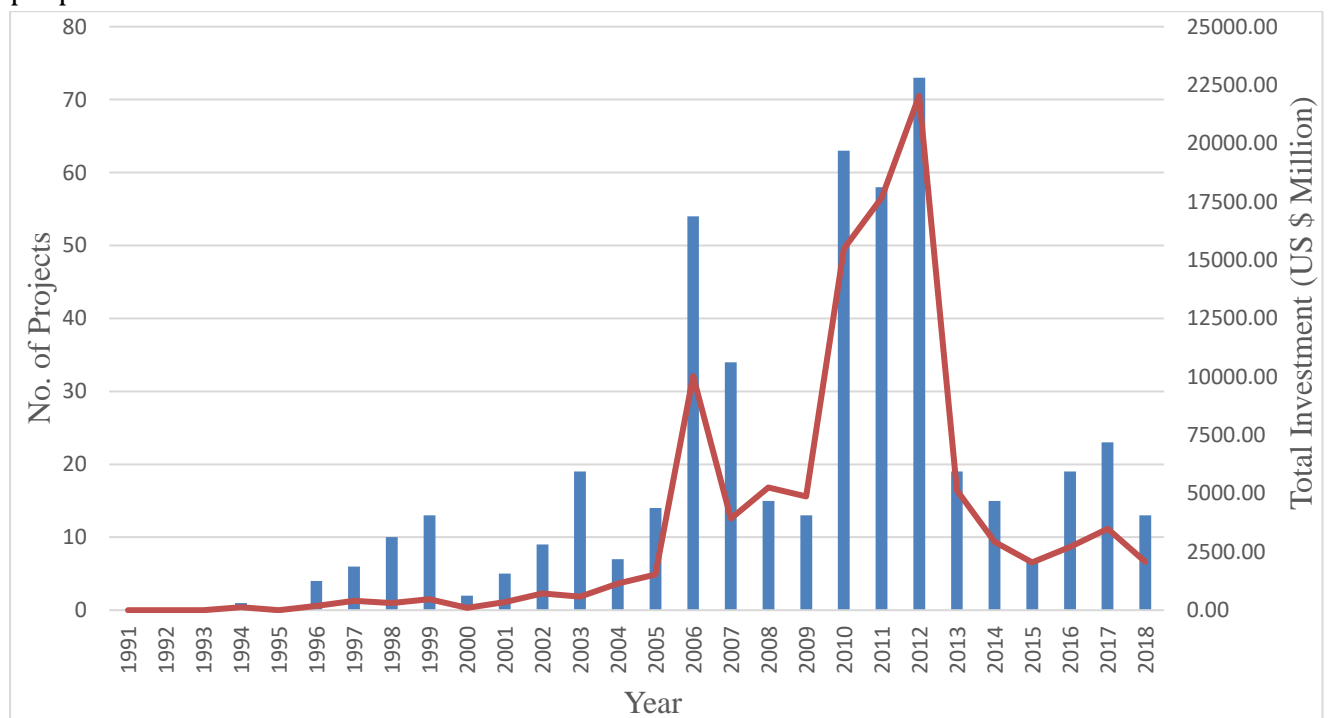


Figure 1: Year Wise Project Data (Source: World bank, 2019)\*

**\*2018 figures are for half year**

After the Economic Reforms of 1991, which was the first time the Indian government acknowledged the value of private investment in infrastructure, the number of PPP projects (see Figure 1) began to rise after 1995. The number of projects began to rise again in 2003 after a steep reduction in 2000, but then began to decline again in 2004. As can be observed, private infrastructure investment has increased steadily over time; until 2009, it had been decreasing. Because of the Great Financial Crisis (GFC) that occurred from 2007 to 2009, numerous investment projects came to a standstill. Investment projects in the transportation industry grew steadily after 2009, as the economy began to recover. In the years leading up to 2004, only 76 PPP projects were started; in 2012, 60 projects were started; and in 2010, 57 projects were started and 48 projects were started in 2011. The number of investment projects dropped dramatically in 2013 as a result of the upcoming federal elections in 2014. Private investment in infrastructure has risen steadily in recent years as a result of the government's efforts to address fundamental problems affecting the public sector, such as limited resources, a lack of technical experience, a slow pace of project implementation and so on. During the global subprime crisis, PPP projects proliferated and grew steadily from 2004, except in 2007 and 2008, when they exhibited a considerable decline. The amount of money invested in public-private partnerships (PPPs) is increasing in lockstep with the overall trend. Increasing private investment in infrastructure is one way the government has been trying to address the major challenges facing the public sector, such as a lack of resources, technical experience, and the long time it takes to complete projects.

**4.1 Project Break-up on Basis of Transport Sub-Sector**

Table 1 offers a year-to-year summary of transportation sector projects based on the kind of project in the transportation sector.

**Table 1: Project Break-up on Basis of Transport Sub-Sector**

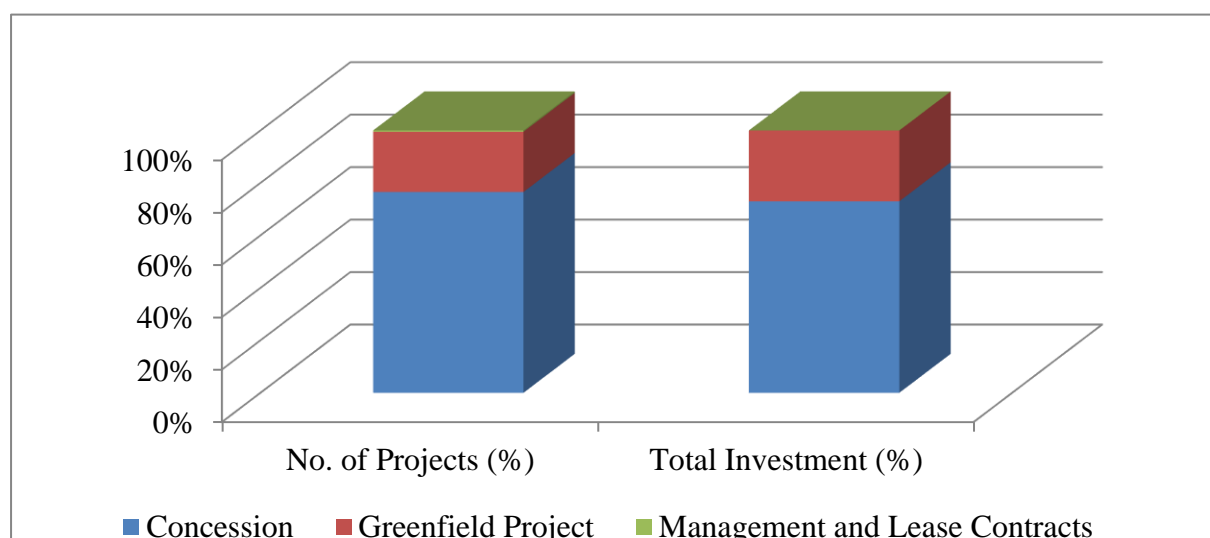
Year	Roads	Ports	Railways	Airports
1994	-	-	-	1
1995	-	-	-	-
1996	3	1	-	-
1997	4	2	-	-
1998	9	1	-	-
1999	10	3	-	-
2000	2	-	-	-
2001	2	2	-	1
2002	7	1	1	-
2003	16	2	1	-
2004	6	1	-	-
2005	8	3	1	2

2006	46	6	-	2
2007	32	2	-	-
2008	11	3	1	-
2009	11	1	1	-
2010	57	4	1	1
2011	55	1	2	
2012	71	2	-	-
2013	18	1	-	-
2014	13	2	-	-
2015	6	1	-	-
2016	16	2	1	-
2017	20	-	2	1
2018	12	1	-	-

According to Table 1, the vast majority of projects are concentrated on the construction of roadways, and this trend has been consistent throughout the course of the last three decades. According to Figure 2, when looking at the overall number of projects, 87 percent of them have been related with the development of road infrastructure, while the remaining 9 percent have been tied to the development of port infrastructure. Airports and railroads working together have only been responsible for 4% of the Central Government's public-private partnership efforts.

#### 4.2 Projects and Relative Investment as per PPP Types

There are various types of public-private partnerships (PPP) in the transportation industry, as shown in Figure 2.



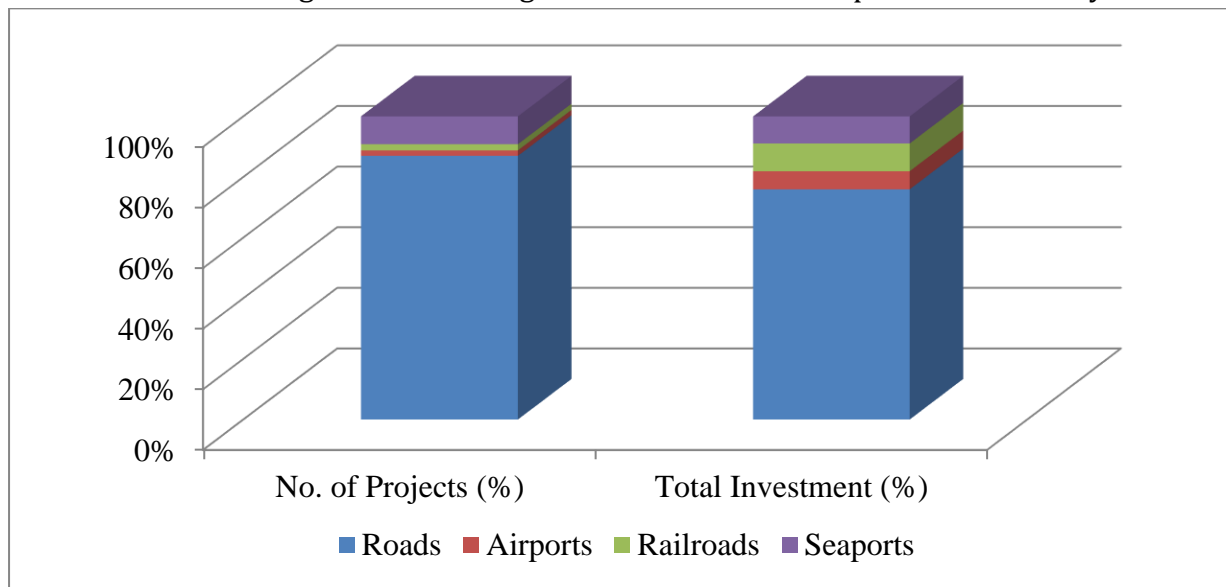
**Figure 2 Total No. of Projects and Relative Investment as per PPP Types**

Source: World Bank and PPIAF, PPI Project Database. (<http://ppi.worldbank.org>)

More than 77 percent of all projects in the transportation industry are conducted through the use of concession agreements (see Figure 2 for further information). Greenfield development, which is the second most popular choice, accounts for approximately 23 percent of all projects.

### 4.3 Projects and Relative Investment as per Transport Sub-Sector

Figure 3 presents a classification of the total number of projects and their respective investments according to the following subsectors of the transportation industry.



**Figure 3 Projects and Relative Investment in Transport Sub-Sector**

Source: World Bank and PPIAF, PPI Project Database. (<http://ppi.worldbank.org>)

Figure 3 demonstrates quite clearly that 83.86 percent of projects have been initiated in the field of road transportation, whereas airports, railroads, and seaports have only attracted 1.87 percent, 2.14 percent, and 9.11 percent of projects, respectively. In terms of investment, the road sector has been responsible for around 76 percent of the total investment made in the transportation industry. The railway industry has the largest participation, with 9.33 percent, which is 9.33 percent more than the participation in the seaports sector, which is 8.77 percent, and the participation in the airport sector, which is 5.58 percent. As a direct consequence of this, private investment in the expansion of rail infrastructure has trailed behind.

### 4.4 Status of Transport Sub-Sector Projects at Central and State level

According to the data presented in Table 2, 46 percent of the central projects are now being put into action, which is a significant percentage when compared to the overall status of the projects. According to estimates from individual subsectors, the port sector has finished 30 out of 71 projects, which is a completion rate of 42.2%. This is followed by the roads, railways, and airport sectors, each of which has a completion rate of between 22.2% to 21.2%.

When looking at state projects, it is evident that the majority of them are still in the planning stages. This is due to the inability or unwillingness of the state government and the related agency to move quickly enough. The percentage of projects that are still in the planning stages is 51.46 percent. This is also partially attributable to the fact that the state government has just recently begun allowing private involvement in the building of various types of infrastructure. There is only one project that can be considered complete in Railway, while there are five projects that are still in the planning stages. This is discouraging information for the state government, but on the bright side, it has recognized the need of public-private partnerships (PPP) for the development of infrastructure and is pushing forward with a number of projects in which private investors will take part as partners.



**Table 2 Status of Transport Sector Projects**

Sl. No.	Ministry / Sector	Completed Projects		Projects Under Implementation		Projects in Pipeline		Overall Status	
		No. of Projects	Projects Cost (INR crore)	No. of Projects	Projects Cost (INR crore)	No. of Projects	Projects Cost (INR crore)	No. of Projects	Projects Cost (INR crore)
<b>Central Sector</b>									
1.	National Highways	68	25,614	160	1,55,252	68	68,536	296	2,49,402
2.	Ports	30	9,448	22	19,226	19	8,577	71	37,251
3.	Airports	3	5,883	2	25,237	14	24,585	19	55,705
4.	Railways	4	1,561	3	3,441	12	58,100	19	63,102
<b>Total (Central Projects)</b>		<b>105</b>	<b>42,506</b>	<b>187</b>	<b>2,03,156</b>	<b>113</b>	<b>159,798</b>	<b>405</b>	<b>4,05,460</b>
<b>State Sector</b>									
1.	Roads	155	20,506	129	78,190	294	1,45,563	578	2,44,259
2.	Ports	27	45,864	13	31,999	41	53,788	81	1,31,651
3.	Airports			6	5,071	12	16,582	18	21,653
4.	Railways	1	197	1	594	5	2,812	7	3,603
<b>Total (State Projects)</b>		<b>183</b>	<b>66567</b>	<b>149</b>	<b>115854</b>	<b>352</b>	<b>2,18,745</b>	<b>684</b>	<b>4,01,166</b>
<b>Source: Compiled from Draft Compendium of PPP Projects in Infrastructure, Planning Commission, Govt. of India</b>									

## 5. Conclusions and Recommendations

The current infrastructure is being put under a large amount of strain as a direct result of globalization, which makes the expansion of existing infrastructure a need for the viability of the economy in today's rapidly shifting environment. Many nations see public-private partnerships (PPPs) as the approach of choice when it comes to closing the gap in infrastructure and delivering necessary infrastructure. Nevertheless, India has also adopted the PPP model for the development of its infrastructure, although the process is still in its infant stage. According to the findings of the study, despite the fact that there have been many PPP projects carried out in the transportation sector, very little focus has been placed on the railways. As a consequence of this, the railroad industry has failed to prioritize the modernization and development of train stations, which has led to a dearth of amenities for passengers to use while they wait for their trains to arrive. Consequently, the railroad industry has neglected the railway sector. Because of this, the Ministry of the Interior is compelled to take substantial steps toward the development of stations of world-class quality, and in order to do so, they must embrace PPP to the fullest extent possible. There are currently a growing number of railway projects being developed in India, and the timely completion of these projects will have a substantial impact on the country's overall infrastructure. Recent events in India have brought to light the importance of private investment in the construction of new public works, but there is still a significant amount of work to be done before we can fully accept the model as the major method by which we will obtain infrastructure supplies.

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