

## Public-Private Partnership Experience in India: Challenges and Prospects

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### Abstract

India has caught a significant attention of World economies for its robust economic growth in the beginning of twenty first century. However, the sustaining of higher economic growth requires substantial investment in infrastructure. On this front, country has been struggling hard to develop the infrastructure. The government is looking towards budgetary allocation, tariff policy, fiscal incentives, private sector participation, etc. In this direction the role of PPP model is well acknowledged. The present study is an addition to the exiting economic literature for bringing the experiences of Indian PPP projects in terms of their distribution across sectors, states and status, key challenges and future prospects, under an umbrella. Indian PPP agreements are in a nascent stage, and it is not possible to give exclusively concluding statement regarding PPPs successful. However, the case studies of few projects suggest that PPP projects in India have attended the growing demand for infrastructure facilities, managed higher losses of fuels and pollution and controlled the losses to electricity transmission. The successfulness of Indian PPP model is limited due to land acquisition, delays in clearances, lack of effective regulation, etc. The legal journey of India for ensuring the effective delivery of PPP projects is a remarkable step to realize the growth potentials and other welfare gains.

**Keywords:** Public-Private Partnership, Infrastructure, India, Governance, land acquisition

**Article Classifications:** Research paper

### Introduction

India has recently appeared as the third largest economy in terms of GDP based on purchasing power parity. The robust growth performance of Indian economy in the twenty first century has been the attention of World economies. For continuing the higher economic growth momentum, economics literature has well pondered over the need of substantial investment in infrastructure. A study by Marjit et al. (2011) finds that greater capital expenditure on physical infrastructure has a positive impact on the long-term GDP growth of Indian economy. The need for quality physical infrastructure for economic development is widely acknowledged (Canning and Pedroni 2004; Sahoo and Dash, 2012). Easily available quality infrastructure encourages investment and as a result aids the economy's overall output and productivity. However, on the front of infrastructure development, India has remained below par, and the same is considered a hindrance to the growth potentials. The estimates suggest that the lack of proper infrastructure pulls down India's GDP growth by 1-2 per cent every year. If the current trend of inefficient

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infrastructure is not corrected, India could lose around 10 per cent of its GDP in the year 2017 (McKinsey 2009).

To develop infrastructure in the country, the government is looking towards budgetary allocation, tariff policy, fiscal incentives, private sector participation, etc. Herein, the Public-Private Partnership (PPP) model, although relatively new, is catching up fast; and this is especially true for highways and roads projects. The increasing use of the PPP model to finance mega-infrastructure projects is an exercise to ensure efficiency in execution and curb cost and time overruns that are typical feature of fully state-funded programmes. The motivating factor for the PPP model in India is the successful experiences of international PPP model. In this context it becomes imperative to understand the status and functioning of PPP projects in India as the same can be a supplementing factor for meeting the target of infrastructure financing in India. India has set forth to spend around \$ 1 trillion under twelfth five year plan (2012-17). The major research questions of the present study are- what is the current state of PPP model in India in terms of distribution of PPP projects across states and sectors? Up to what extent PPP model has been able to deliver the promises? What constraints have been faced so far by the PPPs? What lessons can be learned from the domestic and international experiences to make the PPP model a grand success? What are the potential sectors to be explored in future by the PPP model?

The existing literature highlights mixed response of India PPP model. The present study is an addition to the existing economic literature for carrying out the broader perspectives of PPP projects in India by bringing the recent status of these projects in terms of distribution across sectors, states and status. The study develops the insight about the clustering of PPP projects across geography, sectors and status in India. It also highlights the key challenges for India PPP projects and elucidates the future prospects for the projects.

The present study is organized as follows. Second section discusses the experiences of PPP at international level. Section third presents the recent status of Public-Private partnership projects in India. Section four evaluates the performance of key PPP projects. Section five mentions the major challenges for PPP projects. The future prospects are enlisted in section 6. Finally the study is concluded.

### **PPP Experience at International Level**

European countries followed by other countries around, the world have increasingly turned to private sector involvement in the development, financing and provision of public infrastructure and services (Anderson, 2012). In UK, there are more than 600 PPPs in the form of Private Finance Initiatives (PFIs) worth over US \$100 billion for hospitals, schools, prisons, bridges, roads and military equipment (HM Treasury, 2013). Australia one of the pioneering countries in introducing PPP, has been able to develop a robust PPP legislation and policy frameworks from the outset. The implications of such legislation are observed in terms of healthy competitive environment from domestic as well as international investors. Moreover, the tight budgetary discipline leading to low debt levels among local authorities resulted into high credit worthiness and to high market confidence (Snelson, 2005).

Initially, USA has been bit slowly in utilizing PPPs as compared to European and Asian countries. The lack of institutional capacity and expertise in some cities and states to properly promote the benefits and costs of PPP deals have been identified the major impediments. Though the U.S. is a latecomer in the area of PPPs, but states have been very active in the recent past both in building capacity and in closing PPP deals (Istrate & Puentes, 2011). In case of Thailand,

high numbers of infrastructure projects are carried out by PPPs and transport sector has remained a thrust area for PPPs. The regulatory and legal framework has remained a key hurdle for the PPP model (Kert and Izaguirre 2007). Initially, Korean PPP model has suffered from lack of transparency in the PPP project implementation process, insufficient human capital and expertise in developing PPPs and their complicated contracts, an overly complicated procurement structure, and insufficient incentive offerings to lure private sector investors. Later on, South Korean government formed, under an act passed by the national government, the Private Investment Center of Korea (PICKO), the purpose of which was to influence the legal framework in South Korea to amend those problems (Valentine, 2008).

Recently Europe has increasingly used private sector involvement in developing, financing and providing public health infrastructure and service delivery through public-private partnerships (Barlow et al. 2013). The possible reasons are high fiscal pressure, seeking innovation from private sector and aiming for better risk management (Roehrich et al., 2014). Keeping in view the success of shadow toll road concession schemes in Portugal, the focus switched to the construction of football stadiums mostly for the Euro 2004 games through PPP model. Later on, programmes for hospitals and rail infrastructure are also utilized (Snelson, 2005).

The World economies are having varying experiences regarding the functioning of PPP projects. The PPPs in UK have been highly successful and, with several countries around the World trying to emulate the UK model. According to British National Audit Office an assessment of the UK PPP policy in 2009 shows that 65 percent of the contracts were delivered on time and within the agreed budget (FICCI and EY, 2012). The UK Government's approach of utmost transparency, launching the Operational Private Finance Investment (PFI) Savings Programme in order to improve the cost effectiveness, providing a helping hand to the PFI projects through financial assistance, introducing new arrangements for the assurance and approval of major projects to strengthen scrutiny and control, etc. are the few prominent steps in the direction of contributing to the successful experience of PFIs (HM Treasury, December 2012).

In Australia, financial advantage of PPPs has been well documented. The University of Melbourne conducted a study of 42 traditional procurement projects and 25 PPPs and concluded that PPPs provide far greater cost certainty. The Allen Consulting Group studied 21 PPPs and 33 traditional Australian projects, and found the PPP cost advantage to be "economically and statistically significant" (PwC, June 2010). It is observed that UK and Australia have already been enjoying the better legal framework and hence the factors such as- favorable legal framework and commitment and responsibility of public and private sectors emerged as the medium ranking factors for contributing the PPPs success. Whereas the factors like- strong and good private consortium, stable macro-economic condition, appropriate risk allocation and risk sharing have been considered the most important factors for enhancing the performance of UK and Australian PPP infrastructure projects (Cheung et al., 2012).

Also, China's experiences in terms of infrastructure development through PPP are also appreciated. As an outcome of political and economic settings being conducive to the same, China could exploit the fullest advantage for the parties involved in the contract. China's efficient bureaucracy, fewer corruption cases, zero or minimal red tape and cheap resources have been considered as the factors contributing to the success of PPP projects.<sup>2</sup> The US economy has

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<sup>2</sup> Arindam Chaudhary (February 07, 2013). Why the public-private partnership model has failed in India. The Sunday Indian.

experienced the limited scope of PPP projects' potentialities. It is pointed out that the United Kingdom financed \$50 billion in transportation infrastructure via PPPs between 1990 and 2006, the United States, an economy more than six times as large as that of the United Kingdom, financed only approximately \$10 billion between those years. However, the use of PPPs to provide U.S. infrastructure increased fivefold between 1998 - 2007 to 2008-2010 (Engel, February 2011).

### Status of PPP Projects in India

In the last one decade, the government has faced a resource crunch. The combined deficit of the central and state governments is roughly 10 percent of Gross Domestic Product (GDP). Government borrowing has been capped through the Fiscal Responsibility and Budgetary Management Act. This necessarily limits state participation in infrastructure financing, thus opening the door to innovative approaches, such as PPPs. The number of PPP projects in India has increased from 85 in 2004 to 840 in 2011 to 1339 (worth around US\$ 148 billion) till March 2014. India is second only to China in terms of number of PPPs and second only to Brazil in terms of investment in PPPs.

**Table 1: Sector-wise PPP Projects in India (as on March 31, 2014)**

Sector	Numbers	Shares (%)	Cost (US \$ Million)	Shares (%)
Agriculture	9	0.67	210	0.14
Civil Aviation	13	0.97	5196	3.51
Education	70	5.23	551	0.37
Energy	75	5.60	20418	13.78
Healthcare	32	2.39	841	0.57
Industrial Infra	23	1.72	833	0.56
IT	9	0.67	557	0.38
Ports	116	8.66	26405	17.83
Railways	8	0.60	698	0.47
Road Tpt	29	2.17	2713	1.83
Roads	620	46.30	69514	46.93
Tourism	84	6.27	1503	1.01
Urban Development	128	9.56	5925	4.00
Urban Infrastructure	55	4.11	5448	3.68
Grand Total	1339	100	148125	100

Source: PPP India Database, DEA, Ministry of Finance, Government of India (GOI)

Sector-wise allocation of PPP projects reveals that roads sector is getting highest PPP projects with total amount of approx. US\$ 70 billion. The next attractive sectors for private players are urban development (9.6%), ports (8.7%), tourism (6.3%) and energy (5.6%). Their respective costs for these sectoral projects are around US\$ 5925 million, 26405, 1503 and about US\$ 20418 million. After roads, the ports and energy hold larger pie in the total cost of PPP projects though they are having lesser number of projects compared to urban development. PPPs have least attraction in sectors such as agriculture, information technology, railways and civil aviation (Table 1).

**Table 2: State-wise Distribution of PPP Projects in India across Sectors (Numbers)**

State	Agriculture	Civil Aviation	Education	Energy	Healthcare	Industrial Infra	IT	Ports	Railways	Road Tpt	Roads	Tourism	Urban Development	Urban Infrastructure	Grand Total
Madhya Pradesh	0	0	2	4	1	3	0	0	0	3	166	5	10	1	201
Maharashtra	3	1	10	6	3	8	1	14	0	4	80	0	7	0	182
Rajasthan	1	0	34	4	4	0	2	0	0	0	78	2	13	22	161
Andhra Pradesh	1	2	5	2	7	0	5	11	1	1	40	35	10	24	149
Gujarat	0	0	0	5	0	0	0	42	3	0	42	0	6	0	99
Karnataka	1	7	0	3	0	1	0	3	2	12	40	18	2	4	93
Tamil Nadu	1	0	0	1	0	2	0	16	0	0	36	0	8	0	66
Orissa	0	0	2	3	2	6	0	12	2	2	10	4	13	0	57
Uttarakhand	1	0	3	12	10	0	0	0	0	1	3	8	5	0	48
Punjab	0	0	5	1	3	0	0	0	0	5	16	7	1	0	38
West Bengal	0	0	0	0	0	0	0	6	0	0	10	0	21	0	37
Haryana	1	0	7	2	0	0	0	0	0	0	13	0	3	2	29
Kerala	0	1	0	0	0	0	0	6	0	0	7	2	13	0	29
Grand Total	9	13	70	75	32	23	9	116	8	29	620	84	128	55	1339

Source: PPP India Database, DEA, Ministry of Finance, Government of India (GOI)

**Table 3: State-wise Cost of Various PPP Projects across Sectors (Values in US\$ Million)**

State	Agriculture	Civil Aviation	Education	Energy	Healthcare	Industrial Infra	IT	Ports	Railways	Road Tpt	Roads	Tourism	Urban Development	Urban Infrastructure	Grand Total
Maharashtra	66	1224	47	249	97	151	3	5083	0	529	10429	0	832	0	24869
Andhra Pradesh	81	1048	216	3910	354	0	70	3033	155	15	4054	609	735	4532	19288
Uttar Pradesh	0	0	0	3377	0	0	0	0	0	0	12117	0	0	0	15493
Gujarat	0	0	0	1920	0	0	0	7920	206	0	4631	0	404	0	15230
Karnataka	22	1041	0	2216	0	26	0	744	124	1802	3904	112	15	22	10027
Orissa	0	0	17	1890	81	208	0	3423	214	7	1881	149	265	0	8149
Madhya Pradesh	0	0	33	116	14	37	0	0	0	261	6089	9	894	4	7754
Tamil Nadu	25	0	0	169	0	381	0	2145	0	0	4152	0	376	0	7355
Rajasthan	1	0	90	1163	83	0	62	0	0	0	4372	47	573	164	6618
Inter State	0	0	0	0	0	0	0	0	0	0	6144	0	0	0	6144
Grand Total	210	5196	551	20418	841	833	557	26405	698	2713	69514	1503	5925	5448	148125

Source: PPP India Database, DEA, Ministry of Finance, GOI

**Table 4: State-wise Distribution of PPP Projects (Numbers) and Cost of Projects across Status (US\$ Million)**

State	Bidding	Construction	Operational	Reversion	Grand Total	Shares (%)	Bidding	Construction	Operational	Reversion	Grand Total	Shares (%)
Madhya Pradesh	25	154	22	-	201	15.01	2247	4971	536	-	7754	5.23
Maharashtra	39	77	66	-	182	13.59	8777	10849	5243	-	24869	16.79
Rajasthan	8	79	58	16	161	12.02	825	4215	1538	41	6618	4.47
Andhra Pradesh	38	37	73	1	149	11.13	2797	10451	6034	5	19288	13.02
Gujarat	20	38	41	-	99	7.39	2534	6619	6076	-	15230	10.28
Karnataka	50	28	15	-	93	6.95	6443	2091	1493	-	10027	6.77
Tamil Nadu	11	30	25	-	66	4.93	1791	3631	1933	-	7355	4.97
Orissa	15	26	16	-	57	4.26	1500	5484	1165	-	8149	5.50
Uttarakhand	27	13	8	-	48	3.58	605	276	26	-	908	0.61
Punjab	-	23	15	-	38	2.84	-	1167	115	-	1283	0.87
West Bengal	4	18	15	-	37	2.76	675	1711	359	-	2745	1.85
Haryana	3	14	9	1	29	2.17	349	3485	182	3	4027	2.72
Kerala	8	15	6	-	29	2.17	2022	1933	745	-	4700	3.17
Uttar Pradesh	5	17	1	-	23	1.72	1034	14391	68	-	15493	10.46
Grand Total	283	640	394	20	1339	100	36151	85013	26610	344	148125	100

Source: PPP India Database, DEA, Ministry of Finance, GOI

The state-wise distribution highlights that Madhya Pradesh (MP) has the highest number of PPP projects (201 projects) worth about US\$ 7753 million. The next leading states in allowing private players in public sector are Maharashtra (182), Rajasthan (161), Andhra Pradesh (149); among others (Table 2 attached in the end). In terms of cost of PPP projects in India, Maharashtra, Andhra Pradesh, Uttar Pradesh and Gujarat are holding the highest cost sharing (Table 3). Rajasthan is the only state inviting highest partnership of private players in education sector (34 projects out of 70 at India level). Madhya Pradesh has largely invited private partnership in roads sector. Andhra Pradesh has sought the attention of PPP in roads and tourism both. Also, IT sector has been the key interest of PPP in Andhra Pradesh (5 projects out of 9 in India). Gujarat has remained the top priority for private players in developing the ports facility being its geographical advantages. Uttarakhand has utilized the PPP in energy and healthcare sector.

In terms of status of PPP projects it is found that majority of projects are in the stage of construction (around 50 percent) whereas around 30 percent are in operational stage. The bidding projects are even not lesser in the number. Though MP is dominating in the total number of PPP projects but Maharashtra, Rajasthan, Andhra Pradesh and Gujarat have been able to make their projects operational in higher number. Surprisingly AP and Gujarat have more than 40 percent of projects in operational stage. Even Tamil Nadu has fared well in operationalizing its PPP projects (Table 4). It is too early to build the conclusive argument for PPP successful as majority of projects are in the construction stage.

### **Evaluation of PPP Projects in India**

In recent years, the PPP model in India has been fairly successful with several projects being implemented across sectors. The evaluation of PPP projects at procedural level has been discussed by Kurniawan et al (2013) with the help of case studies of select sea PPP projects in India. The present section elucidates the key achievements of select PPP projects in terms of productivity, efficiency, meeting the demand supply gaps and other welfare gains in India.

The major thrust of PPPs around the world has been towards infrastructure development. Europe leads the infrastructure PPP market, concentrating more than 45 percent of the nominal value of all PPPs. The Australian PPP experience is generally considered to be successful, and is well advanced particularly in the transport sector. China has thrust on energy and toll roads sectors and Brazil in telecom sector. In the same spirit India has actively utilized PPPs for infrastructure development. With in infrastructure, roads, ports, energy and civil aviation have been the top priority sectors in India as measured through number of projects and investment. These sectors occupy around the eighty percent of pie to total PPP investment in India. The present study considers the projects of substantial investment for case studies from these many sectors covering at least one from each. Some of the projects in these sectors have large investment, but they are either in bidding stage or in construction stage or recently completed. It is too early to draw inferences about the potential impact of such projects. Hence, the large investment and long dated projects are picked in the study.

### **Delhi Gurgaon Expressway<sup>1</sup>**

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<sup>1</sup> GOI (December 2010). Public Private Partnership Projects in India-Compendium for case studies. Department of Economic Affairs, Ministry of Finance, Government of India.



This PPP project got inducement from the growing vehicular density, increase in accidents, acute congestion, wastage of fuel and excessive pollution. This projects was mainly launched to convert the very busy section of NH-8 connecting Delhi to Gurgaon into a 6/8 lane access controlled divided carriageway under the responsibility of the National Highways Authority of India (NHAI). The expressway was commissioned late due to the confrontation of project on the ground of land acquisition and changes in the scope of work. Now, the expressway is fully operational and is handling a significant traffic volume of more than 180,000 PCUs per day, growing at 9% year-on-year. The project has attained key efficiencies in terms of average speed, time span, capacity, etc. Average travel speed has increased from 25.65 km/h to 66 km/h. Average time taken from Delhi to Gurgaon has reduced from 65 minutes to 25 minutes, and capacity in terms of lane has enhanced from previous of 6 lane - 5km and 4 lane - 22.7 km to 8 lane - 22.3 km and 6 lane - 5.4km. The numbers of intersections have reduced from 20 to 10 grades separated intersections (GOI, December 2010).

### **Nhava Sheva International Container Terminal (NSICT)**

It is India's first private container terminal and one of the most modern container terminals (totally automated computerized container terminal) in India and located within the Jawaharlal Nehru Port across from the island of Mumbai. The 30 year license for the port was awarded in 1997 on the basis of highest Net Present Value (NPV) of royalty offered, for: the construction of a 600 metre long piled wharf with three approach bridges, reclamation of 20 hectares for container yards and installation of requisite container handling equipment construction of office facilities and ancillary buildings and construction of an electrical sub-station and associated electrical work. The project handles close to 20% of India's container traffic. The average turnaround time dropped from 4.5 days in FY98 to about 2 days in FY09. The pre-berthing delays dropped from close to 1.5 days to 0.5 days over same period. The success of NSICT can be attributed to its superior productivity parameters as well as the state-of-the-art equipment and latest technology.

Even it was pointed out that the efficient practices of NSICT project prompted the Jawaharlal Nehru Port Container Thermal (JNPCT) to modify their policy measures and strategy so as to compete with NSICT. More importantly the project has been considered as a case of a successful PPP process implementation in terms of time, efficiency and cost over-runs in public works (GOI, 2010).

### **Convergence of Agricultural Interventions in Maharashtra**

This project was started in district of Akola in 2009 and will be complete by 2017 with the total cost of US\$ 118.6 million. The project has generated benefits to farmers in terms of addition to yield of baby corn- 3 to 5 tons per acre of fresh cobs plus 20 to 25 tons of green fodder. Also, the quality of baby corn production meets the requirement of BRC Global Standard for Food Safety. The monetary gains to the farmers have been of US\$ 704 (Rs 44,000) per acre per crop (IFAD, 2013).

### **Gangavaram Port**

The Gangavaram Port, located on the East Coast of India, has been developed to access the capability of handling Super Cape size vessels of up to 200,000 DWT. The master plan has a provision for 29 berths with a capacity of 200 MTPA to be developed in three phases over 15-20 years. In Phase I, five berths have been constructed with an estimated handling capacity of 35

MTPA. The port is operational since August 2008 and has handled more than 8 MT of cargo as at August 2009, including cargo such as coking coal, steam coal, iron ore, limestone, bauxite, urea, slag, steel, raw sugar, scrap and project cargo. The port has handled the largest coal vessel to call at Indian Ports, Capesize vessel MV Ocean Dragon (151,049 DWT) and has achieved high cargo discharge rates (71,808 tonnes per day). The project has been appreciated on the ground of the capital expenditure efficiency. The ability of the concessioner company to negotiate better financing terms with the lenders is identified as the contributing factor for same (GOI, December 2010).

### **Cochin International Airport**

Cochin International Airport (CIAL) also known as Nedumbassery Airport, is the largest and busiest airport in Kerala. The airport was the first to be developed under a PPP model. The project commenced on 21st August 1994 and was completed on 25th May 1999. Fifteen hundred acres (6,100,000 m<sup>2</sup>) of land was acquired for the construction of the airport. Approximately, 2,300 landowners and 872 families were resettled under a rehabilitation package. Major electric lines and an irrigation canal had to be delivered for the construction.

Speedy implementation was facilitated by the key interest of the State's top political leadership. The project CEO took charge of personally convincing the farmers and the locals during the land acquisition process. Employment was provided to all those who gave up their land during the construction of the airport and thereafter at the airport itself. The project sounds well in terms of social impact of the PPP model (Nataraj, February 2014).

### **Bhiwandi Electricity Distribution Franchisee**

The growing number of default on power bills and a poor distribution network with a very high level of Aggregate Technical and Commercial (AT&C) losses led the setting up of distribution efficient mechanism in Bhiwandi. Torrent Power AEC Limited (TPAL) was the private entity appointed by MSEDCL for this project. TPAL has completed more than three years of operations as the distribution franchisee for the Bhiwandi circle. The benefits of project have been seen on the ground of- AT&C losses are estimated to have declined by 34 percent in the first two years of the franchise to 24 percent at the end of year 2008-09. The distribution transfer failure rate reduced from 40 percent at the time of handover to 7 percent at the end of 2009. The load shedding duration reduced from 6 hours a day to 3.5 hours a day. The percentage of acute metered sales increased from 23 percent to 95 percent. The efficiency gains brought to the power distribution system through the franchisee model benefited all the stakeholders, thus creating a win-win situation. TPAL has benefited in terms of the increased revenue from reduction in losses and improvement in collection efficiency due to refurbishment of the existing network, regularising illegal connections, metering, etc. MSEDCL benefited due to savings in terms of reduction in O&M expenditure, capital investments and interest on working capital. The consumer benefited through increased reliability of power supply, improved customer service (GOI, December 2010).

On the basis of case studies of select PPP projects from different sectors one can inference the positive outcome generated in India. The productivity improvement and efficiency are associated with the PPP projects. It is too early to give the conclusive statement regarding the success of the PPP model in India. As defining success is multidimensional- it can be considered in light of fulfillment of the targeted output, comparison with other public sector undertakings, societal welfare, etc. Overall, the outcome for PPP projects in India has remained mixed so far.

The few identify the successful story for highway PPP projects, whereas the outcome for Metro rail projects through PPP has remained disappointing. The Union Urban Development Ministry's report on 'Innovative Financing of Metro Rail Projects' suggests that PPP has not been very successful in Metro rail projects. It is also mentioned that there has been the dominance of public sector mode in developing metro infrastructure worldwide.<sup>2</sup> The poor delivery of PPP projects in Metro rail infrastructure may be attributed to the functioning of PPP model at substantial smaller scale compared to the public sector, and having infancy in this sector. It is added in the existing literature that measuring success of PPP projects at this stage is difficult as these projects are usually having 20–30 year contracts period. The success of a PPP can be measured only once it has been operational for 10–15 years and can be judged if it is delivering its intended societal benefits. Indian agreements are in a nascent stage, and it is not possible to determine whether its PPPs have been successful thus far (NBAR, May 2012). In few of case studies, Indian PPP projects have gained success either in structuring of the project or at operational level (Mahalingam, 2010). National highways PPPs have remained very successful in the case of India (PwC, 2012). The case studies of few projects stated above provide the evidence for generating the proposed results, and even somehow addressed the growing demand for infrastructure facilities. The projects have augmented the existing infrastructure needs, and handled the growing congestion problem and accordingly higher losses of fuels and pollution, and controlled the losses to electricity transmission.

### **Challenges for PPP Projects in India**

Despite of partial success, the PPP projects had faced numerous challenges. The PPP route has been criticized for not meeting the supply-demand gap exactly in the infrastructure facilities. Economic Survey (2008-09) noted six key hurdles faced by PPPs projects: policy and regulatory gaps; inadequate availability of long-term finance; inadequate capacity in public institutions and public officials to manage PPP processes; inadequate capacity in the private sector-both developer/investor and technical manpower; inadequate shelf of bankable infrastructure projects that can be bid out to the private sector; and inadequate advocacy to create greater acceptance of PPPs by stakeholders.

The most important challenge for PPP projects have emerged as delay in achieving commercial operation date (COD) which lead to time and cost overruns. It has occurred partly due to land acquisition issues, willful default by promoters, irrational biddings, huge difference between project costs as approved by NHAI, and ones that are given to lenders.<sup>3</sup> On the land acquisition front, issues related to huge difference between the registered value offered and the actual market value have been very disputing. Moreover, valuations are conducted on the basis of the current status of land, and the system does not capture the appreciation after the construction of the project. A new bill, the Land Acquisition and Rehabilitation & Resettlement Bill (LARR) 2013, has been introduced in the Parliament recently. Again the complex clauses of the bill will create the land acquisition harder.

The experience of PPP models in road sector has invited strong critics. It is pointed out that India's road buildings capacity is in crisis as 199 projects are stuck worth Rs 1.8 lakh crore. Road building cost has spiraled from Rs 5 crore a kilometre in 2004 to Rs 13 crore a kilometre in

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<sup>2</sup> In 113 cities across the world having Metro rails, 88% have been developed and are being operated in public sector mode whereas in only 12% cities some form of PPP exists.

<sup>3</sup> Ninad D Sheth (July 25, 2014). Removing the Roadblocks. Business World.

2014. From 2004 to 2014, the road making activity has declined from an average of about 20 km a day to 3 km per day (Sheth, July 25, 2014). The highway projects are stuck due to problems of land acquisition, delays in forest and environmental clearances, non-transfer of defence land and hurdles in rail over bridges.<sup>4</sup> Delhi-Gurgaon Expressway project built under PPP model, has been hit on the ground of lengthy construction period, problems in land acquisition, changes in scope of the project, poor traffic forecast and lower traffic risk (CIRC, April 2014).

Inadequate regulatory framework and inefficiency in the approval process have been considered as serious disincentives for developers and contractors. As an illustration, more than two years were needed for the Gujarat Pipavav port project to receive the necessary clearances after achieving financial closure. Moreover, most of the large projects involve dealings with various ministries where co-ordination remains inefficient (World Bank, 2006).

The problems for PPP projects on the ground of governance and monitoring have also been acute. For instance, the National Highway Authority of India (NHAI) bids out highway projects even when it has acquired only 10-15% of the land, or even less, assuming that the balance land will be acquired by the time financial closure of the project is achieved. Almost 70% of PPP road projects witness delayed financial closure and commencement of construction. The PPP contracts are often signed before specifying how much land authorities need to acquire by when. Difficulties moving occupiers has caused delays and prompted banks to cut credit lines, leaving scores of projects in limbo and deterring new investment.<sup>5</sup> Amid the difficulties emanated from the land acquisition, governance and regulation, the blame to only PPP model is not convincing. The National Highway Authority of India Director himself argued that the dismal performance of PPP projects in India is attributed to the project handlers not with the PPP model.

The PPP model is no exception for being criticized on the basis of delivery, rather overall infrastructure sector suffered from this problem.<sup>6</sup> The infrastructure deficiency of India is well captured as India ranked 85 out of 148 countries for its infrastructure, much behind China which ranked 48 (Global Competitiveness Index for 2013-14). Ironically, while overall infrastructure remains inadequate, there is also slack capacity to deal with. For an instance, it was pointed out that growth of electricity capacity in India has observed a substantial dip in the last decade compared to the level of 1980-90s. The capacity growth which was at around 120% in the decade of the Eighties went down to around 60% in the decade of the Nineties and was only around 30.2% in the period 2000/07. Generation growth was also around 120% in the Eighties and so capacity use was roughly constant. But in the Nineties at around 90% it was much higher than expansion of capacity at 60%, showing a substantial increase in Plant Load Factors. However in this decade the slack seems to have been used up and both capacity and generation growth are similar at around 30 to 33%. Generation growth is now around 5 % annual as compared to around 9% in the last decade and a near crisis situation is emerging (Alag, 2010). Environmental safeguards and guidelines have proven to be one of the major reasons for delay in infrastructure projects, especially in the power sector. The challenge of slack capacity can be converted into opportunities provided the good governance is ensured.

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<sup>4</sup> Ruchika Citravanshi (November 06, 2014). Ministry to revive 34 highway projects worth Rs. 26000 crore. The Economic Times.

<sup>5</sup> Tommy Wilkes August 06, 2014). India bets on Modi touch to reform infrastructure PPP drive. Reuters.

<sup>6</sup> The two mega infrastructure projects currently on in India - the Delhi Mumbai Industrial Corridor (DMIC) and the Mumbai Chennai Industrial Corridor which aim to develop new industrial cities as "Smart Cities" and converge next generation technologies across infrastructure sectors, are delayed because of land acquisition issues.

Another biggest setback for PPP projects came into light with the selection of projects partly due to limited information of demand in the system and partly due to lack of well defined databases related to the traffic data, land related records and details of inventory. Also, it is pointed out that there are practices of aggressive bidding for projects, tendency to pass on the risk to the government when the project becomes unviable. These problems generally happen due to asymmetry of information in the market. The arbitrage charges from users have been the key issue but the project developers take the ground of rise in cost mainly emanating from the governance and land related issues. The interpretation of the Model Concession Agreement (MCA) has been found detrimental to the private players as the long term projects require constant interpretation which generally bureaucratic interprets differently. Lack of funding is one of the critical factors for survival of the players particularly in the era of tight monetary policy of Central Bank (FICCI, September 2014). The project financing has been identified as one of hurdle for PPP projects. Banks have not been able to provide long-tenor financing owing to asset-liability mismatch and they restrict their finance to a maximum period of 12-15 years.

It is highlighted in the existing literature that the major issue for PPP projects hinges towards the lower level of incentive based regulation. In an empirical study it is pointed out that project governance issues were identified across two dominant interfaces – one between the public and private sector and the other between the project and the societal stakeholders. Governance mechanisms based on providing shared incentives combined with the capacity to administer projects are effective in combating governance challenges across the public-private sector interface. Cognitive mechanisms which make the project more accountable to the societal stakeholders are most effective across the project-stakeholder interface (Venkata et al. 2012). The inefficient structure of fixation of prices has been an impediment to the PPP projects for their risks. In this context, well defined incentives for meeting the demand-supply gap and higher social impact can be a boosting factor for PPP model.

In an attempt of critical success factor score for PPP projects, the performances of these projects on ground of economic and financial viability, adequate government support, stakeholders' participation and interactions, stable and political will and well developed financial market has been found either moderate or weak. Herein the policy measures on front of regulatory, institutional and financial reforms were stressed upon. These include preparation and implementation of dedicated PPP policy and rule, creation of an Independent PPP Regulator and Dispute resolution courts, making Value-for-money (VFM) mandatory for each project in the PPP policy/rule. The institutional reforms include development of institutional capacity and improvement of PPP database management at national and state level. The financing reforms are development of long term lending financial markets and new financial products such as take-out financing and refinancing (Aggarwal, 2014).

These issues have no easy solutions. Transparency in procedures like contract award and setting of time limits for completing legal processes are among the obvious remedies. On this front the initiative of NHA towards transparency can be well exploited and partly the approach of recently appointed Government for clearing the stuck up projects<sup>7</sup> can also play an important role. Complete database of the correspondence exchanged between the independent engineer (IE) and the concessionaire, between NHA and IE on all aspects of the project, along with details of court cases and arbitration awards etc. will be uploaded on the website. Report of IE to include the important parameters like quality of construction, quality of maintenance, road safety, tolling etc, In addition it will contain information, along with photographs, about the progress of work,

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<sup>7</sup> 250 projects worth Rs 60,000 crore have recently been cleared.

major developments of the project including change of scope, change of alignment etc. Even the general public can also lodge the complaint on the web (PIB, June 2014).

Though the transparency will address the growing concerns, but strengthening the database infrastructure related to traffic data along with load capacities, toll gates, prices for respective services, raw material consumption for constructing roads, status on land acquisition, etc. can be a fruitful step for ameliorating the asymmetry of information problem. The suggestion for independent regulatory bodies in core infrastructure sectors, such as the transport sector-comprising highways, railways, urban metros, ports, and airports- is a welcome suggestion for future reforms. Measures also need to be taken to make existing regulatory agencies in the power sector more effective. To make PPPs a success, state governments need to assess the costs and benefits of large projects rigorously. Haryana state serves as a suitable example of the same. As a state government, they have their own clear PPP policy and action. They have attracted significant investment and have PPP policies well established. This has significantly contributed to the fact that Haryana has risen amongst the Indian states at an astonishing pace. It is currently the third ranked state as per GDP indicators (Geethanjali, February 2014).

At the international level various challenges have been experienced by PPPs. For making PPPs effective, the World Bank Group understood the need for adequate protection and obligations for all parties involved in a PPP arrangement through sound legal and regulatory frameworks; incentive compatible institutional framework; sound project structuring, including adequate risk allocation, measurable performance indicators, and flexibility to adapt to change. Nonetheless perseverance and long-term commitment by governments remains a core policy agenda (World Bank, February 2014). In case of USA, strong legal basis (Jaime et al., 2010), strong oversight and evaluation processes (Istrate & Puentes, 2011), prioritizing projects based on a strong economic, and not political, rationale (Sabot and Puentes, 2014). Some of the most notable PPP failures in the United States are based on such misguided planning or overly optimistic projections.

In UK, the major concerns for PPP projects are appropriate sharing of revenue risks; the compatibility between appropriate profit levels and effective incentives for the private sector; the appropriate scope and procedures for government review of private sector projects; - the monitoring of project activities through a public inquiry and/or independent committee process; - the importance of using an experienced contractor; and innovative financing in a mature financial environment. For China, the need for legal and regulatory environment conducive to private financing, adequate institutional capacity and compensation for land acquisition and resettlement, transparency in contracting procedures have been identified the major issues for PPP projects (Ribeiro and Dantas).

For exploring the potentialities of PPPs, factors such as identifying common goals, delineating responsibilities, negotiating expectations and building bridges including common working practices and specific reporting and record keeping requirements, developing mechanisms - structures, processes and skills are identified. Other suggested areas include careful groundwork and preparation, including a comprehensive feasibility study and economic evaluation for each potential partnership project along with strengthening legal and regulatory capacity to effectively foster and participate in PPPs (Jamali, 2004). As a sector specific to the health infrastructure, Gerstlberger and Schneider utilized the case studies of Denmark and German hospitals. The funding constraints and lower management competencies have appeared key constraints from realizing public services in the sector. In this case private sector participation such as outsourcing of services, concession models and PPPs are found to be an

option as they might be contributing in funding as well as technical know-how (Gerstlberger and Schneider, 2013).

### **Future Prospects**

Despite the challenges, India's PPP model foresees remarkable journey ahead. India is expected to make great investments in the power sector due to rapid urbanization, rural electrification and industries across the country. Under the 12<sup>th</sup> Plan, the private sector is likely to account for a major share of the additional capacity (55.6%). PPP is likely to be the preferred route for such ventures. By 2035, a six-fold increase in passenger vehicle stocks is projected in India, from 16.7 million units in 2010 to 117.8 million units in 2035. This growth would be led by conventional gasoline-powered vehicles and diesel-powered vehicles. The increased volume of vehicles can cause congested traffic and high pollution, needing further expansion of environment-friendly rail/road projects. In due course, the setting up of metro rail projects in other metros will be the priority. Also, the new Government has set the target of awarding projects for construction of 8500 km of highways by end of March 2015 which sets a promising opportunity.

The setting up of the Cabinet Committee under the Prime Minister has shown a significant amount of intent indicating that the government is well aware of the concerns raised while debating various clearances. The new Government of India has come forward for gradual reforms in the form of denationalizing coal blocks, decontrolling gas and petrol and diesel prices, and is ambitious for another set of reforms such as labor reforms and land acquisition.<sup>8</sup> An attempt towards simpler model of land acquisition while ensuring proper settlements to land owners may contribute significantly to the functioning of PPP projects. As majority of projects are at either bidding or construction level, the timely completion and making them functional sets an overwhelming target for the new leadership of India. Also, the lower participation of PPP projects in areas such as power transmission and distribution, water supply and sewerage, and railways puts forth the scope of next promising sector for exploration.

On financing front, the Reserve Bank of India has recently eased bank lending norms with flexibility in loan structuring and refinancing, and also granted exemptions from regulatory pre-emptions, such as, cash reserve ratio (CRR), statutory liquidity ratio (SLR) and priority sector lending (PSL) for supporting infrastructure projects. Such initiative foresees the effective functioning of PPP projects. Finance minister Arun Jaitley has allocated Rs 500 crore for 3P India, a new institution being proposed as an agency that will recraft and renovate the public-private partnership model (PPP). The budget proposal on 3P India will look at regulation, financial structure, stress, management of contracts and capacity building on the part of both the private sector and the government and this will go along with in rejuvenating the PPP universe.<sup>9</sup> With the wide ranging of experiences from the PPP models within and outside the country, the academicians proposed a well structured legal regime for handling such issues. In this direction, the Department of Economic Affairs (DEA), Ministry of Finance has carried out Draft PPP Rules, 2012 where PPP Preparation, Penetration and Procurement have been addressed for the fuller utilization of private sector potentialities while ensuring feasibility of the project, proper setting up of the establishment and its smooth functioning, transparency, accountability, etc. Major provisions include the identification of a PPP Project, designation of project officer and project management team, pre-feasibility report, internal clearance to proceed with project

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<sup>8</sup> S.S. Aiyar (October 29, 2014). Sea change, in installments. The Economic Times, The Edit Page.

<sup>9</sup> <http://www.ficci.com/PressRelease/1692/ficci-press-release-july23-2014.pdf>

development, registration of the PPP project with DEA, budgeting and planning for the preparation and procurement process of the PPP project, appointment of consultants and advisors, feasibility study, project affordability and expenditure control, value for money assessment, revenue sharing or revenue support mechanisms, developing the procurement plan, formation of tender evaluation committee, appointment of independent monitor, etc (GOI, March 2012).

Keeping in view the holding back of big ticket projects and a discouragement to the investor in the current fiscal year, the country felt the need of setting up of institutional mechanism to redress the public contracts related problems. In this direction the Planning Commission finalized the Public Contracts (Settlement of Disputes) Bill 2013 which is under consideration at the part of Government. The move comes as a big relief not only for private players but also the government, which is burdened with delays and cost overruns arising out of disputes between the parties involved in PPP projects. At present, all disputes in public contracts are resolved through the Arbitration Act of 1996. But the process of arbitration in India is marred by huge financial, legal and opportunity costs of locked investments because of the time taken to resolve such disputes.<sup>10</sup> The Bill ensures the constitution of a 'Tribunal for public contracts' which will be dealing with disputes in the public contracts exceeding around US\$ 1 million. It grants power for handling contract executed by central government, state government, local or statutory authority or any corporation society or trust owned and controlled by the government. Under the breach of contract, the tribunal has the power for termination, cancellation, repudiation and claims for damages. The timely settlement of disputes is also the important feature of the said bill.<sup>11</sup> The effective enactment of legal initiatives can prove a significant instrument for supplementing the PPP model in India. Though India is moving towards the engineering-procurement-construction (EPC) route, but the scope of PPP projects is not limited, provided the land acquisition coupled with the governance issues are addressed.

## **Conclusion**

The number of PPP projects in India has increased from 85 in 2004 to 840 in 2011 to 1339 (worth around US\$ 148 billion) till March 2014. It is identified that roads sector is getting highest PPP projects, followed by urban development (9.6%), ports (8.7%), tourism (6.3%) and energy (5.6%). PPPs have least attraction in sectors such as agriculture, information technology, railways and civil aviation. Madhya Pradesh (MP) has the highest number of PPP projects (201 projects) followed by Maharashtra (182), Rajasthan (161), Andhra Pradesh (149); among others. The case studies of few projects favor the argument for augmenting the existing infrastructure needs, productivity and efficiency. However, the existing demand supply gap of infrastructure puts forth the scope for extending the PPP model further while learning lessons from past experiences emanating within and outside the country. The successfulness of Indian PPP model is limited due to land acquisition, delays in clearances, lack of effective regulation, etc. The setting up of the Public Contract Bill 2013 is a landmark step to deal with the bottlenecks of infra projects in general and PPP projects in particular. In sum, the scope of PPP projects looks viable amid the demand led infrastructure development in India. PPPs, with appropriate regulation and concern for equity, need to be encouraged in social sectors, such as health and education. The

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<sup>10</sup> Yogima Seth Sharma, (Oct 1, 2013). Planning Commission finalises PPP tribunal bill draft. The Economic Times.

<sup>11</sup> PTI (October 02, 2013). Govt to push PPP disputes resolution bill in winter session. The Economic Times.



study finds the ample scope for future research in terms of identification of gains of PPP projects by considering the large number of case studies.

### Authors' Note

This manuscript is the authors' original work, has not been published and is not under consideration for publication elsewhere.

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