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# Review on Comparative Study on Mass Transit System & PPP Structure of Mumbai Pune Metro

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**ABSTRACT:** Most of the Indian cities are expanding radially and commercial activities are likely to be distributed all throughout the city. Mass transportation or public transportation refers to the movement of people within an urban area using group travel technologies such as buses and trains. Currently, mass rapid transit systems have been deployed in these cities and several are under construction or in the planning process in several major cities of India. The Public Private Partnerships (PPP) has emerged as a very feasible fast and growing mode of creating infrastructure for our country. Our country is still starved of adequate infrastructure required for high level development; the opportunities for the growth of joint venture between both the sectors are huge and desirable. Government of India has been striving hard to mobilize investments for infrastructure in order to double its GDP from 3.986% to almost 9%. The present study is an attempt to peek into the scope, future growth and risks that such partnerships may hold for our country.

## I. INTRODUCTION

The need of the hour is to transform India into a developed economy by the integration of vital sectors, networking, technological advancement and connecting the rural-urban economies. The government sector both at the central and at state level find itself helpless to cope with the growing demands of the economy on its own funds. Hence, need is to look for other sources of development and private participation through PPP which is the best viable option available. The Planning Commission in the twelfth Five Year Plan, has anticipated an investment of over ₹ 55.75 lakh crore at current costs (or about US \$ 1 trillion) amid the twelfth Plan (2012-17). It is projected that private investment is expected to rise substantially from 37 % in 11th FYP to 48 % in 12th FYP. A public-private partnership (PPP) is a government service or private business venture which is funded and operated through a partnership of government and one or more private sector companies. These schemes are sometimes referred to as PPP, P3 or P3. Thus PPP refers to a long-term contractual partnership between the public and private sector agencies, specifically targeted towards financing, designing, implementing and operating infrastructure facilities and services in the State. These PPPs aim to achieve the twin objectives of high growth and equity on a sustainable basis..

This thought of public and private sector going into joint venture is not new and numerous names and short forms (BOT, BOOT, DBOT, PFI, PPP and so forth) have been used for the same policy of providing public services and infrastructure facilities which had formerly been delivered by public sector alone.

### A. Need of Mass Transit System (MRT) In India

Indian cities are fast emerging as engines of economic growth with an estimated 60% of the country's Gross Domestic Product originating from the urban areas and thereby generating money, jobs and a better lifestyle for all. Due to the high level of economic growth of the country, there has been an increased migration from the rural areas to the cities. Currently, about 30% of the population lives in the urban areas and this situation is expected to grow to 40% by 2021. Increasing urbanization along with unplanned and unregulated growth has put an immense pressure on the urban infrastructure especially on the urban transport. Also the increase in the income level of the people has led to an increased ownership of private vehicles thereby contributing to increased congestion on the roads.



**II. STATE OF DEVELOPMENT**

**A. Evolution of PPP in India**

In India there is no exact date and year which could speak of the beginning of PPP but it is said that the PPP story began with private sterling investments in Indian railroads in the latter half of the 1800s. By 1875, about £95 million was put by British organizations in Indian "ensured" railroads. Then again we could follow it to the mid-1900s, when private makers and merchants developed in power sector in Kolkata (Calcutta Electric Supply Corporation) and in Mumbai with the Tata playing a prominent role in starting the "Tata Hydroelectric Power Supply Company" in 1911. PPP story started with private sterling interests in Indian railways in the last 50% of the 1800s. A new wave in PPP was felt when a policy was made by the Central government in 1991 and it was decided to allow private participation in the Power sector which opened up the doors for independent power producers. The National Highways Act, 1956 was altered in 1995 to empower private support. In 1994, through a focused offering process, licenses were conceded to eight cell cellular telephone utility administrators in four metro urban areas and 14 administrators in 18 state circles.

Though the private participation can be related to some stray examples during the British era and early post-independence era the real PPP movement understood in today's parlance commenced during the 1990s when electricity generation was thrown open to the private sector, licenses were granted to eight mobile circular telephone service operators followed by a significant amendment in 1995 in National Highways Act 1956 to allow for private participation. But it was in 1997 when the Infrastructure Development Finance Company was set up that the movement got a fillip and also signaled the government's seriousness to tap the private sector capital, management and expertise in the country's infrastructure development.

According to **Vinayak Chatterjee (2012)**, today China's economy may be four times that of India but India's PPP market is ten times larger than China. The credit for these achievements should also be given to a right kind of enabling environment that was created in our country. Besides the above examples many new legislations were enacted post 1990 which made the environment in our country very conducive to public private participation. Various Acts like Electricity Act, 2003; the amended National Highways Authority of India Act, 1995; the Special Economic Zone Act, 2005; and the Land Acquisition Bill were passed and many new institutions like regulatory authorities in telecom, power and airports, implementing authorities like the National Highways Authority of India (NHAI), and financial institutions like the Infrastructure Development Finance Company, the India Infrastructure Finance Company etc. were also established. A number of innovative financial interventions like viability gap funding (VGF), annuity models and stimulation for availability of debt further encouraged the private sector to go in for infra investments via the PPP projects. The Planning Commission, the Department of Economic Affairs in the Ministry of Finance and the Prime Minister's Office at the Centre and the significant capacity building by several states like Punjab, Gujarat, Maharashtra, Delhi, Karnataka and Tamil Nadu also played a very supportive and stellar role in "making PPP happen".

Table 1 Growth in PPP projects and investment  
(Figures in INR Billion)

PERIOD	Approximate Infrastructure investments	PPP infrastructure investment	ESTIMATED PPP %
10 <sup>th</sup> year plan	9061	2252	25
11 <sup>th</sup> year plan [revised]	20542	7429	36
12 <sup>th</sup> year plan [Projected]	40992	20496	50

**Askar, M. M. and Gab-Allah, A. A. (2002)** Based on a questionnaire survey, Mohamed M. Askar and Ahmed A. Gab-Allah concluded that, in the Egyptian environment, the associated risk factors are Risks related to the political situation; shut down of a business by the government, increment in taxes, alteration in Laws, Construction Risks (Askar, M. M., & Gab-Allah, A. A., 2002). Ammad Hassan Khan, Misbah Jamil and Mudassar Sattar studied the implementation of the BOT projects in Pakistan. Due to the complicated financial and organizational framework of the model which is highly influenced by the socioeconomic environment in the country, the project planning in build operate and transfer project is a complex problem to be taken into the consideration (Khan, A. H., Jamil, M., & Sattar, M., 2008). The development of the urban infrastructure has been studied by Ashwin Mahalingam. His studies focus five main hurdles that the PPP projects have to encounter in the context of an urban Indian. These barriers involve disbelief between the public and the private sector, a deficiency of political readiness to develop PPPs, the lack of an

enabling institutional environment for PPPs, a deficient capacity of project preparation on the part of the public sector, and weak framework of the structured and designed PPP projects.

**Bakatjan, S., Arikan, M. and Tiong, R. L. K. (2003)** Equity capital structure is one of the key aspects for the successful implementation of PPP projects (Bakatjan et al. 2003). Past re-search has focused on finding the optimal debt capacity for the SPV in PPP projects. Their targets are to achieve the optimum debt-to-equity ratio that maximizes either project sponsors' investment on return or project's net present value (NPV) (Bakatjan et al. 2003; Dias and Ioannou 1995; Wooldridge et al. 2001). Zhang (2005) defined the capital structure of a privatized project from four perspectives, including types of financial instruments, their relative amounts, financing sources, and corresponding contractual conditions. Yun et al. (2009) developed a capital structure model to find the optimal equity ratio while accounting for the project-specific risks. Iyer and Sagheer (2012) studied the optimization of debt– equity structure and government grants sought by the private sector in order to simultaneously maximize the bid-winning potential and profitability of the PPP project.

**Bichou, K. and Gray, R. (2005)** Summarized research on the seaport industry from published academic journals during 1980 to 2000s. According to Bichou and Gray (2005) organizational and industry complexity impact a port's functional, operational, and institutional role. For example, ports adapt by either integrating horizontally by merging with or own terminals beyond the home port, and/or integrating vertically by providing a wider range of logistics services Bichou and Gray (2005) argue that although, in general, ports can be categorized as described above, there are lots of different ownership and organizational models worldwide combining two or even more of these. They also recognize the difficulty of formulating a clear taxonomy due to organizational, operational, physical and regulatory differences.

**David Hall 'Public-Private Partnerships (PPPs)'October (2008)** this paper is a summary of three reports commissioned by the European Federation of Public Service Unions (EPSU) dealing with the subject of public-private partnerships (PPPs) in Europe. It covers the development of PPPs and sets out a framework for:

- A critical evaluation of PPP proposals;
- Positive initiatives for the improvement of public services and strengthening of the role of the public sector, as alternatives to PPPs; and
- Ways in which trade unions in Europe have negotiated protection for their workforces under PPPs. Each section deals with relevant EU law and policies.

**Cheng, H.-K. (2010)** This study aims to identify some possible issues and challenges for Taiwan's High Speed Rail (HSR) system, which was constructed and is operated under a Build–Operate–Transfer (BOT) model. The operational experiences in the initial stage for equivalent systems in Japan, France, Germany, and elsewhere are introduced herein. This study first presents Taiwan's HSR system development and conducts an ex post cost–benefit analysis of this transportation system. Second, unsatisfied ridership is examined to look for possible solutions to increase it. Third, the paper examines the impact of HSR on the intercity transportation market. Finally, the integration between HSR and various existing transportation modes is discussed. Several policy suggestions are included, which are useful for the decision makers of transportation systems' entrepreneurs, the central government, and the local authorities to derive a comprehensive post-HSR planning strategy for a more integrated transportation system.

#### IV. CONCLUSION

PPPs if implemented successfully can be rightly called an epitome of operational efficiency, innovative technologies, managerial effectiveness and access to additional finances. Rather they help to combine and draw upon the best features of public and private sector to render services of international standards. However the picture is thornier than it appears. In spite of the success which the PPP model has met with in our country much is left to be desired. Due to the high level of economic growth of the country, there has been an increased migration from the rural areas to the cities. Currently, about 30% of the population lives in the urban areas and this situation is expected to grow to 40% by 2021. Increasing urbanization along with unplanned and unregulated growth has put an immense pressure on the urban infrastructure especially on the urban transport



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