PUBLIC PRIVATE PARTNERSHIP MODEL FOR DEVELOPMENT OF URBAN INFRASTRUCTURE: A CASE STUDY OF FOOT OVER BRIDGE IN SURAT CITY

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ABSTRACT

Public Private Partnership(PPP) is one of the procurement concept in which, design, finance, construction, execution, operation, maintenance, management either of these or all of these or combination of these is undertaken by a private entity for implementation of a public infrastructure project. India has experienced a number of success stories in implementing projects under PPP in sectors like road, ports, airports and many more urban infrastructure areas. Similar attempts have been made in structuring urban infrastructure projects through PPP. An attempt has been made to study the various forms of PPP and especially a model has been proposed for implementation of a Foot Over Bridge Project in Surat.

Keyword: - *Public Sector, Private Sector, Infrastructure, PPP, FOB*

1. INTRODUCTION

The Department of Economic Affairs (DEA), Government of India, defines PPPs as an arrangement between government or statutory entity or government–owned entity on one side and a private sector entity on the other, for the provision of public assets and/or related services for public benefit, through investments being made by and/or management undertaken by the private sector entity for a specified period of time, where there is a substantial risk sharing with the private sector and the private sector receives performance–linked payments that confirm (or are benchmarked) to specified, pre-determined, and measurable performance standards.

The partners in a PPP, usually through a legally binding contract or some other mechanism, agree to share responsibilities related to implementation and/or operation and management of an infrastructure project. This collaboration or partnership is built on the expertise of each partner that meets clearly defined public needs through the appropriate allocation of:

- Resources
- Risks
- Responsibilities, and
- Rewards

It is important to emphasize here that a PPP is not a solution option to an infrastructure service problem but it is a viable project implementation mechanism for a preferred solution option.

1.1 Objective

The objective of this seminar is to clarify certain popular myths about Public private partnership (PPPs), inculcate an understanding of what PPPs are and what they are not, and their benefits and applicability One of the major objectives of PPP is to transfer tasks and responsibility for the provision of infrastructure to the private sector, in order to gain efficiency, cost reliability and financial security. The traditional procurement of public infrastructure and its related services has given way to the private sector assuming responsibility for design, construction, operation, management, maintenance and finance, with the public sector as the customer or, sometimes, as the direct user, paying for the provision of a service. The public sector, nevertheless, should not lose its sovereign task such as assessing and determining infrastructure needs, monitoring and supervising of an efficient and competitive procurement system, and assuring all required environmental and safety standards in the service delivery.

1.2 Need of PPP

1. Fiscal reasons: The most commonly cited reason for undertaking PPPs is the lack of adequate funds with the government to undertake projects. This reason appears paramount in developing countries such as India where there are enormous financing requirements both for infrastructure and for social needs. By leveraging a certain level of committed government funding, it is possible to finance projects of much larger magnitudes by tapping into a larger pool of private finance (banks, financial institutions, insurance companies, equity/ mutual funds, and individual investors).

2. Efficiency Gains: The better reason for undertaking PPPs is that they lead to gains in efficiency as a result of appropriate risk transfer, speedier decision making, and flexibility of operations.

a. The private sector is able to take on large projects and better manage complex operations with the associated commercial risks including those related to design, financing, construction, and operations and maintenance. Recent examples of how the private sector has successfully managed large projects with complex operations include airlines, telecom services, container port terminals, airports, and oil refining. Under PPPs, risks are transferred to the entity most suited to manage those risks. Projects implemented by the public sector are often adversely affected by problems such as time and cost overruns, frequent changes of scope, inadequate designs, lower construction quality, leakage of revenues, and high maintenance costs. These can be transferred to the private player.

b. Since the emphasis is on the quality of service delivery and not just on asset creation, there is an incentive for the private party to be more efficient through use of appropriate technology, innovative design solutions, improved project management practices, efficient revenue collection practices, and a life cycle—cost approach.

c. The expected outcomes are improved value for money, expeditious implementation, and a higher quality of assets and services. The complementary partnership between the public and private sectors allows the public sector to benefit from private sector investors who contribute their own capital, skills and experience and bring with them commercial dynamism, innovation, and efficiencies.

2. PPP MODELS

Under functional and material privatizations, there are various PPP contract models employed in the international practice for different sectors like:

- BOT Build Operate Transfer
- BOOT Build Own Operate Transfer
- BOO Build Own Operate
- BOOST Build Own Operate Share Transfer
- BOLT Build Own Lease Transfer

2.1 Implementation Structure

Different organizational structures may be used to implement PPP projects. These include:

- *Private Sector SPV:* The commonest form of implementing PPPs is through a concession or a license granted by the government to a special purpose company/vehicle (SPV) set up by the private investor for implementing the project. The SPV in such a case is entirely owned by the private investor with other strategic/ financial investors.
- *Joint Venture SPV:* An SPV can also be set up as a joint venture with the public sector/government. The majority stake/overall project control rests with the private sector. The public partner could expedite the receipt of statutory approvals and clearances. In such a case, one has to be mindful of the conflict of interest for the government in its roles as an investor in the company, and as the statutory authority for the project.
- *Section 25 Companies:* For certain social infrastructure, SPVs can be set up as not-for-profit entities under Section 25 of the Companies Act. Under this set-up, there are taxation benefits and the private sector may be compensated through a fee for services rendered.

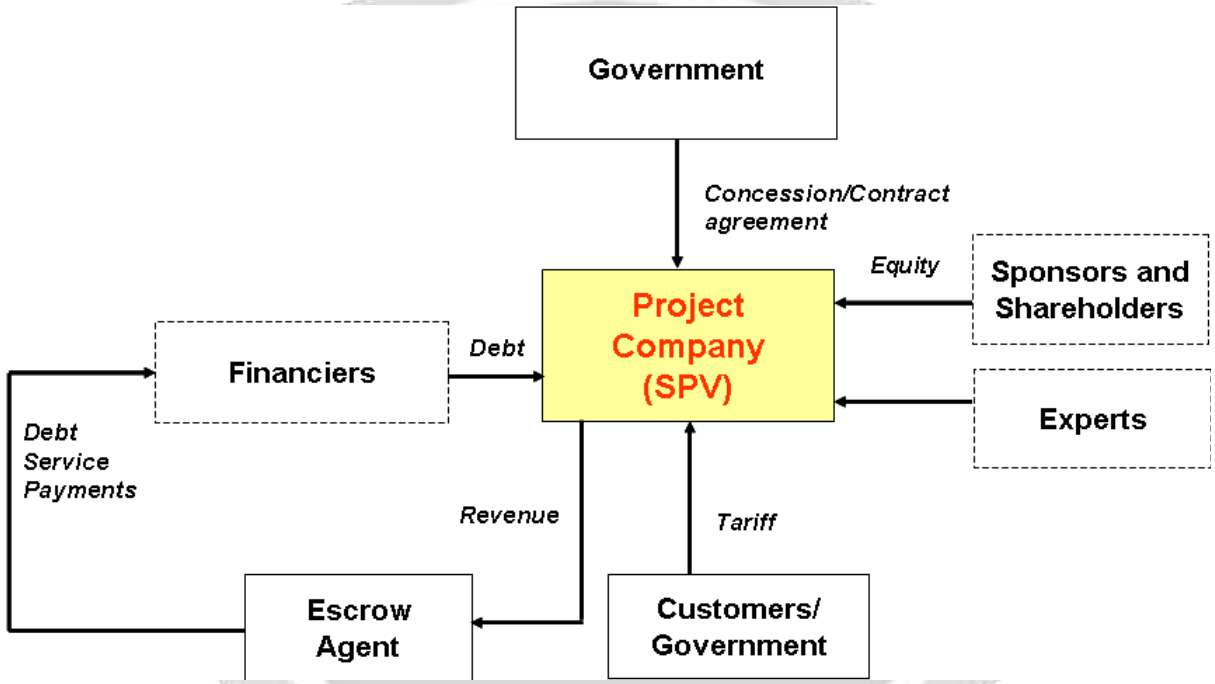

Chart -1: Typical structure of a PPP project

2.2 Special Purpose Vehicles/Company:

An SPV is usually set up by the private concessionaire/sponsor(s), who in exchange for shares representing ownership in the SPV contribute the long-term equity capital and agree to lead the project8. The SPV may not always be directly owned by the sponsors. They may use a holding company for this purpose.

An important characteristic of an SPV as a company is that it cannot undertake any business that is not part of the project. An SPV as a separate legal entity protects the interests of both the lenders and the investors. The formation of an SPV has also many other advantages. A project may be too large and complicated to be undertaken by one single investor considering its investment size, management and operational skills required and risks involved. In such a case, the SPV mechanism allows joining hands with other investors who could invest, bring in technical and management capacity and share risks, as necessary.

The government may also contribute to the long-term equity capital of the SPV in exchange of shares. In such a case, the SPV is established as a joint venture company between the public and private sectors and the government acquires equal rights and equivalent interests to the assets within the SPV as other private sector shareholders.

Sometimes, governments want to ensure a continued interest (with or without controlling authority) in the management and operations of infrastructure assets such as a port or an airport particularly those which have strategic importance, or in assets that require significant financial contribution from the government. In such a case, a joint venture may be established. A joint venture is an operating company owned by a government entity and a private company (or multiple companies including foreign companies if permitted by law), or a consortium of private companies.

Often, an SPV is formed as a joint venture between an experienced construction company and a service operations company capable of operating and maintaining the project.

Other than its strategic, financial and economic interest, the government may also like to directly participate in a PPP project. The main reasons for such direct involvement may include:

- To hold interest in strategic assets;
- To address political sensitivity and fulfil social obligations;
- To ensure commercial viability of the project;
- To provide greater confidence to lenders; and
- To have better insight to protect public interest.

Direct government involvement in a PPP project is usually guided by the legal and regulatory regime of the country and the government policy on PPPs. For example, the government may hold certain defined percentage of the stake in a strategic project such as an airport or a port

3. CASE STUDY: FOOT OVER BRIDGES (FOBs)

The traffic scenario in the cities are expected be more complex in the years to come, making it even more difficult for pedestrians to cross roads safely. Foot Over Bridges (FOBs) have been considered as the ideal option to facilitate pedestrian crossings World Wide. The Municipal Corporations of several cities have already been contemplating to provide FOBs as pedestrian facilities:

There are 4 feet over bridges are currently running in Surat:

- At Athwalines
- Near iscon mall
- Near railway station
- Near ring road
- Near Rajhance cinema pal road
- Near VR Surat Mall

Considering the following few key advantages:

- ❖ Improved pedestrian safety
- ❖ Reduced traffic congestion
- ❖ Signal free & Smooth traffic movement
- ❖ An easier option in terms of its construction period, cost, pedestrian safety and the ease with which the same could be erected on busy city roads, as compared to the alternative of sub-ways.

but have not been able to implement the same due to:

- ❖ Pedestrians not preferring to climb the FOBs

- Requirement of large capital investment by the Corporations

3.1 MECHANISED FOOT OVER BRIDGES (MFOBs) ON PPP

With a large wish list of projects and limited resources for implementation of projects, several State Governments have been developing projects on PPP. With several developers now having developed their skills in developing, operating and managing urban infrastructure projects, most ULBs have been exploring the possibilities for development of their projects on PPP. Commercial viability being the key to the success of any PPP project, mechanized foot over bridges are known to be the easiest and most viable in the urban sector with the following as main streams of Revenue:

- Revenues from Hoarding / advertisements on FOB surfaces
- Revenues from rentals from Kiosk along / below staircase

The mechanized FOBs are high capital-intensive infrastructure, but yet could be best implemented with the participation of the private sector on a Public Private Partnership (PPP) format.

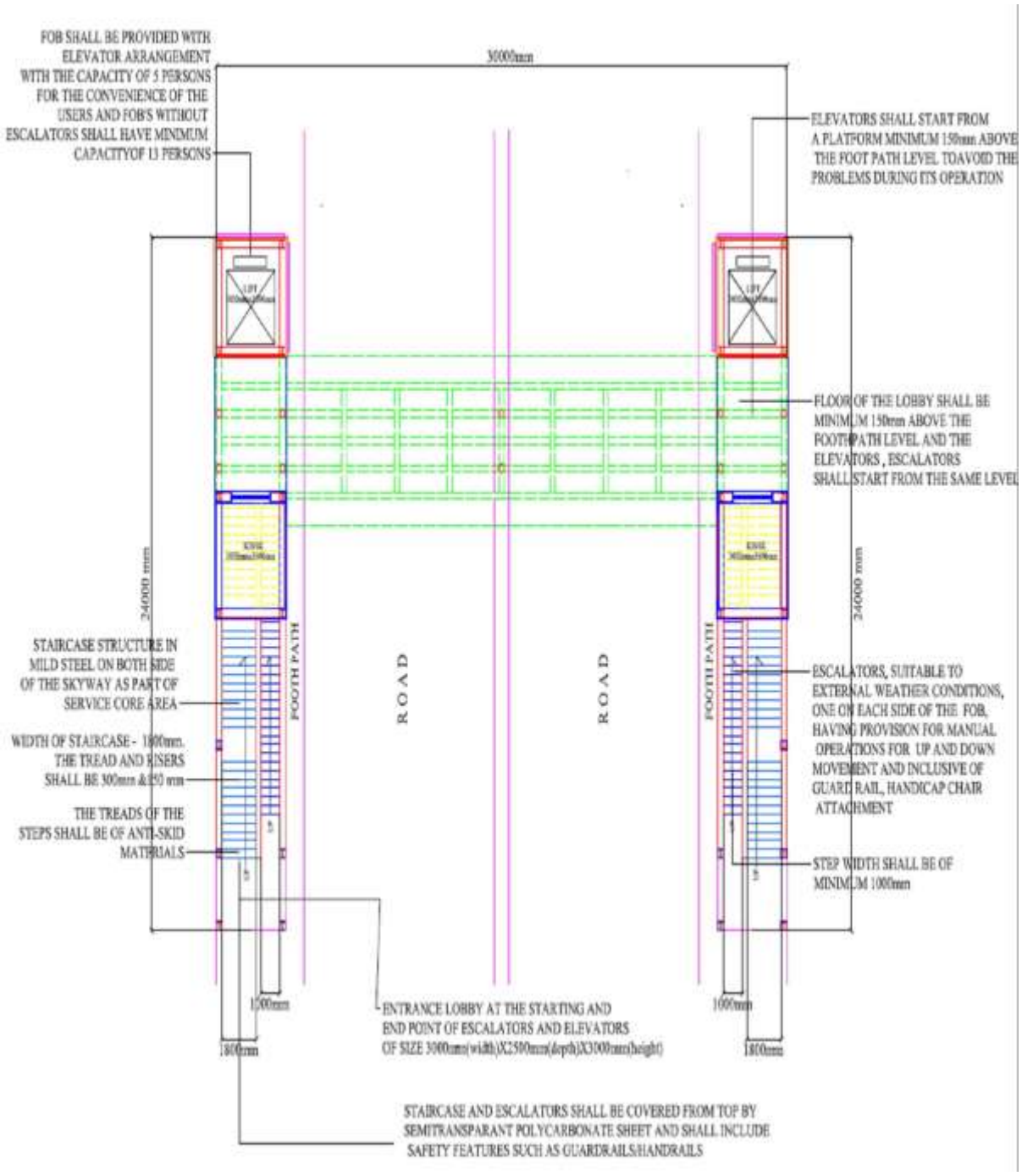

Chart -2: General layout of Foot Over Bridge

3.2 KEY REVENUE STREAMS FOR MFOBs ON PPP

Since MFOBs are a public facility, the revenue streams for the developer shall need to be pre-defined. Revenue generation would mainly be from advertisement rights and renting of commercial space like kiosks, ATMs, Telephone Booths, Medical Shops etc. demand for the advertisement as well retail outlets being the key, MFOBs at certain prominent junctions / locations could also emerge to be an additional stream of revenue to the ULBs. A demand assessment for each proposed location would however confirm the viabilit

3.2.1 DEMAND FOR ADVERTISEMENT SPACES

Advertisement industry has its spread in every aspect of merchandizing. Because of the cosmopolitan trends and global identity, there is immense market for advertisement in major cities and district headquarters. The prime commercial areas of the city are considered as high revenue potential areas while the residential localities/ old city area is considered as low revenue generating areas of the city. Because of the growing advertisement market, the street furniture like Bus Shelters, Pay & Use Toilets, FOBs etc. are also used for the advertisement purpose.

3.2.2 DEMAND ASSESSMENT FOR COMMERCIAL SPACE

Most of identified MFOB locations would fall on the major arteries of the city having commercial development in surrounding areas. The proposed MFOB locations can be explored for creation of spaces for urban needs as well as commercial benefit to make the project more attractive. The commercial spaces could be in terms of kiosks, ATMs, Telephone Booths, Medical shops etc.

3.3 KEY REVENUE STREAMS FOR MFOBs ON PPP

Following set of assumptions are considered for the Financial Assessment of the package that includes general assumptions, area assumptions and specifications.

3.3.1 GENERAL FACTS OF FOOT OVER BRIDGE

- Height of each FOB from the top surface of the road till the bottom of the skywalk (ground clearance) is 5.6 meters.
- Clear width of skywalk of each FOB is 4 meters.
- All escalators will run for 8 hrs. a day with a 12 KWH capacity for 365 days annually
- All lifts of 5 KWH capacity will run for 8 hours a day for 365 days
- Gap between two consecutive halogen lamps of 200 kwh at the Advertisement hoardings is 2.45 m.
- 200 KWH halogen lamps on the advertisement hoardings will be lit for 6 hrs. per day between 6 pm to 12 am for 10 months annually
- 100 KWH tube lamps inside the FOB will be lit for 6 hrs. per day between 6 pm to 12 am round the year.

3.3.2 PRELIMINARY COST ESTIMATION

The preliminary cost estimates are based on the preliminary market surveys carried out for the identified Cities. The landed project cost is estimated considering the cost involved in Construction, Project Development Fees, Interest during construction, Cost of Approvals & Sanctions and Pre-operative cost & contingencies etc. Following Tables shows the breakup of the Cost for a standard design of mechanized FOB.

Sr.no	Particulars	Rupees (lakhs)
1.	Construction Cost	205.04
2.	Approvals & Sanctions	2.00
3.	Pre-operative Cost & Contingencies	10.25
4.	Project Development Costs	5
5.	Insurance Cost	2.05
6.	Financing Cost	2.99
7.	Interest During Construction	3.69
8.	**Landed MFOB Cost**	**231.02**

Table -1: Cost Estimation

3.3.3 OPERATION AND MAINTENANCE FACTS (taken from 2017)

Sr.no	**Operation related** assumption	Unit	Figures in rupees/remark
1.	**Power cost**		
a.	Escalator will run for 8 hrs a day with a 12 KWH capacity for 365 days annually	KWH	35040.00
b.	Lift of 6 KWH capacity will run for 8 hours a day for 365 days		17520.00
c.	200 KWH halogen lamps on the advertisement hoardings will be lit for 6 hrs per day between 6 pm to 12 am for 10 months annually		360.00
d.	100 KWH tube lamps inside the FOB will be lit for 6 hrs per day between 6 pm to 12am round the year		219.00
	Total power unit	KWH	53139
	Unit cost of power	Rupees	7.00
2.	Costs towards salary of 2 security guards round the clock per month	Rupees	15000.00
3.	Inflation rate for Power Costs of lifts, escalators, Halogen lamps at Advertisement Hoardings and lamps inside FOB	**%**	5% every year
4.	Annual Maintenance Charge (AMC) of Escalators and lifts.	**%**	3% of the capital cost with an escalation of 5% in every year
5.	The Inflation rate for Manpower cost	**%**	5% in every year
6.	Administrative Cost	Rupees in Lakhs	1.5 lakhs with an escalation of 5.5% every year
7.	Miscellaneous Cost	%	10% of total cost

Table -2: O & M

3.4 REVENUE STREAMS

The MFOBs are proposed to be structured on Development and Management Rights Model with advertisement rights and commercial rental rights. Revenue from advertisements shall be major revenue stream for the operator to recover the investment. The table below states the rates per square feet of advertisement at some of the high traffic

congested roads in each city. These roads have also been identified as critical locations that are in urgent need for pedestrian facilities such as the FOB's.

city	location	Size in sq. ft	Market Rate per month	Rate per sq.ft per month
Surat	**Athwagate**	**400**	**40000**	**100**
	Ring road	**400**	**40000**	**100**
	Gaurav path	**400**	**50000**	**125**

Table -3: Revenue scheme

capital cost = 231 lakhs, rate = 12%

$$A = P\left[\frac{i(1+i)^n}{(1+i)^n - 1}\right]$$

	COST IN LAKHS	YEAR				
		2015	**2016**	**2017**	**2018**	**2019**
	O&M COST					
1.	**Power cost**	**3.71**	**4.10**	**4.31**	**4.52**	**4.75**
2	**Salary of guards**	**3.6**	**3.97**	**4.17**	**4.38**	**4.59**
3	**AMC of lift & escalator**	**4.2**	**4.63**	**4.86**	**5.11**	**5.36**
4	**Administrative cost**	**1.5**	**1.65**	**1.74**	**1.82**	**1.91**
5.	**Miscellaneous cost**	**1.3**	**1.44**	**1.91**	**1.58**	**1.66**
6	**Total O&M cost (1+2+3+4+5)**	**14.32**	**15.79**	**16.58**	**17.41**	**18.28**
7	**Annuity amount of Capita expenses @ of 12% rate of return (Capital Expenses)**	**33.00**	**33.00**	**33.00**	**33.00**	**33.00**
8	**Total revenue requirement (6+7)**	**47.32**	**48.79**	**49.58**	**50.41**	**51.28**
9.	**Min. Required amount from advertisement to meet the revenue requirement (Rs per sq.ft per month)**	**98.58**	**101.64**	**103.29**	**105.02**	**106.83**

10.	**Market rate of advertisement escalated at 5% year or year (Rs per sq.ft. per month)**	**125**	**131.25**	**137.8**	**144.7**	**151.9**
11.	**Revenue from Advertisement (Market Rate) in Lakhs**	**60.00**	**63.00**	**66.14**	**69.45**	**72.91**
12.	**PROFIT (ROW.11-8) in lakhs**	**12.68**	**14.21**	**16.56**	**19.04**	**21.63**

Table -4: Revenue Table

The few other sources of revenue that could contribute to the viability of a mechanized FOB for a shorter lease period would be installation of the following facilities:

3.4.1 ATM VESTIBULE

ATM vestibules can be incorporated into the FOBs as a commercial component. These can be open or enclosed types, depending on the location and security for such facility.

3.4.2 KIOSKS

Kiosks can be a valuable form of commercial component for the FOB. These can range from small newspaper/ magazine stalls, travel information counters, ticket booking stalls, to medical shops and refreshment stalls.

4. CONCLUSIONS

In the long run, successful partnerships between users and project proponents can act as an assurance to private players and investors (financing institutions) and encourage them to participate in provision of public goods through PPP arrangements in the future.

PPP concept foot over bridge will be beneficial for both government and private entity because as private investor the entire cost will be covered within contract period and profit is also good for private investor.

It will be good for government also because it has to provide FOB as per required but there is no contribution of it so this is the best way.

6. REFERENCES

[1]. Hemant Kanoria and Abhay Krishna Agarwal FICCI accelerating public private partnership in India

[2]. public private partnership in India compendium of case study December 2010 by PPIFA

[3]. A guidebook on public private partnership on infrastructure by Mr. Abdul Quium

[4]. PPP awareness course Published by: PPP Cell Department of Economic Affairs Ministry of Finance Government of India www.pppinindia.com