

Financing Public-Private Partnership in Bangladesh

Status, Approaches, Issues & Challenges, and Future Strategies



Bangladesh Institute of Bank Management

Section-2, Mirpur, Dhaka-1216

Financing Public-Private Partnership in Bangladesh **Status, Approaches, Issues & Challenges, and Future Strategies**

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Foreword

Economic growth of Bangladesh is still subdued against its full growth potential by inadequate provision of roads, bridges, railways, telecommunications, hospitals and ports, if not power and energy which are somehow adequate for current level of potential demand. In achieving the target of becoming a developed country by 2041, sufficient infrastructure is therefore the utmost important factor which requires huge investment. As public sector alone cannot develop infrastructure necessarily, Public Private Partnership (PPP) can offer one of the most viable solutions. Further, we are able to leverage our public budget by harnessing private sector investment in the PPP model.

Only the research inputs can invariably push forward this globally accepted model for infrastructure development in Bangladesh by providing insights to the policy makers, bankers, multilateral donor agencies, local and foreign investors and other stakeholders. Bangladesh Institute of Bank Management (BIBM) has conducted a number of research works on diversified areas of PPP focusing on Infrastructure Financing with its faculty members and a number of experts in the banking and financial sectors. To bring all its research studies on infrastructure financing under a single cover, BIBM publishes a compilation titled Financing Public Private Partnership in Bangladesh: Status, Approaches, Issues & Challenges, and Future Strategies. The articles contained in this book will certainly augment and disseminate the knowledge on infrastructure financing in Bangladesh and aid bankers to improve the quality of finance in this highly demanding area.

World class Infrastructure development is one of the prime agendas of the Current Government. Bankers are very much involved with this development initiative. BIBM is very much pleased by publishing this compendium and becoming involved with a top development agenda of the People's Republic of Bangladesh. We are confident that this publication would attract attention of policy makers, bankers, financial experts, academicians and students. BIBM would welcome comments, critiques and suggestions on the articles comprised in the publication.

Dr. Md. Akhtaruzzaman
Director General, BIBM

Editorial Note

Physical infrastructure has long been identified as a catalyst for economic growth. Accordingly, The Government of Bangladesh has given the highest possible importance to ensure affordable and quality infrastructure as well as basic services available. But the shortage of long-term finance is one of the acute barriers to infrastructure development. As neither the public sector nor the private sector can meet the financial requirements for infrastructure alone, the Public-Private-Partnership (PPP) model can represent a viable and necessary option to work together for the development of this sector.

As research-based inputs can only provide valuable ideas to the policymakers, the Bangladesh Institute of Bank Management (BIBM) has conducted a number of research studies in several areas of infrastructure financing during 2012- 2022 in order to contribute to one of the very crucial development agendas of the Government. The research paper outcome of the studies presented in seminars held at BIBM at different times may be lost unless these are preserved in print in a place. This motivates us to do a compilation titled Financing Public-Private Partnership in Bangladesh: Status, Approaches, Issues & Challenges and Future Strategies.

We are grateful to the Director General of BIBM, Dr. Md. Akhtaruzzaman, for his unflinching solid support in completing this compilation.

Our special thanks go to Dr. Ashraf Al Mamun, Associate Professor and Director (Research, Development & Consultancy), BIBM for his inspiration and valuable support. We are also thankful to all of our faculty colleagues for their views and positive suggestions to carry out the research study placed in this compendium.

We really feel contented to impart our heart-felt thanks and gratitude to the bankers and financial experts outside of BIBM who have contributed to the research studies. We do recognize the contributions of different Government agencies/line ministries such as the Ministry of Finance, PPP Authority, Planning Commission, BEZA; Bangladesh Bank (especially IPFF Project); BIFFL and banks/financial institutions for providing valuable opinion and data to prepare the reports.

Our honest appreciation goes to Md. Al-Mamun Khan, Publication-cum-Public Relations Officer; Ms. Papon Tabassum, Research Officer and Mr. Md. Awalad, Computer Operator, BIBM for their support.

At long last, as expected, this book will stimulate an active interest among students, researchers, scholars and policymakers to explore new, encouraging and contemplate ideas about infrastructure financing. All our true efforts will be more productive and spontaneous provided this volume is proved to be useful to the infrastructure development of the country.

Dr. Prashanta Kumar Banerjee
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**Infrastructure Lending by Banks:
Corporate Vs. Project Financing Approach ***

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Abbreviations

ADB	Asian Development Bank
BB	Bangladesh Bank
BDT	Bangladeshi Taka
BIFFL	Bangladesh Infrastructure Finance Fund Limited
BIRDEM	Bangladesh Institute of Research and Rehabilitation for Diabetes
BLT	Built-Lease-Transfer
BOI	Board of Investment
BOO	Build-Own-Operate
BOT	Build-Operate Transfer
BOOT	Build-Own-Operate Transfer
BPDB	Bangladesh Power Development Board
BROT	Build-Rehabilitate-Operate-Transfer
CCEA	Cabinet Committee on Economic Affairs
CIB	Credit Information Bureau
COD	Date of Commercial Operation
EPC	Engineering Procurement and Construction
EPZ	Export Processing Zone
ETP	Effluent Treatment Plant
FGD	Focus Group Discussion
GDP	Gross Domestic Products
HFO	Heavy Furnace Oil
ICRRS	Internal Credit Risk Rating System
IDA	International Development Association
IDB	Islamic Development Bank
IDCOL	Infrastructure Development Company Limited
IFC	International Finance Corporation
IIFC	Infrastructure Investment Facilitation Company
IMF	International Monetary Fund

IPFF	Investment Promotion and Financing Facility
IPO	Initial Public Offerings
IRR	Internal Rate of Return
KAFCO	Karnaphuli Fertilizer Company Limited
MW	Mega Watt
NBFI	Non-Bank Financial Institution
NPV	Net Present Value
NPL	Non-Performing Loan
O&M	Operation and Maintenance
PFI	Private Finance Initiative
PDF	Project Development Facility
PFI	Private Finance Initiative
PFI	Participatory Financial Institution
PPA	Power Purchase Agreements
PPI	Private Participation in Infrastructure
PPP	Public-Private Partnership
PSIG	Private Sector Infrastructure Guideline
SAARC	The South Asian Association of Regional Cooperation
SPV	Special Purpose Vehicle
USD	United States Dollar
VGF	Viability Gap Funding
WB	World Bank

Infrastructure Lending by Banks: Corporate Vs. Project Financing Approach

1. Introduction

1.1 Background

In the empirics of economic growth enhancement, several studies show that development of physical infrastructures¹ such as power, telecom, ports, roads, railways, etc. is indisputably critical for long-term economic growth and competitiveness of a country because it influences economic activities by enhancing productivity and decreasing costs, smoothing trade, stimulating innovation, attracting new investment (both domestic and foreign) and most importantly enhancing quality of life. As per Jianqing (2016) infrastructure is crucial for promoting growth, creating jobs and boosting productivity. IMF (2014) points out that an increase in investment spending by 1 percent of GDP raises the output level by 0.4 percent during the same year and by 1.5 percent four years later. The World Economic Forum estimates that investment of every dollar for well-organized and delivered public infrastructure projects will produce 5 percent-25 percent economic return (G20, 2014). So, to attain future prosperity, it is vital to invest in sophisticated and high-quality infrastructure.

McKinsey Global Institute documents that from 2013 to 2030, about a total of USD 57 trillion or yearly USD 3.5625 trillion will be required to funding infrastructure projects globally with a yearly shortage of more than USD 500 billion. OECD (2007) predicts that new and

¹ Infrastructure is the physical framework of facilities that enables the people of a country to reach the public goods and services. It is broadly categorized as public utilities, public works, and other transport. Facilities like power, telecommunication, piped water supply, sanitation and drainage fall under the category of 'Public utilities' whereas the roads, major irrigation projects and canal works come under 'Public works'. Items such as urban and intercity rail system, urban transport, ports and waterways; and roads are categorized as 'other transport' infrastructure.

existing infrastructure around the globe will need about USD 40 trillion of investment between now and 2030. In the same line of estimation, the World Bank (2014) indicates that emerging and developing countries will require yearly USD, 1-1.5 trillion of additional investment from 2020 to meet their growth targets. Between 2010 and 2020, thirty-two ADB-member developing countries are likely to call for about USD 8.22 trillion of fund with an annual amount of USD 747 billion to make investment in infrastructure sector. About 68 percent of the investment is required for infrastructure and the remaining 32 percent is required to maintain or replace the existing assets. This huge investment chunk tends to be about 6.5 percent of the Asian estimated GDP during 2021-2020 (Bhattacharyay, 2010).

The Global Infrastructure Hub Report estimates that from 2016 to 2040 Bangladesh will need USD 608 billion of investment in major infrastructure sectors such as telecom, ports, airports, electricity, rail and road. Present trends of inflows of fund to infrastructure sectors point out that Bangladesh may afford USD 417 billion of investment in the aforesaid sectors, leading to about USD 192 billion of funding gap during the same period. Among the demanding infrastructure sectors, the top three sectors i.e., power, telecom and water will experience investment gap of USD 100 billion, USD 41 billion, and USD 40 billion, respectively.

Government of Bangladesh is facing growing pressure from the mass people, civil society, and media to make affordable and quality infrastructure as well as basic services available (Amin, 2011).

In Bangladesh, usually government and multilateral development institutions provide fund to infrastructure projects. Till 2018, Government and multilateral/ bilateral development partners have extended USD 151.8 billion and USD 58 billion, respectively to numerous infrastructure projects². Only 2.6 percent of the required

² PwC analysis

funding has come from the country's banking sector³ and contribution of other financial institutions e.g., venture capital funds, and pension funds to the infrastructure sector is trivial. The reasons for sourcing the scanty amount of funding by the banking sector and other financial institutions are their less appetite towards infrastructure projects and permissible asset-liability structure⁴.

Although the amount of financing by banks in infrastructure sector is low compared to other commercial sectors, still now their (banks) response/move towards infrastructure is vital for required infrastructure investment. One might easily guess that the prospect of getting large foreign investments appears uncertain at the moment. Moreover, huge involvement of foreign investors in long term projects may create pressure on balance of payments because of repatriation of foreign currency, as happened during the East Asian financial crisis in the past decade (Amin, 2013). Additionally, past experiences in raising funds for Greenfield projects from the local stock market have not been much encouraging (Bhuyan, 2009). Thus, if banks can fix up their appropriate strategy and investment approach towards infrastructure projects, this will open up new windows for widening their investment portfolio.

Traditionally, Bangladeshi banks/ financial institutions prefer corporate financing structure to finance projects in diverse sectors including infrastructure projects⁵ in which sufficient collateral coverage, corporate guarantee, etc. are readily available. But as a

³ Exposure of commercial banks in infrastructure (transportation and construction sectors) was USD 11 billion in December 2018 (Bangladesh Bank Quarterly Report: October-December, 2018)

⁴ Due to single borrower exposure limit (funded) of 15% of banks capital imposed by Bangladesh Bank, it is difficult for commercial banks to finance projects having investment amount above USD70–USD100 million. The average investment capacity of a single bank is about USD 20 million, which is a tiny amount in mega infrastructure projects. In addition, commercial banks have asset-liability mismatch problem which limit their lending tenure to maximum 5-7 years (Sultana and Uddin, 2013).

⁵ Despite having banks' dominance in using collateral based/strong corporate guarantee-based financing in large projects in diverse areas, a large number of private sector-led infrastructure projects implemented on PPP mode have been financed by banks/financial institutions primarily based on projects' cash flows in association with IPFF, multilateral/bilateral agencies, foreign joint venture, or in local consortium/ syndication form.

matter of fact, most of the banks are burning their fingers due to excessively lending to big corporate sectors including infrastructure projects. In many cases, banks could not have been in a position to establish proper control over the cash flows of the projects. On the other hand, due to lack of commensurate collateral provision, uncertainty of future cash flows, and fear to move towards untested sectors, commercial banks in Bangladesh show less interest to extend their fund to infrastructure projects purely based on the projects' cash flow potentials. By dealing with syndicated loan⁶ and other structured finance products, meanwhile banks have got enough hands-on experiences as well as adequate expertise to deal with large infrastructure projects. Thus, banks can use their gained experiences and expertise in larger projects especially infrastructure sectors i.e., roads, electricity, port, etc. which are usually implemented under PPP mechanism to contribute much to the country's economic development (Amin, 2011).

So, keeping in mind the country's broad goal of gaining the status of Upper Middle-Income Country (UMIC) by 2031 and Higher-Income Country (HIC) by 2041 (PP of Bangladesh, 2021-2041), it is utmost important to accelerate infrastructure development. Therefore, the move of the banks and financial institutions to provide adequate funding to infrastructure projects is crucial. This inevitably poses a question regarding what approach, "corporate or project financing approach" would be suitable for banks in lending infrastructure projects. This paper is an endeavor to grasp the appropriate approach for banks in lending infrastructure projects. Hence, the core objective of this study is to know the appropriate mechanism of infrastructure lending by banks.

⁶ Till 2016, commercial banks of the country have financed syndicated loan of Tk. 76528.73 crore to 398 projects of diverse sectors with an CAGR (of the financing through syndicated method) of 23% during 1995-2015 (Chowdhury et al., 2016)

1.2 Objectives

The key objective of the research is to examine the suitable approach for banks in lending infrastructure projects. Some of the precise objectives of the study are as follows:

- i) To discuss the conceptual aspects of corporate finance and project finance approaches for infrastructure lending by banks.
- ii) To look into the global perspective of infrastructure lending by banks.
- iii) To assess the approaches followed by banks to lend infrastructure projects in Bangladesh.
- iv) To dig out the challenges of infrastructure lending by banks in Bangladesh.

1.3 Methodology

In conducting the study, both primary and secondary data have been utilized. For collecting primary data, a structured questionnaire was sent to all banks and IPFF-enlisted NBFIs⁷ to get information on financing of infrastructure projects. Finally, a total of 44 questionnaires were received from banks and NBFIs (Appendix-I) and used for analysis. The 4 questionnaires were received from SOCBs, 4 from FCBs, 5 from NBFIs and the remaining 31 from PCBs. Besides, a Focus Group Discussion (FGD) was arranged in a virtual platform with the bankers to know their opinions and strategies in infrastructure financing in which 21 bankers participated (Appendix-II). The study also documented 4 cases to show the real picture of project financing in Bangladesh. Secondary data were collected from the World Bank PPI database, Bangladesh Bank, PPP Authority, etc. Simple financial and statistical tools including tabular and graphical approach were utilized to analyze and present data.

⁷ Although this study is intended to capture the infrastructure lending by banks, five NBFIs (IDCOL, BIFFL, IDLC Finance, IIDFC and IPDC) enlisted with IPFF-II Project, Bangladesh Bank have been included in the sample due to having their exposures in a good number of infrastructure projects.

The research paper has been organized as follows: Section-1 states introduction including background, objectives and methodological issues. Section-2 discusses conceptual aspects of corporate finance and project finance. Global status of infrastructure project financing has been captured in Section-3. Section-4 presents the Bangladesh perspectives of infrastructure finance. Case studies are documented in Section-5. Finally, Section-6 puts forwarded a number of policy suggestions.

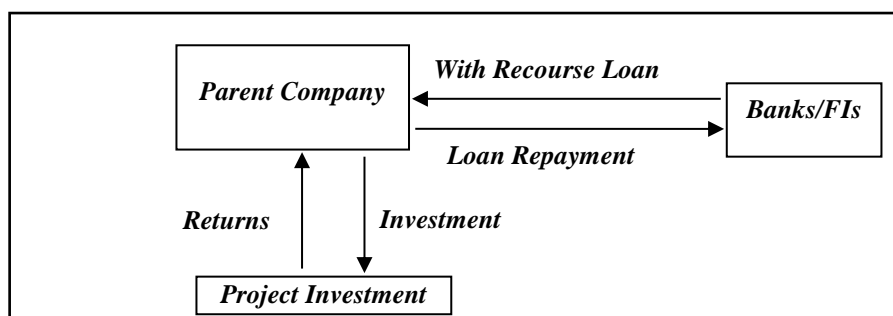
2. Conceptual Framework of Corporate Vs. Project Finance Approach

There is no hard and fast rule as to which type of businesses/projects is suitable for corporate finance or project finance approach. Whether corporate financing or project financing approach will be followed for lending to a project depends on the nature and risk associated with it.

2.1 Corporate Finance Approach

Under corporate financing approach, borrower’s balance sheet plays major role in lending by the bank. In corporate finance approach, banks provide money to the parent company to inject funds in the project (Figure-2.1). For raising funds for the project, companies usually use instruments such as corporate bonds, term-loans, asset-backed securities leasing, venture capital and IPO, etc.

Figure 2.1: Traditional Corporate Finance Structure



Source: Based on Srivastava & Kumar (2010)

Under the umbrella of corporate finance, though the lenders provide funds to a project, they essentially assess the cash flow and asset

position of the parent company to ensure repayment of the loan as well as to get security against the loan (Pandey, 2005). As the loan includes full recourse terms, lenders establish full right on the entire assets of the investing company. This sort of lending is heavily inclined to the status and credibility of the investing company rather than on the strength of the project. By this way investing company is exposed to excessive risk coming both from business and financial standpoint. Moreover, the parent company usually opens account with a bank in its own name for routing cash flows of the project. As a result, lenders do not have enough control over the cash flows of the projects and in turn sometimes loan repayment is jeopardized.

2.2 Project Finance Approach

Scholars have defined project finance in different ways. Some scholars have focused on the cash flow aspect of the project, while others emphasized either on contractual ring-fencing aspects or structural aspect or even considering on risk management aspect. According to Hoffman (2001), project financing refers to “a non-recourse⁸ or limited recourse financing structure in which debt, equity, and credit enhancement are combined for construction and operation, or the refinancing, of a particular facility in a capital intensive industry, in which lenders base credit appraisals on the projected revenues from the operation of the facility, rather than the general assets or the credit of the sponsor of the facility, and rely on the assets of the facility, including any revenue producing contracts and other cash flow generated by the facility, as collateral for the debt”. Nevitt and Fabozzi (2000) define project finance as “the financing to a specific business entity in which a financier is pleased to gaze initially to the cash flow and earnings of that business entity as the source of money from which

⁸ Non-recourse does not necessarily mean that the lenders accept all of the risks associated with a project. The nature and risk of the asset predominantly determines whether project finance or corporate finance merits for the financing mode. Utilizing corporate balance sheets to finance a project's assets can be counterproductive.

a credit will be paid and to the resources of the business entity as security for the loan”.

Basel-II Guidelines (BIS, 2001) identify project finance as “a sub-class of finance which encompasses financing for big, intricate, and costly establishment such as mines, transportation, power plants or other infrastructures in which creditor is typically compensated almost exclusively from the income produced by the project; borrower (SPV) is not allowed to carry out any function other than developing, owning, and operating the establishment; and the loan repayment is dependent on the cash flows and collateral assets of the project. Thus, under project finance approach, bank loans are not dependent on the sponsor’s balance sheet, security coverage or the value of the project’s physical assets rather the repayment of the loan is exclusively tagged to the cash flows of the project.

2.2.1 Project Finance: Parties and Their Roles

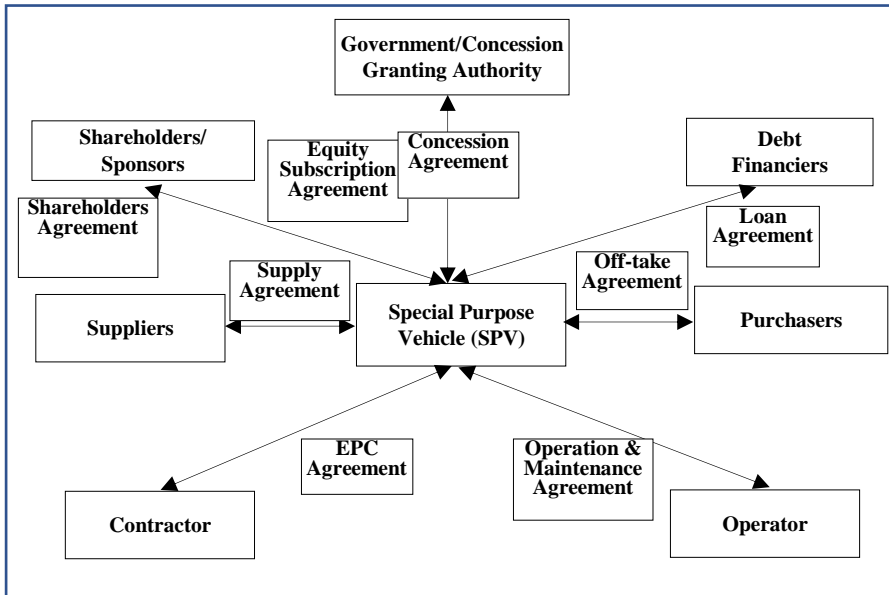
Project finance transactions are complex in nature which requires numerous parties in interdependent relationships (Figure-2.2). For this reason, project’s structure as well as participants vary widely across sectors. A brief description of the parties involved a project finance structure along with their roles and facets of agreements is given below:

- (i) *Special Purpose Vehicle (SPV)/Project Company*: In project financing, a separate company/entity, commonly known as Special Purpose Vehicle (SPV), is created by the sponsors for implementation and operation of the project. The reasons for creating an SPV by the sponsors are to de-risk own balance sheet from high project leverage, opening exit option for the equity investors and structuring tax. To the lenders, SPV provides a legal and structural separation (bankruptcy remoteness) of the project from the sponsors and the sponsor's cash flows are restricted from the cash flows of the project. SPV is usually established in project host country as per the laws of that country.

- (ii) *Shareholders/Sponsors*: Equity fund providers are the sponsors and the owners of the SPV. Sponsors may be a single party or a consortium of multiple equity investors including industrial sponsors, public sponsors, contractors or other financial investors. Sponsors are associated with the SPV under shareholders agreement. Ideally, sponsors provide 15-30 percent of the project cost as the equity.
- (iii) *Debt Financiers*: Usually, a single or multiple commercial banks, multilateral/bilateral financial institutions, export credit agencies and bondholders are the lenders of an infrastructure project. Lenders provide majority of the funding required in an infrastructure projects ranging between 70 percent and 90 percent. Lenders enter into a loan agreement with the SPV. There may exist an inter-creditors agreement as well.
- (iv) *Concession Granting Authority/Host Government*: Government or government agencies of the host country where the project is established grants the concession agreement/permission of the project to private parties. It also looks after other issues like allowing foreign exchange availability protections, tax concern and also act as an off-taker or as a supplier of raw materials. In some special cases, government may come out with Viability Gap Funding⁹ to increase the bankability of the projects.
- (v) *Purchaser/Off-taker*-There are some infrastructure projects especially power, gas, utility, etc. in which government enters into an agreement with the SPV/private sponsors to purchase the entire or partial outputs generated by the project. Purchasers are associated with the projects through off-take agreements.

⁹ Viability Gap Financing (VGF) is a type of grant from the government to infrastructure project which is not commercially viable but highly desirable from social and economic view point. Usually, VGF is provided by the government in form of capital grant or annuity payment or in both forms.

Figure 2.2: Typical Structure of Project Finance: Parties and Agreements



Source: Based on Switala (2003)

- (vi) *Suppliers*: Under a supply agreement, one or more parties join infrastructure projects for supplying raw materials or other inputs.
- (vii) *Contractors*: Physical construction is the most critical and challenging part of an infrastructure project. Usually, SPV shifts this job to a reliable and reputed construction company through an Engineering and Construction (EPC) contract. The EPC contractor goes the work of designing and building the project usually on a turnkey contract basis¹⁰.
- (viii) *Operator*: For smooth operation and maintenance of the project, SPV appoints an efficient and reputed operator having

¹⁰ Turnkey contract is typically a construction contract under which a contractor is employed to plan, design and build a project or an infrastructure, and do any other necessary development to make it functional or 'ready to use' at an agreed price and by a fixed date.

proven track record through an Operation and Maintenance (O&M) contract for an agreed upon remuneration.

2.2.2 Project Finance: Widely Used Models

Box 2.1: Widely Used Project Finance Models

1. Project Finance: Public Private Partnership (PPP) Models

Public-Private Partnership (PPP) is a widely established model for infrastructure development both in developed and developing nations. PPP model emerges for developing infrastructure due to facing some limitations by both public and private parties when they solely engage in developing the projects. Whereas public sector has budgetary constraints and required expertise, private sector faces problems in land acquisition, securing environmental clearance and other government approvals. In PPP model, both public and private partners complement each other in implementing infrastructure projects. Some of the models under the PPP include-

- 1.1 Lease-Build-Operate (LBO):** Under a lease-build-operate model, private party is granted a long-term lease contract to develop and operate an expanded facility with its own capital. Over the term of the lease contract, the private party recovers its investment and a sound return from the project and pays a lease rental fee. The leased property remains publicly owned.
- 1.2 Design-Build-Operate (DBO):** In DBO model, the public party delegates authority to the private sector to design, construct and operate new facilities for a fixed tenure. The private party is responsible for the risks associated with the design and management of the facility.
- 1.3 Build-Transfer-Operate (BTO):** Private party designs, finances, and builds the infrastructure under this model. Upon completion of the project, legal ownership is transferred to the public authority. The public authority then leases the facility back to the private party through a long-term lease.
- 1.4 Build-Operate-Transfer (BOT):** Build-operate-transfer is a PPP model in which the public party awards the concession agreement to private partner to finance, build, own and operate a facility. The private party is entitled to receive user fees for a definite period of time, after which it transfers ownership of the facility to the public authority.
- 1.5 Build-Own-Operate-Transfer (BOOT):** BOOT is almost same as BOT with the exception that the facility ownership remains with the private party and

sold to the public party in exchange of either a pre-agreed fixed amount/nominal/ market value with a cap.

1.6 Built-Own-Operate (BOO): Under BOO contract, the private party finances, builds, owns, and operates a facility in eternity. Toll roads, power plants, etc. are ideally implemented under BOO model.

1.7 Buy-Build-Operate (BBO): In this PPP model, existing public facility to a private party who refurbishes or develops the facility and operates it for infinite period under a contract.

1.8 Wraparound Addition (WA): Under this model, the private party finances and constructs an addition to a prevailing public facility and then operates the combined facility either for a fixed period, or until returns of investment are fully recovered.

1.9 Rehabilitate Operate Transfer (ROT): This model permits the private party to finance, rehabilitate, maintain and operate a facility for an agreed period of time, before shifting the facility back to the public party without incurring any cost.

2. Project Finance: Methods of Sourcing Finance

2.1 Take-Out Finance: Take-out finance is a state-of-the-art method in which project loan liability is transferred from one lending bank to another bank in order to obtain better benefits and appropriate distribution of risks among different banks.

2.2 Bond Finance: Sometimes, private party approaches bond market for obtaining required funds for the project through issuing bonds. By and large, a matured and vibrant bond market provides greater flexibility of raising funds for the projects at lower cost.

2.3 Securitization: Securitization is a significant financing tool which is applied in many developed countries in funding infrastructure projects. Though, in developing countries like ours this model is not popular, it can extend benefits to project developers, if properly utilized.

2.4 Viability Gap Funding (VGF): If an infrastructure project is not commercially viable but desirable from economic and social perspective, government may provide viability gap funding to such projects to make them commercially viable.

2.5 Bank Finance: Banks usually lend to an infrastructure project through the SPV, which is created for successfully implementing PPP projects almost in all

sectors. Under this infrastructure financing model, an inter-institutional group of banks and financial institutions evaluate the need and merit of the project.

Source: Kumar and Kumar (2012) and Nyagwachi (2008)

2.2.3 Advantages of Project Finance System

Brealey et al. (1996) claims that project finance generates value by solving agency problems and humanizing risk management. By presenting a more view of the agency problem, Esty (2003, 2004a, 2004b) highlighted on a number of motivations for using project finance. Some of the motivations for using project finance are presented here:

2.2.3.1 Risk Distribution: According to Bruner et al. (1995), project finance is a better approach than corporate finance for efficiently distributing risk and generating returns. Companies and lenders can invest in relatively risky projects by using project finance technique as incremental distress cost can be reduced by way of sharing risks among the projects partners. Brealey & Myres (2003) indicate that the positive relationship between leverage and distress cost contributes to the decrease in incremental distress cost.

2.2.3.2 Levered Firm's Investment Opportunity Open Up: Under corporate finance method, use of debt capital over a certain limit escalates the financial risk of a corporation leading to failure at the worst-case phenomenon. Whereas project finance permits a firm to reserve its scarce corporate debt capacity and allows the firm to borrow more thriftily than it can do otherwise. Agreeing on this fact, Stulz & Johnson (1985) state that use of secured debt can help a firm reduce the leveraged-induced underinvestment by means of distributing returns to the providers of new capital.

2.2.3.3 Reduction of Financing Cost: In corporate finance approach, debt capital is cheaper for a large corporate with proven track record. But

project finance approach can offset this advantage by using high level of levered capital.

2.2.3.4 Widely Available Sources of Project Finance Debt: A wide array of debt funds is available for project finance. Investment banks, commercial banks, infrastructure funds, development banks, ECAs, multilateral agencies are the major sources of project debt.

2.2.3.5 Availability of Free Cash Flow: Under corporate finance approach, aggregate cash flow of the entire firm is increased by the cash flows generated by the new project. For utilizing this free cash flow, permission of the board of directors is required in corporate finance mode whereas no such consent is required in project defiance mode. As project finance deals are off-balance in nature, investors are free to invest the free cash flows.

2.2.4 Disadvantages of Project Finance System

A large body of literature including literature from Bonetti *et al.* (2010), Gatti (2008), Fabozzi *et al.* (2006) and Esty (2004 a,b) have identified some difficulties of project finance.

2.2.4.1 Substantial Cost of Third-party: Incorporation of a number of parties from technical, operational, and legal makes a project finance deal complex which results in high up-front and third-party costs. Major costs in the initial stage are associated to designing of project, advisory charges, pre-feasibility and feasibility study, documentation, contractual agreements, etc. By nature these costs are sunk cost and irreversible whether the project is undertaken or not.

2.2.4.2 Lengthy Procedure: Compared to corporate finance deal, project finance deal entails longer time. Project finance deal requires involvement of a number of independent parties, whereas corporate finance deal is completed by a handful of internal people working in a group.

2.2.4.3 Strict Covenants: In order to safeguard their interest, parties in a project finance deal try to impose stringent terms and conditions. As a result, the project deal may sometimes be delayed or even unexecuted.

2.2.5 Project Finance to Fund Infrastructure: Historical Sketch

2.2.5.1 Project Financing Approach: Earlier Experiences

The record of one of the earliest applications of project finance deal was happened in 1299, when a leading Florentine merchant bank was enlisted by the English Crown to provide financial support to develop the Devon silver mines. The bank paid all of the operating costs to the Crown and received a one-year lease for the entire output on the basis of without recourse contract if the value or amount of the extracted ore became less than the anticipated harvest (Kensinger & Martin, 1988). Now a days this sort of agreement known as production payment loan. As documented by Smith and Walter (1990), the ‘wildcat’ explorers of Texas and Oklahoma, USA used the production payment loan in the 1930s to finance the exploration of oil-field.

2.2.5.2 Project Finance Approach: Recent World Experience

The modern project finance model emerged in the 1970s, partially in response to meeting the demand of fund to large natural resource discoveries and partially in response to the rising energy prices and the resultant demand for alternate energy sources. In the early 1970s, British Petroleum collected USD 945 million on project finance basis in order to develop a project in the North Sea named ‘Forties Field’. Esty (2005) in his study mentioned about some projects that were financed in project finance mode around the same period. For example, Ertzberg copper mine project in Indonesia was financed by Freeport Minerals and the Bougainville copper mine project in Papua New Guinea was financed by Conzinc Riotionto of Australia. The motivations for using project finance mode are huge amount of

investments and relatively small size of the balance sheet of the sponsoring firm. As per Chen et al. (1989), more than USD 23 billion fund was invested in 168 projects under project finance approach from 1987 to 1989. Now a days, project finance is widely used in infrastructure projects including roads, power, ports, telecom, and so on.

2.2.5.3 Project Finance Approach: Recent Experience in Indian Subcontinent

According to Benouaich (2000), the British government raised capital from the private parties with recourse basis primarily to develop railways in the 1880s. At present, in India, the use of project finance has increased in manifold. Not only the sponsors of infrastructure projects but also many corporates¹¹ are now meeting their funding requirements through project finance mode. During 1990-2020, a total of 1,115 infrastructure projects with investment amount of USD 278,448 million have been implemented under project finance mode in India. Among other countries of Indian subcontinent, Pakistan (116 projects with USD 32,975 million of investment) and Sri Lanka (86 projects with USD 3,175 million of investment) implemented numerous infrastructure projects mainly in power sector on limited recourse or non-recourse basis under the support of the World Bank (World Bank PPI Database, 2020).

2.2.5.4 Project Finance Approach: Bangladesh Context

Immediate after the independence, Bangladesh has focused on the country's overall economic development with the top priority in infrastructure sector. In Bangladesh, project financing approach was first utilized in 1970s and 1980s to utilize private sector's expertise in developing infrastructure. Later on, in order to successfully adopting

¹¹ Some of the large users of project finance in infrastructure development are Reliance Capital, Reliance Industries, Pramod, and Vinod Mittal (Srivastave & Rajaraman, 2017)

innovative infrastructure solution models appropriate for private sector involvement, government has taken a series of initiatives regarding policy reforms, setting up of institutional framework, establishing dedicated and specialized organizations, budgetary allocation, capacity building and so on. Thus, the country is now on a path of adopting PPP models in massive infrastructure projects development. Until recently, more than 100 infrastructure projects have already been implemented under project finance mode and about 79 projects are in pipeline to be implemented through PPP models (Banerjee et al., 2016; World Bank PPI Database, 2020 and PPP Authority, 2021)

3. Global Status of Infrastructure Projects Financing

3.1 Worldwide Infrastructure Projects by Region

Among all regions, the highest number of projects reached financial closure in the East Asia and Pacific region where 19 countries involved with private participation for 2719 projects followed by the Latin America and the Caribbean region where 25 countries involved with 2294 projects development (Table-3.1). Further, the largest investment was in the electricity sector in all regions except in the Sub-Saharan Africa. The Latin America and the Caribbean region accounted for the largest investment into infrastructure project with USD 708,653 Million from 1990 to 2020 followed by the East Asia and Pacific region with USD 512,462 Million. The highest private participation went to the Greenfield project with the largest share in investment.

Table 3.1: Status of Regional Infrastructure Projects with Size of Investment (1990-2020)

Region	No of Countries with Private Participation	No of Project	Total Investment (USD Million)	Largest Investment Sector	Type of Project with Largest Share in Investment	Type of PPI with Largest Share in Projects
East Asia and Pacific	19	2719	512462	Electricity (68.05%)	Greenfield Project (77.32%)	Greenfield Project (73.11%)
Europe and Central Asia	20	1085	289328	Electricity (76.1875%)	Greenfield Project (73.5%)	Greenfield Project (65.61%)
Latin America and the Caribbean	25	2294	708653	Electricity (56.15%)	Greenfield Project (71.39%)	Greenfield Project (68.56%)
Middle East and North Africa	12	224	61750	Electricity (136.231%)	Greenfield Project (88.33%)	Greenfield Project (74.54%)
South Asia	8	1445	328380	Electricity (79.561%)	Greenfield Project (77.48%)	Greenfield Project (72.63%)
Sub-Saharan Africa	45	546	84427	ICT (10.1285%)	Greenfield Project (69.77%)	Greenfield Project (68.86%)

Source: World Bank PPI Database

3.2 Regional Infrastructure Projects by Sector

Investment in electricity sector received the highest attention in all regions of the world in terms of number of projects and the size of investment (Table-3.2). The highest number of electricity projects reached financial closure in the Latin America and the Caribbean region with largest investment of USD 318,610 million during 1990-2020 followed by the East Asian region where 1021 projects were undertaken with USD 228,886 million. In the Airport sector, the Latin

America and the Caribbean region undertook the highest number of projects i.e., 64 projects during 1990-2020. The Europe and Central Asian region concentrated more in developing transport sector with 72 Projects compared to other regions. Considering ICT project, Latin America and the Caribbean region invested more amount of USD 48,128 million although the Europe and Central Asian region undertook a greater number of projects with 220 initiatives. The highest number of projects of 494 projects in the road sector reached financial closure in the South Asian region whereas the Latin America and the Caribbean region invested more of USD 122,939 million in that particular sector. During 1990-2020 largest number of Water/ Sewerage projects with 652 initiatives completed financial closure in the East Asian region followed by the Latin America and the Caribbean with 311 projects.

Table 3.2: Status of Regional Infrastructure Projects by Sector with Size of Investment (1990-2020)

Region	East Asia		Europe and Central Asia		Latin America and the Caribbean		Middle East and North Africa		South Asia		Sub-Saharan Africa	
	No. of Project	Investment (\$ Mill)	No. of Project	Investment (\$ Mill)	No. of Project	Investment (\$ Mill)	No. of Project	Investment (\$Mill)	No. of Project	Investment (\$ Mill)	No. of Project	Investment (\$Mill)
Airports	37	8,344	37	51,183	64	38,546	12	2,007	18	10,993	17	2,052
Transport	4	22	72	3,866	24	6,707	1	1	6	18	0	0
Electricity	1,021	228,886	555	133,245	1,164	318,610	111	34,599	736	193,629	288	47,130
ICT	53	27,576	220	20,505	88	48,128	33	9,489	44	5,178	91	9,083
Integrated MSW	5	638	4	241	7	4,864	2	22	29	1,273	1	7

Region	East Asia		Europe and Central Asia		Latin America and the Caribbean		Middle East and North Africa		South Asia		Sub-Saharan Africa	
Natural Gas	209	9,730	52	24,355	92	49,115	6	4,816	8	892	7	2,249
Ports	127	23,926	44	7,453	156	25,562	24	5,751	60	14,027	62	13,643
Railways	43	54,396	9	5,442	62	57,951	2	343	10	7,958	22	5,590
Roads	346	99,188	24	35,650	314	122,939	0	0	494	92,146	18	3,943
Treatment/ Disposal	223	18,596	18	1,888	12	285	5	373	17	609	10	285
Water/ Sewerage	652	41,790	50	5,499	311	35,946	28	4,349	23	1,657	32	779

Source: World Bank PPI Database

3.3 Infrastructure Project Financing in SAARC Countries

In examining infrastructure project financing in SAARC countries, India completed 1115 projects with financial closure of total investment of USD 278,448 Million. The major sectors they invested include Natural Gas, Airports, Transport, Ports, Electricity, ICT, Integrated MSW, Roads, Railways, Water and Sewerage, Treatment/ Disposal. Bangladesh held the second position in terms of projects (134 projects) although Pakistan invested larger amount than Bangladesh. Sri Lanka undertook 86 projects and invested USD 3,175 million. It is also observed that Nepal invested USD 2,872 million for developing 39 projects during 1990-2020.

Table 3.3: Infrastructure Project Financing in SAARC Countries from 1990 to 2020

Country	No. of Projects	Total Investment (USD Million)	Infrastructure Sectors
India	1115	278,448	Natural Gas, Airports, Transport, Ports, Electricity, ICT, Integrated MSW, Roads, Railways, Water and Sewerage, Treatment/ Disposal
Pakistan	116	32,975	Airports, Electricity, ICT, Natural Gas, Ports, Treatment/ Disposal
Sri Lanka	86	3,175	Electricity, ICT, Ports, Treatment/ Disposal
Bangladesh	134	17091	Airports, Power & Energy, ICT & Telecom, Waste Mgt. & Water Treatment, Ports, Roads, Economic Zones, Hotels/ Tourism and Healthcare Sector
Nepal	39	2,872	Electricity, ICT, Roads, Water and Sewerage
Afghanistan	7	259	Electricity, and ICT
Bhutan	3	420	Electricity, and ICT
Maldives	2	518	Airports, ICT, and Ports

Source: World Bank PPI Database

3.4 Infrastructure Project Financing in SAARC Countries by Sector

In the SAARC region, all countries highly focused to invest and develop electricity sector during 1990-2020 (Table-3.4). Among all countries, India invested highest amount in electricity sector (USD 152,732 million) for developing 458 projects under private participation followed by Pakistan (USD 28,742 million for 100 projects), Bangladesh (USD 8672 million for 91 projects) and Sri Lanka (USD 1,825 million for 77 projects). A record number of projects (489) in road sector were undertaken by India during 1990-2020 among all SAARC countries with the investment of USD 90,673 million under project financing approach. A total number of 29 Integrated Municipal Solid Waste (MSW) management projects were reached financial closure in India whereas other countries did not

develop any such projects. In the port sector, India undertook 44 infrastructure projects having a total investment of USD 9,585 million under private participation whereas in the same sector Pakistan took on 9 projects followed by 8 projects in Bangladesh and 3 projects in Sri Lanka during 1990-2020.

Table 3.4: Status of SAARC Countries Infrastructure Projects by Sector with Size of Investment (1990-2020)

Country/ Sector	Project/ Investment	Airports	Transport	Electricity	ICT	Integrated MSW	Natural Gas	Ports	Railways	Roads	Treatment/ Disposal	Water/ Sewerage
Afghanistan	Project	-	-	5	2	-	-	-	-	-	-	-
	Investment	-	-	211	48	-	-	-	-	-	-	-
Bangladesh	Project	-	-	91	13	-	-	8	-	5	7	-
	Investment	-	-	8672	906	-	-	1308	-	2332	450	-
Bhutan	Project	-	-	2	1	-	-	-	-	-	-	-
	Investment	-	-	403	18	-	-	-	-	-	-	-
India	Project	15	6	458	25	29	5	44	10	489	14	20
	Investment	10,475	18	152,732	3,272	1,273	831	9,585	7,958	90,673	372	1,258
Maldives	Project	1	-	-	1	-	-	-	-	-	-	-
	Investment	478	-	-	40	-	-	-	-	-	-	-
Nepal	Project	-	-	35	2	-	-	-	-	1	-	1
	Investment	-	-	2,512	10	-	-	-	-	350	-	0
Pakistan	Project	1	-	100	3	-	2	9	-	-	1	-
	Investment	40	-	28,742	1,358	-	30	2,755	-	-	51	-
Sri Lanka	Project	-	-	77	4	-	-	3	-	-	2	-
	Investment	-	-	1,825	303	-	-	860	-	-	187	-

Source: World Bank PPI Database

4. Infrastructure Project Lending by Banks in Bangladesh: Results and Discussion

4.1 Infrastructure Projects Financing in Bangladesh: Gradual Development

4.1.1 Initial Steps

Project financing concept first initiated in Bangladesh in 1970s and 1980s with establishing of some prominent infrastructure projects like BIRDEM and KAFCO. However, a real impetus has been observed in the mid-1990s, with the enactment of Private Sector Power Generation Policy (PSPGP) in 1996. In response to the promulgation of PSPGP, a number of Independent Power Plant (IPP) projects have been implemented. Several big power projects e.g., 360MW Haripur and 450MW Meghnaghat combined cycle power plants are immediate outcome of the policy. At the same time, apart from the implementation of the stated big power plants, more 25 Independent Power Plants (IPPs) with almost USD 1 billion investment were either completed or were staying in varying stages of completion. In order to boost up infrastructure development and building confidence of the private sector toward infrastructure investment, government created a specialized financial institution named Infrastructure Development Company Limited (IDCOL) in 1997. IDCOL mobilizes long-term funds in association with other institutional and commercial partners for private infrastructure projects. Till date, IDCOL has financed about USD 650 million in more than 40 infrastructure projects in diverse sectors (Banerjee et al. 2018 and IDCOL, 2020). Government sets another milestone in driving private parties towards infrastructure projects by issuing Private Sector Infrastructure Guidelines (PSIG) in 2004 in response of which some successful infrastructure projects in power, gas and telecommunication sectors have been implemented under PPP mechanism (Amin, 2011).

4.1.2 Creation of Investment Promotion and Financing Facility (IPFF) Project

To assist the private sector led-infrastructure projects with long-term financing facilities, Government initiated Investment Promotion and Financing Facility (IPFF) Project with assistance of the World Bank in 2006. In its first tranche, IPFF has financed a total of USD320.12 million through designated PFIs to 21 PPP projects in power, port, water treatment, ICT and health sectors. On the success of the first tranche of IPFF facility, World Bank provides another USD 357 million under the caption IPFF-II to lift up infrastructure development under PPP in Bangladesh. Till now, IPFF-II has financed around USD 44.86 million (IPFF, BB 2020) in two infrastructure projects and a good number of sub projects are under consideration for financing.

4.1.3 Promulgation of PPP Policy & Strategy and PPP Law

Afterwards, the government has promulgated “the Policy and Strategy for Public-Private Partnership in 2010 and enacted PPP Law in 2015 by replacing the earlier policy. Since its inception in 2010, PPP Authority¹² identified and developed 79 infrastructure PPP projects in diverse sectors. Meanwhile, apart from the structured chronology of initiating infrastructure projects, a good number of infrastructure projects belonging to the domain of PPP model, have already been implemented as documented in the study by Banerjee et al. (2016). Table-4.1 shows a summary of infrastructure project financing initiatives in Bangladesh.

¹² The earlier name of PPP Authority was PPP Office which has been renamed after the enactment of PPP Law.

Table 4.1: Infrastructure Projects Financing: Summarized Record of Gradual Development

Period	Gradual Development
1970-80	Initiation of partnership concept between public and private sectors for developing BIRDEM and the National Institute of Cancer Research & Hospital.
1988	Establishment of KAFCO as a joint venture between Japan and Bangladesh.
1996	Issuance of Private Sector Power Generation Policy (PSPGP).
1997	Launching of 'Private Sector Infrastructure Development Project (PSIDP)' by World Bank as the Technical Assistance Project for infrastructure development with private participation.
1997	Establishment of IDCOL as specialized NBFIs under ERD, Ministry of Finance to mobilize long-term funds in association with other institutional and commercial partners for private infrastructure projects.
2000	Creation of a technically specialized entity IIFC under the ERD, Ministry of Finance to assist relevant ministries, divisions or agencies to formulate and screen project proposals and provide technical assistance.
2004	Promulgation of Bangladesh Private Sector Infrastructure Guidelines (PSIG) to laid down current PPP in Bangladesh.
2006	Establishment of IPFF with the support of the World Bank to provide long-term financing facilities to private sector-led infrastructure PPP projects as well as capacity enhancement.
2009	Issuance of a position paper on PPP captioned 'Invigorating Investment Initiative through Public Private Partnership'.
2009-10	Introduction of PPP Budget as part of the strong commitment of Government for utilization of PPP in infrastructure development and allocation of fund for PPP.

2010	Promulgation of the 'Policy and Strategy for Public-Private Partnership' to flourish PPPs in a large scale and ensuring enabling environment for PPP project implementation.
2011	Setting up of the then PPP Office under the Prime Minister's Office as 'one stop service provider of PPP' in Bangladesh.
2011	Creation of BIFFL with a solid mandate to invest in large infrastructure projects. Till 2020, total financing in infrastructure projects about USD 246.58 million in 22 projects.
2012	Issuance of Guidelines for VGF and PPPTAF as well as Scheme for PPPTAF.
2015	Enactment of PPP Law by the National Parliament.
2016	Issuance of PPP Projects Procurement Guideline, and Unsolicited Proposal Guidelines.
2017	Issuance of Government to Government (G2G) Partnership Policy for Implementation of PPP Projects.
2012-20	Identification and initiation of 79 pipeline PPP projects by PPP Authority with close coordination with line ministries and different government agencies.
1997-2015	Within the domain of PPP model, a total number of 47 projects with USD 5742 million investment have already been implemented (Banerjee et al., 2016).

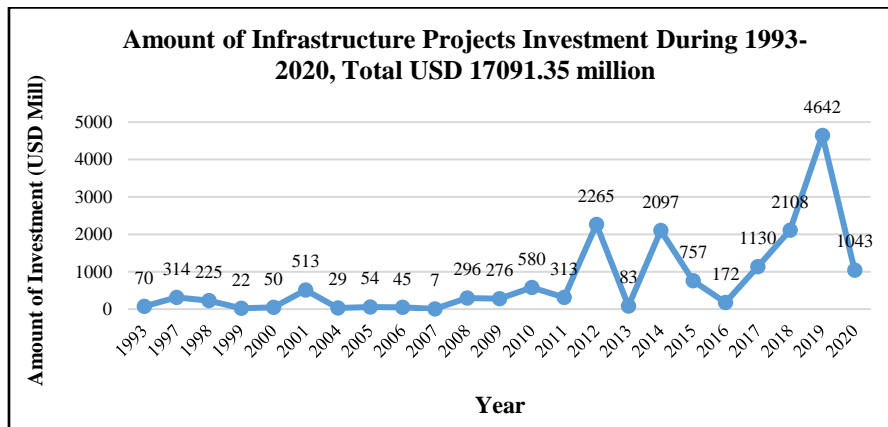
Source: Banerjee et al. (2018) and Survey Questionnaire Responses of IDCOL, IPFF, BIFFL and Banks

4.2 Infrastructure Projects Financing: Year-wise Amount of Investment (1993-2020)

Infrastructure financing with private sector participations is mainly initiated in the country from 1990s. In 1993, USD 70 million was invested in infrastructure projects. In 1997, a huge jump in investment was noticed with an amount of investment of USD 314 million. After a declining trend during 1998-2000, USD 513 million was invested in 2001. With ups and downs after 2001, an enormous increase in infrastructure investment was documented in 2012, when investment

amount increased to USD 2265 million. The significant rise in investment occurred due to private sector investment in power plants in which revenue/ return from the investment was assured through government off-take agreements. However, after witnessing fluctuating trends after 2012, a substantial growth in investment in infrastructure projects was again documented in 2019 with an amount of USD 4642 million. Up to third quarter of 2020, USD 1043 million was poured to infrastructure projects in the country (Figure-4.1).

Figure 4.1: Infrastructure Projects Financing: Year-wise Amount of Investment (1993-2020)



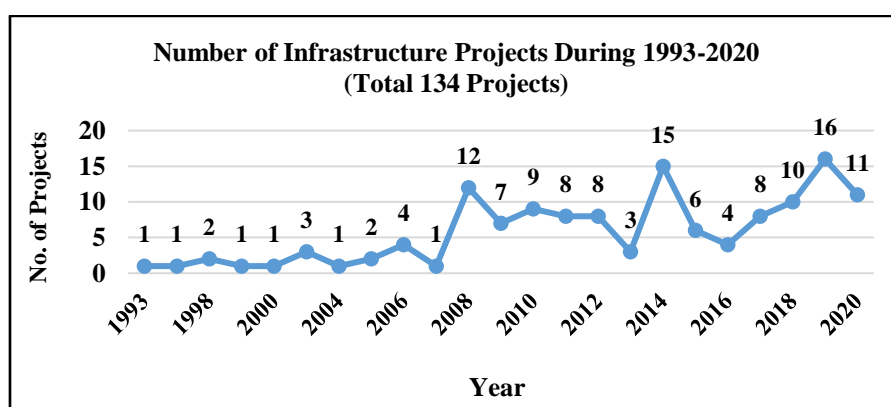
Source: World Bank PPI Database and Survey

4.3 Infrastructure Projects Financing in Bangladesh: Year-wise Number of Projects (1993-2020)

A total of 134 infrastructure projects have been undertaken during the period 1993-2020 (Figure-4.2). As per number of projects, a boom has been observed in 2008, 2014 and 2019 with implementation of 12, 15 and 16 projects, respectively. In response to promulgation of PSIG in 2004, PPP policy & strategy in 2010, and PPP law in 2015 along with government’s proactive role in infrastructure development in association with private parties, infrastructure projects undertaking in diverse sectors have increased in the above-mentioned years. Till the

third quarter of 2020, 11 projects have been financed by local banks, government-owned NBFIs and multilateral/ bilateral/ other foreign agencies (Figure-4.2). The reason for allocating less amount of money to infrastructure projects in 2020 may probably be due to current pandemic of COVID-19.

Figure 4.2: Infrastructure Projects Financing: Year-wise Number of Projects (1993-2020)



Source: World Bank PPI Database and Survey

4.4 Infrastructure Projects Financing: Sector-wise Number of Projects and Amount of Investment (1993-2020)

A total number of 134 infrastructure projects in different sectors such as energy, ICT & telecom, etc. have got financial closure and many of them are now in operation. Of the 134 projects, 91 projects belong to the power and energy sector with investment of USD 8671.81 million, 13 projects are in ICT and telecom sector with USD 905.99 million investment and 8 projects are in port sector with USD 1307.56 million investment followed by waste management and water treatment sector with USD 450.05 million investment. Although, in terms of number of projects, economic zones and roads, bridges & railways sectors have only five ventures each, with respect to volume of investment, economic zones captured the second position (USD 3141.30 million) and roads, bridges and railways captured the third position (USD

2332.04 million), respectively. Considering the percentage of total quantity of projects, power and energy sector captured 67.91 percent followed by ICT & telecom (9.70%) and port (5.97%), respectively. By looking at the amount of investment, it is found that 50.74 percent of the total infrastructure investment has been recorded by power and energy sector, followed by economic zones (18.38%) and roads, bridges and railways (13.64%), respectively. Healthcare sector has got the lowest percentages of exposure both by number of projects (1.49%) and by investment amount (0.52%), respectively (Table-4.2).

Table 4.2: Infrastructure Projects Financing: Sector-wise Number of Projects and Amount of Investment (1993-2020)

Sectors	No. of Projects and Percentage of Total		Amount of Investment and Percentage of Total	
	No. of Projects	Percent of Total	Amount of Investment (USD Million)	Percent of Total
Power & Energy	91	67.91%	8671.81	50.74%
ICT & Telecom	13	9.70%	905.99	5.30%
Ports	8	5.97%	1307.56	7.65%
Waste Mgt. & Water Treatment	7	5.22%	450.05	2.63%
Road, Bridges & Railways	5	3.73%	2332.04	13.64%
Economic Zones	5	3.73%	3141.30	18.38%
Hotels/ Tourism	3	2.24%	194.08	1.14%
Healthcare	2	1.49%	88.51	0.52%
Total	134	100.00%	17091.35	100.00%

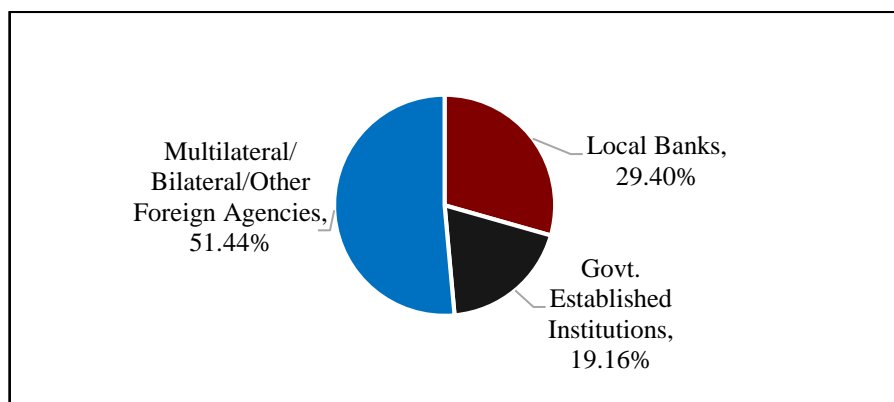
Source: World Bank PPI Database and Survey

4.5 Infrastructure Projects Financing: Share of Different Institutions Group

During 1990s and early 2000s, many power plants have been financed by several multilateral/ bilateral agencies such as IFC, IDB, ADB, etc. Later on commercial banks stepped in and participated in many infrastructure projects funding along with IDCOL and IPFF. In

addition to multilateral/bilateral agencies, many foreign infrastructure lending institutions e.g., FMO, DEG have been providing their funds to invest in infrastructure projects in Bangladesh. Figure-4.3 shows the composition of infrastructure lending by local commercial banks, government-owned financial institutions and multilateral/ bilateral/ other foreign agencies. It is evident that multilateral/ bilateral/ other foreign agencies have captured more than half of the infrastructure projects financing which is 51.44 percent. This is followed by local commercial banks with 29.40 percent and government established financial institutions with 19.16 percent.

Figure 4.3: Infrastructure Projects Financing: Share of Different Institutions Group

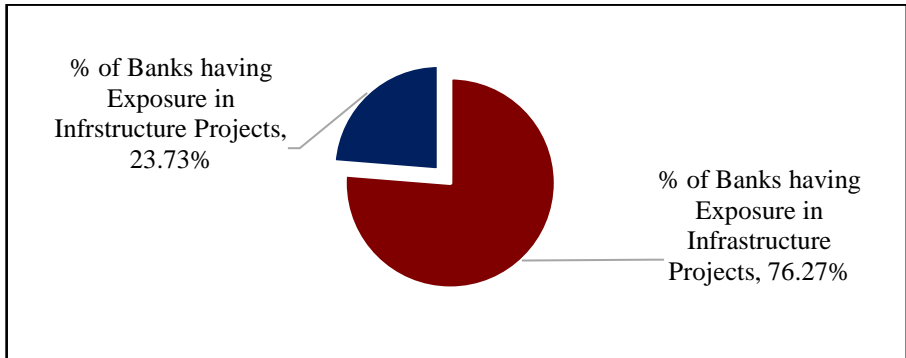


Source: World Bank PPI Database and Survey

4.6 Infrastructure Projects Financing: Banks’ Exposure

Among commercial banks and IPFF-enlisted NBFIs (PFIs), it is found that 76.27 percent of the respondent banks have exposure in infrastructure projects. The remaining 23.73 percent of the respondent banks do not have finance in infrastructure projects. Banks that do not have finance in infrastructure projects mainly include specialized banks, several foreign commercial banks and some newly incorporated banks (Figure-4.4).

Figure 4.4: Banks' Exposure in Infrastructure Projects

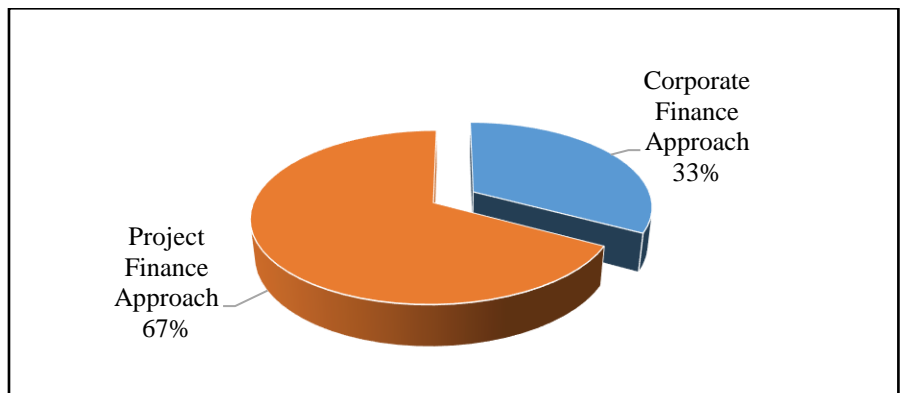


Source: Based on Survey

4.7 Infrastructure Projects Lending by Banks: Corporate Vs. Project Finance Approaches

Globally, infrastructure projects use project financing structure. However, in Bangladesh, relatively small projects are still funded under corporate finance approach. Banks in Bangladesh are in nascent stage of applying project finance approach in infrastructure lending. As per the survey, 67 percent of the infrastructure projects lending fall under project finance approach and the rest 33 percent projects fall under corporate financing approach (Figure-4.5).

Figure 4.5: Infrastructure Projects Lending by Banks: Corporate Vs. Project Finance Approaches



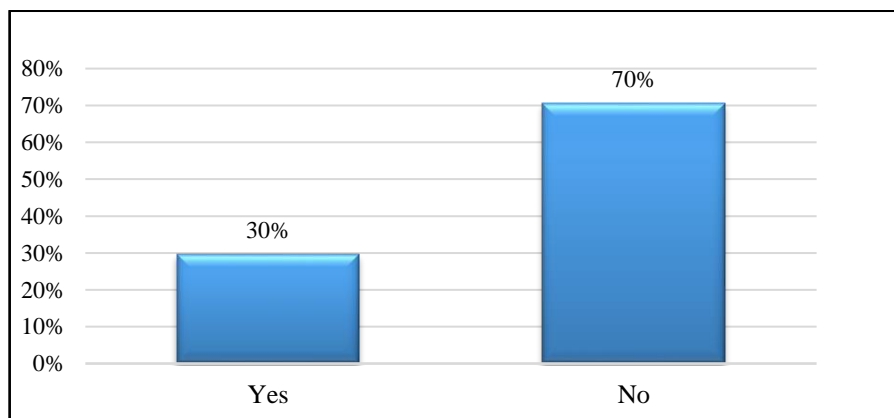
Source: Survey Data

5. Infrastructure Project Lending by Banks in Bangladesh: Survey Based Results

5.1 Infrastructure Projects Lending by Banks: Existence of Specific Policy/Guideline of Banks

Seventy percent of the respondent banks informed that they do not have their own separate policy/guideline other than BB’s single borrower exposure limit, large-loan policy and CRM guidelines for lending infrastructure projects. They usually follow the above-mentioned guidelines in addition to their appetite for financing infrastructure projects. Banks usually lend to infrastructure projects through syndicated basis. Some of the respondents (30%) stated that they have sectoral fund allocation limit and while lending infrastructure projects, they take care of this limit. This sort of sectoral fund allocation limit is commonly applied by all banks (Figure-5.1).

Figure 5.1: Infrastructure Projects Lending by Banks: Existence of Specific Policy/ Guideline of Banks



Source: Survey Data

5.2 Challenges Encountered by Banks in Financing Infrastructure Projects

Respondents of questionnaire survey and FGD have pointed out some barriers/ challenges in financing infrastructure projects. Some the

major barriers/challenges cited by the respondents are provided in Box-5.1.

Box 5.1: Challenges Encountered by Banks in Financing Infrastructure Projects

- Infrastructure project requires long term finance with long moratorium period, and as a result, banks prefer to get access to cash flows of other sister concerns of the parent company to secure their recovery especially in case of default. But sponsors deny extending this access to the lenders.
- Absence/lack of control over cash flow of projects by banks as well as uncertainty over timely repayment is a big challenge.
- Asset-liability mismatch, higher cost of fund and relatively low rate of return daunt banks to finance infrastructure projects.
- Cost overrun and time overrun, lack of timely utility connection, lack of real time data on demand and supply, poor planning and management of projects, lack of skilled manpower are considered as vulnerable for lending money to infrastructure projects by banks.
- Lack of coordination and cooperation among various departments of banks, lack of adequate supervision, public sector bureaucracy and also lack of bankability of projects discourage banks to finance infrastructure projects.
- Inadequate experience in infrastructure financing, inadequate funding partners, limited access to capital market in raising funds, limited regional reach, etc. are some of the crucial challenges.

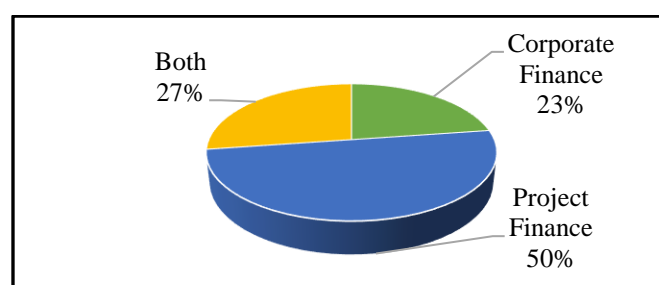
Source: Survey Data and FGD

5.3 Banks' Preferred Approaches of Infrastructure Lending

As mentioned earlier, financiers including commercial banks are in nascent stage of applying sophisticated project finance structure or non-recourse mode of lending. Here, majority of the infrastructure projects demand using project finance approach. But due to limitation of long-term sources of fund, uncertainty of recovery of loans from the designated projects' cash flows, lack of proper control over project's cash flows, feeling comfort in traditional lending process as well as central bank's CRM policy requirements push banks to lend under

corporate finance approach in some projects. From the questionnaire survey and FGD and also in light of the criteria of project finance approach, it is found that banks are not in a position to follow pure project finance approach or pure corporate finance approach in lending infrastructure projects. It is documented that 50 percent of the banks follow project finance approach, whereas 23 percent of the respondent banks follow corporate finance approach and the rest 27 percent indicated that they follow a blending between corporate and project financing approaches to lend in infrastructure projects (Figure-5.2).

Figure 5.2: Banks' Preferred Approaches for Infrastructure Lending



Source: Survey Data and FGD

5.4 Problems and Way out of Lending by Banks under Corporate Financing Approach

5.4.1 Problems of Lending by Banks under Corporate Financing Approach

A number of problems have been indicated by the respondents in financing infrastructure projects under corporate financing approach. Major Problems cited by the respondents for lending under traditional collateral-based approach are presented in Box-5.2.

Box 5.2: Major Problems of Corporate Financing Approach

- Difficulty in encashment of collateral assets in case of default.
- Valuation of collateral rarely showing the actual scenario.
- Less prioritizing in structuring of project's cash flow when the project strongly covered by collateral and corporate guarantee.

- Nonfunctioning of corporate guarantee due to the inabilities of the parent company.
- Not feasible for sponsor(s) or company (ies) that already heavily leveraged when they consider venturing into a Greenfield project.
- Difficult to trace out the loan amount invested in the company.
- Barrier to entry for new investors or relatively smaller firms/ sponsors because of the necessity of collateral.

Source: Survey Data and FGD

5.4.2 Suggestions to Overcome the Problems/ Challenges of Bank's Lending under Corporate Financing Approach

The respondents have provided some suggestions to overcome the challenges they face in financing infrastructure projects under corporate financing approach (Box-5.3).

Box 5.3: Suggestions to Overcome the Challenges in Lending under Corporate Financing Approach

- Taking initiatives by Regulator and/ or government to attract long term and low-cost fund from both local and external markets.
- Developing bond market and making equity market more vibrant to raise long-term capital by the private sector by issuing various innovative instruments like zero coupon bond, securitized bond, Islamic bond, etc.
- Offering some financial and fiscal incentives such as tax benefits, subsidy, credit guarantee scheme, etc., and provide special consideration regarding classification/provisioning of infrastructure loans to attract private sectors towards infrastructure sector investments.
- Arranging programs for enhancing capacity of lenders, EPC contractors and equity sponsors.

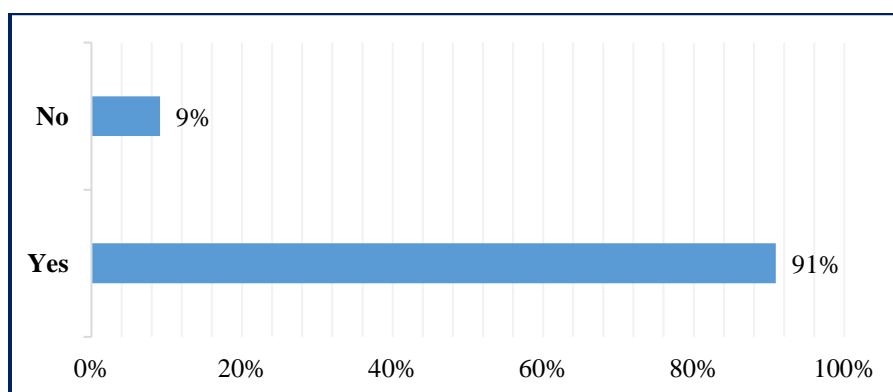
Source: Survey Data and FGD

5.4.3 Banks' Funding Constraints for Infrastructure Lending

Because of mismatch between bank's asset and liability, lack of long-term sources of funds such as bond, insurance fund, and pension fund,

banks feel uncomfortable to lend infrastructure projects which are usually long-term in nature. A total of 91 percent respondents opines that that they face some sort of difficulty in matching their sources of fund and lending to the infrastructure projects (Figure-5.3). Remaining 9 percent of the respondents iterated that they do not have such problem. Banerjee et al. (2016) documented that in addition to ALM issue of banks, concession period of most of the infrastructure projects are longer than the tenure of the bank’s loans to infrastructure projects. In the current composition of the banks’ portfolio of loans, they extend loans to corporates for the period of maximum 5-7 years on an average.

Figure 5.3: Banks’ Funding Constraints for Infrastructure Lending



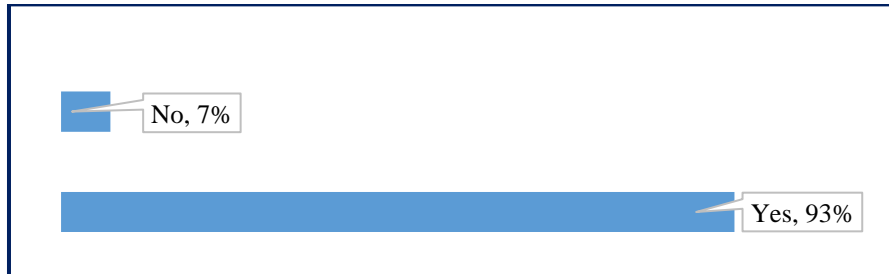
Source: Survey Data and FGD

5.5 Regulatory Support/ BB’s Specific Guideline for Infrastructure Lending

Banks have expressed their high interest for infrastructure project financing. However, they demand policy support for overcoming the problem of asset-liability mismatch, reducing dearth of long-term sources of funds as well as arranging some regulatory and fiscal incentives. Further, they seek some regulatory directives particularly some sort of easing of classification/provisioning criteria for infrastructure loans and special incentives for exposures of a particular proportion of bank’s portfolio. Around 93 percent of the respondents

expect aforesaid regulatory support to make their financing viable in infrastructure projects and the remaining 7 percent do not think so.

Figure 5.4: Regulatory Support/ BB's Specific Guideline for Infrastructure Lending



Source: Survey

6. Case Study of Corporate and Project Financing Modality

6.1 Project Financing in HFO Fired-based Independent Power Plant

A 110 MW HFO fired Independent Power project was implemented in 2016 for producing electricity with concession period of 15 years. Total projects cost was USD 71.43 million, of which the sponsors provided USD 21.43 million and the remaining USD 50 million was financed by debt capital. A government owned NBF and foreign infrastructure project lender jointly provided USD 50 million for 12 years and 9.5 years tenor respectively to implement the project.

The approved project accounts are maintained with a bank – which acts in accordance with the lenders' instruction through the Inter creditor Agent. All project accounts are liened in favor of the Security Agent. In addition, banks have full control over the project cash flow as BPDB bills are credited directly to a project account and any subsequent withdrawals/ transfers are made in accordance with the lenders' approval.

Sponsors offered different collateral coverage including registered mortgage on project land, hypothecation on project assets, assignment of project agreements, lien on project accounts, lien/pledge on 51

percent shares of the project, demand promissory note and letter of continuity. Besides, one of the sponsors provided corporate guarantee against the future failure of the project.

<i>Brief Observations</i>
i) This project is performing well.
ii) No instance of delay in loan repayment is found.
iii) Project is overall compliant to the loan covenants.
iv) Finance is provided under project finance modality. However, due to the corporate guarantee provision in the lending process, it can be treated as the limited recourse project finance.

6.2 Project Financing in High-Speed Diesel and Furnace Based Rental Power Plant

A 110 MW High Speed Diesel based rental power plant and a 105 MW Heavy Furnace Oil based rental power plant projects were implemented in 2010 and 2011 for producing electricity with concession period of 5 years and 3 years respectively. The total cost of the projects was BDT 763 crore where the sponsors invested BDT 281 crore and the remaining BDT 482 crore was financed by debt capital. A consortium of 16 local commercial banks and NBFIs jointly provided BDT 482 crore for around 5 years tenor to implement the project under the lead arranger.

An Escrow account was established for project’s cash flow management. However, as both the power projects failed to operate and generate electricity for major portion of the PPA tenor, they could not generate sufficient cash flow to make the loan repayment.

Sponsors offered different collateral coverage including registered mortgage on projects land, hypothecation on projects assets, lien on projects accounts, lien/ pledge on 100 percent shares of the projects, demand promissory note and letter of continuity. Lenders also

undertook personal guarantee of many persons related with the projects. Besides, one of the sponsors provided corporate guarantee against the future failure of the project.

<i>Brief Observations</i>	
i)	The projects failed to generate cash-flow required for servicing loans.
ii)	Loan repayment was irregular and has been written-off in December 2019.
iii)	Technical issues identified in the refurbished engines and other BOP equipment.
iv)	The financial strength of the corporate guarantor deteriorated significantly over the years and the Guarantee did not assist the lenders in recovering the outstanding loans.
v)	At present, litigation is on-going with the client to recover the loans.
vi)	Finance is given under project finance modality. However, due to the corporate guarantee provision in the lending process, it can be treated as the limited recourse project finance.

6.3 Project Financing in Telecommunication Sector

A Telecommunication company commenced its commercial operation in 1993 with the concession period of 20 years with renewal prior to expiry. The total cost of the projects was USD 70.2 million where the sponsors invested USD 23.2 million and the remaining USD 47 million was financed by the debt capital. A consortium of 15 local and foreign commercial banks and NBFIs jointly provided USD 47 million for around 5 years tenor to implement the project under the lead arranger.

In the subsequent period, the company failed to upgrade its technology with the changing requirements of the market that eventually made their products obsolete. Besides, increased competition and

availability of numerous affordable alternatives in the market with more flexibility to the customers reduced the market share of the company. Therefore, company failed to pay the spectrum renewal charge to The Bangladesh Telecommunication Regulatory Commission (BTRC) resulted in discontinuation of service from 2016.

A project accounts were created for cash flow management. However, as the overall revenue/ income of the company reduced over the years due to the problems identified above, full loan recovery has not been possible. Sponsors offered different collateral coverage including hypothecation charge on floating assets and demand promissory note and letter of continuity. Lenders also undertook personal guarantee of many persons related with the projects. There was no corporate guarantee against the future failure of the project.

<i>Brief Observations</i>	
i)	The company failed to upgrade its technology with the changing requirements of the market and that eventually made their products obsolete.
ii)	Due to increased competition and availability of numerous affordable alternatives in the market, day-by-day the project lost its market share.
iii)	Insufficient cash flow generated by the company impacted its loan servicing capacity.
iv)	Lenders failed to recover full loan amount.
v)	At present, litigation is on-going against the client to recover the overdue loan.
vi)	The financing was extended under corporate finance modality.

6.4 Project Financing in Waste Management and Water Treatment Plant Sector

A project of ABC Water Limited was implemented in 2014 to set up a Water Treatment Plant (WTP) which is supposed to supply treated water to the industries located in Export Processing Zone (EPZ) area with concession period of 30 years. Total project cost was BDT 379.84 million, of which, the sponsors invested BDT 77.34 million and the remaining BDT 204.00 million was financed by debt capital. Two private commercial banks jointly provided BDT 204.00 million for 8.5 years and 6 years tenor respectively to implement the project. Besides, the BDT 100.00 million has been financed through foreign soft loan for infrastructure lending.

The approved project accounts are maintained with a bank which acts in accordance with the lenders' instruction through the Inter creditor Agent. The project cash flow was assigned in favor of the lenders. Therefore, lenders have full control over the project cash flow as BPDB bills are credited directly to a project account and any subsequent withdrawals/transfers are made in accordance with the lenders' approval.

Sponsors offered third party mortgage of land owned by one of the sponsors. There was no corporate guarantee against the future failure of the project. The company delayed by almost 4 years to start commercial operation and the sponsor faced shortage of equity capital and working capital. Due to under-performance of the project, the operation of project is completely stopped. Therefore, lenders failed to recover the loan amount from the project.

Brief Observations	
i)	Poor performance after the commercial operation date (COD) is found.
ii)	Management failure is noticed.

iii) Selection of machinery and supplier were wrong.
iv) The loan amount increases due to project delay.
v) Loan repayment status was irregular.
vii) Lenders failed to recover full loan amount.
vi) Loan is provided under project finance modality. However, due to the third-party mortgage provision in the lending process, it can be treated as the limited recourse project finance.

7. Policy Suggestions

7.1 Sectoral Concentration of Financing Infrastructure Projects and Need for Diversity in Other Priority Sectors

Bangladesh is only lagging behind of India and Pakistan in SAARC region with respect to amount of investment in infrastructure project. However, concentration of infrastructure investment in Bangladesh is mostly on the electricity sector. Out of 134 projects in Bangladesh, 91 projects are on the electricity sector. Sectors like ports, transport, roads, water, sewerage, railways and ICT got relatively less attention. For ensuring balanced and broad-based infrastructure development in the country, other demanding and priority sector projects are required to be identified and placed before the financiers with attractive financial features.

7.2 Corporate Finance Approach: Lenders' Risk and Need for Project's Cash Flow-based Lending

In corporate finance approach, banks put considerably much attention on the strength of the borrower's overall balance sheet and heavily depend on the collateral security rather than the revenue and business aspect of the project. As a result, revenue generated from the project generally fails to repay the bank loan. Valuation of security rarely shows the actual sale value of the security. Getting ownership and possession on the security is also a difficult task. Additionally, leveraged borrowers are not qualified to get finance under this

approach even the project has merits. On the other hand, borrowing money through corporate finance approach may end up stopping the corporates to undertake new projects as their balance sheets may not be capable to provide sufficient collateral against the huge amount of borrowed capital. In this regard, cash flow-based project finance approach can reduce the above-mentioned risks by way of transferring risks to other parties related to the projects.

7.3 Project Financing Approach

Like other countries, project financing approach is accepted relatively as a better option in Bangladesh for infrastructure financing because the strength of financial, technical, management and other relevant aspects of the concerned project are being considered as the preconditions for financing. A properly implemented project which is financed under project finance mode can comfortably pay off its debt obligations with its own cash flow strength. Lenders can also have an effective control over the free cash flow of the project. Moreover, as the entity under the project financing approach has a limited life and its business is restrained to the project only, there exist no conflicts of interest between management and investors of the company. To make project financing approach more acceptable and workable, following issues are required to be contemplated by the stakeholders.

7.3.1 Certainty of Revenue Stream

The nature of the most of the infrastructure projects is that the project would not generate revenue unless the operation is started. Thus, it is important for the lenders and other investors to understand the fact that the actual revenue stream to generate from the project after starting operations would exactly match with the forecasted amount of revenue without any discrepancies. In this perspective, future forecasts of demand, price, cost and associated regulations are highly important to private sector investors and lenders in case of project financing approach. In this regard, depending on the merit of the project, there

may be provision of minimum revenue guarantee, subsidy (VGF, grand, etc.) by the government. In addition, in cases where required, private party may go for hedging against the uncertainty of project cash flows.

7.3.2 Sources of Local Finance

Public and private equity, debt and government grants are the predominant sources of project finance. Further, debt finances commonly in the form of commercial loans, bridge loan, bonds, debentures and subordinate loans are the dominant sources of finance in projects. A good mix of finance considering size, nature, cost of capital, cash flow, claims on the project's income and ultimate liability as well as assets is required to be structured for ensuring smooth operation of the business.

6.3.3 Bank's Finance

Bank's credit in Bangladesh is the most dominant source of finance as the other two sources namely equity and bond financing have very tiny share in our financial sector. But, banks are not comfortable in financing long-term infrastructure project with a long moratorium period depending on the short tenure of the sources of funds. In this case, two options can work. First, bank can generate long-term funds for financing infrastructure projects through issuing longer term bonds targeting public or/and private placement market. Or, banks can finance for short tenure covering construction period plus a few more years and sponsors or SPV of the project can repay the money to banks through issuing bonds after starting business operations when project is completed. Additionally, banks might be allowed to get some advantages in classification and provisioning norms in case of infrastructure financing.

7.3.4 Vibrant Capital Market and Other Potential Avenues

A vibrant capital market with a variety of equity, quasi equity and bond instruments is necessary for infrastructure project financing. Unarguably, bond segment of the capital market is more important for infrastructure financing. In DSE, 221 treasury bonds and only two corporate bonds are listed. Treasury bonds are not currently traded. In this perspective, apart from listing more bonds and debentures as well as bringing different instruments, allowing and motivating pension funds and provident funds of government and private enterprises as well as premium of insurance companies to invest in bond market are highly important. Proper regulatory supports might also be required to bring these funds in the debt market. In accelerating the development of bond market and unlocking the possibilities of infrastructure project financing through credit enhancement and risk mitigation, BIBM, Bangladesh Bank, BIDA and BSEC may work together.

7.3.5 Foreign Currency Loans

Foreign currency loans may be required for project financing where substantial amount of equipment as well as raw materials are required to be imported. In this case, multiple external credit lines from development financial institutions such as ADB, DEG, FMO, CDC, OPEC funds, ECA backed funds, etc. can be helpful. Issuing sovereign bonds can also be a way out in case of large infrastructure projects. However, the foreign credit lines often have stringent environment and social criteria¹³ to select eligible projects-which often restrict financing opportunities in many large infrastructure projects. Another important issue related to foreign borrowing is that banks/ financial institutions need to keep CRR/SLR against these sorts of borrowing which is

¹³ Bilateral and multilateral development organizations e.g., World Bank, IFC, ADB, etc. put much attention on environmental and social protection measures, rehabilitations and settlement plans to extend fund to the infrastructure projects.

increasing effective cost of funding. Regulator may think to relieve commercial banks from keeping SLR and CRR on this amount.

7.3.6 Dearth of Skilled Manpower

Infrastructure lending is a specialized form of financing and inherently this sort of lending is not a common task in banks. Thus, there is a dearth of skilled personnel for dealing with infrastructure projects. Required manpower with sufficient expertise and practical experience would be required to handle such projects. Moreover, continuous improvement of the manpower working in this department is also necessary as it is a dynamic nature of financing. Banks need to create a group of capable manpower before going for financing infrastructure projects. For enhancing capacity of the bankers, sponsors and other stakeholders in dealing with infrastructure projects, different types of training, workshop, seminar etc., may be arranged by BIBM in associated with Bangladesh Bank, BIDA, and the World Bank.

7.3.7 Claim on Income of Projects

Again, as loan is the major source of debt finance in infrastructure projects in Bangladesh, banks need to enjoy sufficient control on the cash flows of the projects so that they can ensure the repayment of their loans before allocation of any sort of fund to the sponsors.

7.3.8 Claim on Assets of Project

In order to establish complete control on assets, lenders need to create comprehensive fixed and floating charges over all assets of the project. At the event of insolvency, lenders may be allowed to appoint a receiver to manage the business. Bankers may also need to apply restrictive covenants over other liabilities and security as well as the shares of the SPV to empower lenders to take control on the assets of the projects in the event of default.

7.3.9 Rules and Regulations

Banks and other financiers must ensure that the project has obtained all the required approvals from the local authorities and government. Particularly, regulations relating to development of the project, production plans and the revenue stream are very important to avoid hassles which may jeopardize project operation and repayment of banks' loans. Additionally, banks must ensure that the project company will not be allowed to change the project plan, project contracts, capital expenditure program or debt program without the consent of the lenders.

7.3.10 Financial and Fiscal Support, Incentives and Guarantees

To make a project viable as well as bankable, Government may extend a variety of supports. Such supports can include creation of project development funds, viability gap funding and guarantee funds, providing long-term funding support and offering fiscal incentives. Supports are necessary to provide funds on time with less hassle so that the project can be financially feasible and is therefore attractive to bidders. Further, it might be noted that funds available to support projects are limited and therefore only the highest priority projects are required to receive financial or fiscal support.

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Appendices

Appendix I: List of Respondent Banks

<p style="text-align: center;">SCBs (4)</p> <p>1. Agrani Bank Limited 2. Bangladesh Development Bank Limited 3. Janata Bank Limited 4. Rupali Bank Limited</p>	<p style="text-align: center;">PCBs</p> <p>24. NCC Bank Limited 25. NRB Bank Limited 26. NRB Global Bank Limited 27. One Bank Ltd 28. Prime Bank Limited 29. Pubali Bank Limited 30. Southeast Bank Limited 31. Standard Bank Limited 32. The City Bank Limited 33. Trust Bank Limited 34. United Commercial Bank Limited 35. Uttara Bank Limited</p>
<p style="text-align: center;">PCBs (31)</p> <p>5. AB Bank Limited 6. Al-Arafah Islami Bank Limited 7. Bangladesh Commerce Bank Limited 8. Bank Asia Limited 9. BRAC Bank Limited 10. Community Bank Limited 11. Dhaka Bank Limited 12. Dutch-Bangla Bank Limited 13. Eastern Bank Limited 14. Exim Bank Limited 15. First Security Islami Bank Limited 16. Islami Bank Bangladesh Limited 17. IFIC Bank Limited 18. Jamuna Bank Limited 19. Mercantile Bank Limited 20. Meghna Bank Limited 21. Midland Bank Limited 22. Modhumoti Bank Limited 23. Mutual Trust Bank Limited</p>	<p style="text-align: center;">FCBs (4)</p> <p>36. Citibank N.A. 37. Hongkong and Shanghai Banking Corporation 38. Standard Chartered Bank 39. State Bank of India</p>
	<p style="text-align: center;">NBFIs (IPFF Enlisted PFIs) (5)</p> <p>40. Infrastructure Development Company Limited 41. Bangladesh Infrastructure Finance Fund Limited 42. IDLC Finance Limited 43. Industrial and Infrastructure Development Finance Company Limited 44. IPDC Finance</p>

Appendix II: List of Participants Attended in FGD (Online Platform)

1. Mr. Md Obaidul Islam, Head of Financial Institution, Eastern Bank Ltd.
2. Mr. Leaquat Hossain Lalen, Bank Asia Ltd.
3. Mr. Mahbub Jamil, Head of Structured Finance & Wholesale Banking, The City Bank Ltd.
4. Mr. Reza Hyder, BRAC Bank
5. Mr. Kazi Farhan Zahir, DGM & Head of Structured Finance, IDLC Finance Ltd.
6. Mr. Shams Abdullah Muhaimin, SEVP, Head of Structured Finance, Prime Bank Ltd.
7. Mr. Mohammad Kabir Hossain, SVP & Head of Syndication & Structured Finance, One Bank Ltd.
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9. Mr. Md Shafiqul Islam, AVP & Head of Structured Finance, Midland Bank Ltd.
10. Mr. Uttam Kumar Saha, EVP & Head of Corporate Business, Dutch Bangla Bank Ltd.
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15. Mr. Asif Ahmed Khan, Senior Officer, Bangladesh Infrastructure Finance Fund Limited
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**Financial and Non-Financial Issues in Implementing
PPP in Bangladesh: An Examination of PPP Projects in
the Pipeline***

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Abbreviations

ADB	Asian Development Bank
BB	Bangladesh Bank
BDT	Bangladeshi Taka
BEZA	Bangladesh Economic Zones Authority
BIBM	Bangladesh Institute of Bank Management
BIFFL	Bangladesh Infrastructure Finance Fund Limited
BOOT	Build-Own-Operate Transfer
CCEA	Cabinet Committee on Economic Affairs
CF	Cash Flow
CPD	Centre for Policy Dialogue
CSF	Critical Success Factors
DEPZ	Dhaka Export Processing Zone
DFS	Detailed Feasibility Study
EMDE	Emerging Markets and Developing Economies
ERD	Economic Relations Division
ESIA	Environmental and Social Impact Assessment
FA	Factor Analysis
FY	Fiscal Year
GOB	Government of Bangladesh
ICB	Investment Corporation of Bangladesh
IDCOL	Infrastructure Development Company Limited
IFC	International Finance Corporation
IIFC	Infrastructure Investment Facilitation Company
IPFF	Investment Promotion and Financing Facility
IPP	Independent Power Plant
IRR	Internal Rate of Return
KMO	Kaiser-Meyer Olkin
NAO	National Audit Office

NBFI	Non-Bank Financial Institution
NIKDU	National Institute of Kidney Diseases & Urology
PCA	Principal Components Analysis
PFI	Private Finance Initiative
PFI	Participatory Financial Institution
PICOM	Private Infrastructure Committee
PMO	Prime Minister's Office
PPI	Private Participation in Infrastructure
PPP	Public-Private Partnership
PPPTAF	Public-Private Partnership Technical Assistance Fund
PSIDP	Private Sector Infrastructure Development Project
PSIG	Private Sector Infrastructure Guideline
PSPGP	Private Sector Power Generation Policy
RAJUK	Rajdhani Unnayan Kartripakkha
SDGs	Sustainable Development Goals
SDR	Special Drawing Right
SPSS	Statistical Package for Social Sciences
UK	United Kingdom
UNECE	United Nations Economic Commission for Europe
US	United States
USD	United States Dollar
VFM	Value for Money
VGF	Viability Gap Funding
VSAT	Very Small Aperture Terminal
WB	World Bank

Financial and Non-Financial Issues in Implementing PPP in Bangladesh: An Examination of PPP Projects in the Pipeline

1. Introduction and Background

1.1 Introduction

Physical infrastructure has long been identified as a catalyst for economic growth. The rapid growth of population in many developed and developing countries has led to a substantial demand for the provision of infrastructural facilities. Availability of infrastructures such as power, telecom, ports, roads, railways, etc. is critical to accelerate economic growth as well as to reduce poverty of a country (United Nations, 2013). As a result, providing good quality infrastructure has emerged as a top priority of development policy worldwide in the past two decades. However, the need for infrastructure is being mulled as urgent and enormous on priority basis in developing countries as these countries do not have good infrastructure. In addition, infrastructure development facilitates trade and foreign direct investment and has the power to foster intraregional trade and investment flows, thereby creating regional markets, and in the process further accelerate growth and reduce poverty (United Nations, 2013).

The provisions of this massive infrastructure demand cannot be met by government alone in many countries because of absence of required financial and technical resources. This arisen the idea of connecting private sector for offering public facilities and services by means of public private partnerships (PPP). Consequently, PPP is becoming gradually popular in both developing and developed countries (Mcquaid, 2000; Takim, Abdul-Rahman, Ismail, & Egbu, 2009). A large body of literature shows that PPP can release governments' tight

budgetary pressure by injecting private sector's resources, encouraging innovation, enhancing productivity, allowing better risk allocation, increasing value-for-money, improving cost effectiveness, and so on (Cheung, Chan, & Kajewski, 2009; Kernaghan, 1993; Kouwenhoven, 1993; Medda, 2007).

The PPI World Bank Database comprising of information on more than 8,700 infrastructure projects with private participation, dating from 1984 to 2016 also reveals wide spread application of this concept in global infrastructure development. In 2016, the private sector took part in 242 infrastructure projects in Emerging Markets and Developing Economies (EMDEs), with investment totaling US\$71.5 billion (Private Participation in Infrastructure, World Bank, 2016).

Bangladesh is being recognized as an emerging economy in the race of economic growth. The Government of Bangladesh has taken up specific and integrated programs to accomplish its goals of transforming the country into a 'middle income' one by 2021 and a 'developed' one by 2041 (Budget Speech 2017-2018). But the economic growth of Bangladesh is subdued by inadequate provision of roads, railways, telecom and most importantly power and ports (CPD, 2016). In order to achieve the target of becoming a middle income and developed country, it is needed to ensure a more rapid, inclusive growth path which requires huge investment in infrastructure. Honorable Finance Minister stated that public sector alone cannot develop infrastructure sufficiently and Public Private Partnerships (PPP) provides the only viable solution (Annual Report of PPP, 2016) and further added that utilizing PPP, we are able to leverage our public budget by harnessing private sector finance provided by our private partners, both domestic and foreign, to deliver significantly enhanced public infrastructure and services.

As part of policy initiatives, government has transcended a long way through adopting private sector power generation policy in 1996,

issuing Bangladesh Private Sector Infrastructure Guidelines (PSIG) in 2004, formulating the Policy and Strategy for Public-Private Partnership in 2010, and starting operation of PPP Office in October 2010 institutionalizing the PPP agenda of Bangladesh under the Prime Minister's Office (PMO). With continuous effort of PPP Office and PMO, finally PPP Law has been enacted in 2016 to create congenial legal and regulatory environment for PPP. The law has named the office as PPP authority and since inception with other regular operation of PPP Office, the PPP Authority was mandated for building a strong pipeline projects for successful journey of PPP in Bangladesh.

Initially, for developing projects or for transaction advisory support, resources of World Bank (for Two Jetties Construction in Mongla Port Project) and IFC (for Kidney Dialysis Unit) have been used. However, government has been allocating some funds from the budget since FY 2009-10 to extend financing support to PPP projects (Amin, 2013). At present PPP Authority is fully operational with half a dozen of transaction advisors appointed by them and with a long list of almost fifty projects in the pipeline. Besides, the government has established some dedicated organizations viz., Infrastructure Development Company Limited (IDCOL), Infrastructure Investment Facilitation Company (IIFC), Investment Promotion and Financing Facility (IPFF), Bangladesh Infrastructure Finance Fund Limited (BIFFL) and PPP Authority, etc. for providing institutional support to PPP projects.

Although PPP is a major policy initiative by Government, success of the PPPs is largely dependent on capacity of the private sector to raise required amount of fund on time. A number of projects such as Summit Bibiyana-I Power Company Limited, Cemcor Limited, First Dhaka Elevated Expressway Project, etc., either failed to start or launched after long delay because of failure in collecting finance (Banerjee et al. 2015). A number of non-financial factors like appropriate policy and regulatory environment, transparency, political support and

commitment, government guarantee, risk mitigation mechanism, skill and expertise, etc. are equally important for implementing PPP project successfully. Issues that affect the supply of well-prepared projects, rather than the demand for such projects, have been the main constraints for mobilizing private sector investment and delivery of infrastructure. Given the difficult environment for long-term private sector investment, the challenge will be for even better discipline in the selection and development of projects

Although, GoB is keen to exploit PPP for infrastructure development and has taken aforesaid significant steps, the response of the private sector is not very encouraging. Of the total CCEA/LM approved projects for PPP, only two projects are in operation, two under construction and three are signed. The remaining projects are either in negotiation or procurement or development or CCEA approval stage. It raises many questions about the appeal/utility of this innovative model. Hence, a study regarding examining the critical financial and non-financial factors responsible for success as well as failure of implementation of PPP projects in Bangladesh may provide valuable insights to the policy makers, private investors, financiers and other stakeholders.

1.2 Objectives of the Study

The main objective of the paper is to highlight the financial and non-financial issues in implementing PPP in Bangladesh. The specific objectives are as follows:

- To find out the critical success factors for the implementation of PPP projects in Bangladesh.
- To examine the financial and non-financial factors constraining the implementation of PPP projects in Bangladesh.
- To identify and assess the challenges of the PPP projects implementation in Bangladesh.

1.3 Methodology

The current study is mostly exploratory in nature. In conducting study, both primary and secondary information have been utilized.

Primary Data Collection

The primary information has been collected from PPP pipeline projects, line ministry and Govt. agencies associated with PPP projects and relevant banks and financial institutions. In selecting PPP projects, 13 pipeline projects which are at least at the negotiation stage have been selected for data collection. Projects are in procurement, approval and CCEA approved stage were not contemplated as pipeline projects in the study since these are in very initial stage and private sponsors are yet to be selected for these projects. The respondents were the local and foreign CEO of sponsoring company, high level government officials of line ministry and Govt. agencies and the top-level executives of the participating financial institutions (banks and NBFIs).

Primary data were collected by administering three separate sets of structured questionnaires for sponsors, line ministry and Govt. agencies, and banks and financial institutions. In questionnaires, queries about Critical Success Factors (CSFs), constraints and challenges in implementing PPP projects have been placed commonly for all (Appendix-V). Besides, some open-ended questions were asked to the respondents considering their position. The study has followed drop-off and pick-up method to complete entire survey. Both researchers and research assistants have visited respondents to explain the objectives of the research, to clarify queries, to do personal interview and to collect completed questionnaire.

Sampling Method and Sample Size

Purposive sampling method has been used to select the respondents from each group. A total of 35 questionnaires have been sent to

different government agencies and line ministries that are directly or indirectly associated with the PPP projects in pipeline as listed by PPP authority. For selecting the respondents from the government agencies/line ministries, emphasis was given to those government agencies who have direct involvement in PPP projects (such as PPP Authority, IIFC, BEZA, Rajuk, etc.) and those line ministries who have intensive involvement in infrastructure (PPP) project development (such as ministry of finance, ministry of ICT, ministry of communication, etc.). For selecting the respondents from financiers, banks and NBFIs having prior experiences in financing PPP projects were considered. A total of 43 banks and NBFIs (32 banks of all categories and 11 NBFIs) have been selected for interview through structured questionnaires. A total of 11 questionnaires were administered to collect information from the sponsors. For selecting the respondents from the private sponsors, emphasis was given to those project sponsors who have already been selected to undertake the projects as per the list of PPP Authority¹.

Secondary Data

Secondary data were collected from the published documents and websites of Ministry of Finance, Bangladesh Bank, PPP authority, World Bank, ADB, project documents, etc.

Data Analysis Techniques and Criteria

Data were analyzed and presented by applying standard accounting and financial techniques. The mean score was used to obtain the relative importance of each CSFs, constraints and challenges for PPP implementation. The study also followed the technique of factor analysis to identify the factors' merit/importance. A comparative factor

¹ Although PPP Authority has listed 47 PPP projects that have got in-principle approval from the CCEA to be implemented under PPP, the research team has considered only 13 projects (belonging to 10 sponsors as some sponsors got more than one ticket) for which private sponsors have been selected through competitive bidding. These projects are either in operation stage, or in construction stage or at least at the negotiation stage.

list is prepared based on the factors' importance given by three different kinds of respondents. Due to the large number of factors considered in this study, it was important to define a set of commonalities. The number of individual factors would be required to represent that set of data was determined by examining the total percentage of variance explained by each individual factor. In this investigation, Principal Components Analysis (PCA) was used to identify the underlying grouped factors because of its simplicity and distinctive characteristic of data-reduction capacity for extraction. In order to obtain a clearer image, extraction with Varimax rotation and Kaiser Normalization was conducted through the Statistical Package for Social Sciences (SPSS), version 22. In order to shed light upon the actual scenario of PPP project in Bangladesh, the study also incorporated some practical cases (Appendix IV).

The sampling adequacy using Kaiser-Meyer Olkin (KMO) and Barlett's test of sphericity were used to test the appropriateness of the model. The KMO statistic varies between 0 and 1. The KMO value should be higher than the acceptable threshold of 0.5 for a satisfactory factor analysis (FA) to proceed (Norusis, 2008). The Barlett's test for sphericity is also carried out to highlight the presence of correlations among variables. When the value of the test statistic for sphericity is large and the associated significance level is small, the population correlation matrix is not an identity matrix. The study used Cronbach Alpha (α) for checking internal consistency reliability between 0 and 1, based on the average inter-item correlation. The standard rule is that α must be greater than approximately 0.70 to conclude that the scale is reliable. Factor analysis is used to identify a relatively small number of factor groupings. Principal component analysis was considered with eigenvalues greater than 1 for factor grouping. The factor grouping was based on Varimax rotation and each factor having the loading greater than 0.50 was retained.

Research Organization

The research paper is organized as follows: Section-I includes the introduction covering background, objectives and methodology, Section-II capture the gradual development of PPP in Bangladesh. Literature reviews are covered in Section-III. Section-IV identifies the critical success factors and constraints responsible for the success and failure of PPP implementation both in developed and developing countries. Section-V represents the overall findings and discussions of the research. Finally, Section-VI covers the interview findings conducted among three groups of stakeholders and finally Section-VII has drawn the conclusion of the research.

2. PPP in Bangladesh: Record of Gradual Development

2.1. Bangladesh first started to utilize PPP concept in 1970s and 1980s for establishing BIRDEM and the National Institute of Cancer Research & Hospital. Another milestone project (KAFCO) was established as joint venture multinational project for the production of fertilizer in the early 1990s (PPP Authority, 2016). However, a real impetus has been observed in the mid-1990s, when Private Sector Power Generation Policy (PSPGP) was enacted in 1996. The policy illustrates the modality for project implementation, financing arrangements, security packages needed, provision of fuel, tariff setting criteria along with fiscal and other incentives in private participation in power projects.

2.2 After the approval of the 1996 Private Sector Power Generation Policy, a number of Independent Power Plant (IPP) projects have been taken up and completed here. Among these, 360MW Haripur and 450MW Meghnaghat combined cycle power plants are well known. At the moment, about 25 IPPs either have been completed or staying in varying stages of completion, representing an investment of almost USD 1 billion. IPPs currently supply about 1/3 of the electricity used in Bangladesh.

2.3. In 1997, the World Bank initiated a Technical Assistance Project called “Private Sector Infrastructure Development Project (PSIDP)” as a vehicle for delivering assistance to GoB for developing infrastructure sub-projects; establishing speedy, competitive and transparent procurement processes; providing appropriate mechanism for reasonable risk sharing and mobilizing commercial investment in the form of equity and debt financing for infrastructure sub-projects; and creating suitable legal and regulatory structure in various infrastructure subsectors for sustained and efficient operation of private infrastructure facilities in Bangladesh. The implementation period of PSIDP was designed for five years from November, 1997 to December, 2002. Later on, it was extended up to 30 June, 2004 (World Bank, 2008). The PSIDP had two components: project financing component and sub-project transaction development component. The financing component was designed to provide support for investment to sub-projects with private sector participation. The second component was aimed at strengthening the capacity of line ministries to undertake transaction development² of infrastructure projects for private sector investment.

2.4. A financing entity named IDCOL was established in 1997 as a state-owned enterprise under the administrative control of the Economic Relations Division for long term debt financing. The main purpose of creating IDCOL was to mobilize long-term funds in association with other institutional and commercial partners for private infrastructure projects. Initially, IDCOL was established as an NBFIs as well as the subproject financing institution when PSIDP was being designed. PSIDP provided a long-term debt facility (SDR 159.6 million USD225 million) in form of a line of credit from GOB to IDCOL. The credit was intended to be used to provide long-term

² Transaction development involves the conduct of competitive and transparent procurement processes, marketing of sub-projects and managing the entire process of structuring, documentation, bidding, negotiation and award of concessions.

finance to special purpose entities established for the construction and operation of commercial infrastructure projects on the basis of a subproject pipeline available at appraisal. This component also included technical assistance (SDR 4.67 million USD 7 million) for investment advisory services to strengthen IDCOL's capacity in project financing. As mentioned above, IDCOL successfully financed the 450MW Meghnaghat power plant with USD80 million financing (USD20 million senior debt and USD60 million subordinated debt). Other projects financed by IDCOL at its earlier stage with the PSIDP fund were utilized to finance the DNS SatComm VSAT Hub Station and expansion of Pacific Telecom Limited. IDCOL later secured 3 (three) credit lines (USD 682 million) and technical assistance from Asian Development Bank (ADB), which were and currently used for financing infrastructure projects. Till 2017, IDCOL has financed more than 30 PPP projects (17 power projects, 8 telecommunication projects, 1 liquid waste management project, 1 land port, 1 river terminal project, 1 off-dock project, and 1 dry-dock project) by a total amount invested approximately USD 350 million (IDCOL, 2017).

2.5. Realizing the need for specialist expertise and support to develop and implement PPP projects, government established an additional institution, Infrastructure Investment Facilitation Company (IIFC) in 2000 under the Economic Relations Division (ERD) of the Ministry of Finance to assist relevant ministries, divisions or agencies to formulate and screen project proposals and provide technical assistance. IIFC was also entrusted to implement subproject transaction development component of PSIDP since its inception to the end. Since the inception, IIFC has provided technical, advisory and feasibility study services for more than 130 projects in diverse sectors including around 40 PPP infrastructure projects both in home and abroad (IIFC, 2017).

2.6. In 2004, "Bangladesh Private Sector Infrastructure Guidelines" (PSIG) were issued by the government for rapidly developing

country's infrastructure with private sector financing, management and operation. Following the model of the Philippine inter-ministerial council, PSIG created a national Private Infrastructure Committee (PICOM) under the Prime Minister's Office for the facilitation and promotion of private infrastructure projects. Projects initiated by private sponsors or line ministries require government approval to be listed as a Private Infrastructure Project. Based on PICOM's analysis and recommendation, the Cabinet Committee on Economic Affairs (CCEA) approves the project. In fact, PSIG forms the basis of the current PPP in Bangladesh. After the introduction of PSIG, there have been some successes in private investments through PPP route in the power, gas and telecom sectors (Amin, 2011).

2.7. Considering the necessity of infrastructural developments by all means, Government initiated Investment Promotion & Financing Facility (IPFF) Project with assistance of the World Bank with a view to facilitate long term financing in infrastructure development and promoting PPP in Bangladesh in 2006. The IPFF sets in motion Government's PPP mandate by facilitating financing requirements and enhancing capacity to develop and implement PPP projects. Initially, World Bank extended a credit of USD 50 million including USD 2.5 million as technical assistance and the government provided USD 10 million as a co-financing facility to the IPFF. IPFF has successfully utilized the entire fund of first phase (2007-2012) of USD 60 million by financing seven small power projects under PPP which have added 178 MW power to the national grid (Amin, 2011). Upon successful completion of the first phase of IPFF, World Bank extended additional USD 257 million including USD 12.5 million of technical assistance fund and GoB provided USD 49.4 million for second phase. During 2006-16, IPFF has financed a total of USD320.14 million to 21 PPP projects consisting 12 power plants having capacity of 589 MW, 3 port development projects (1 inland container depot and 2 dry docks), 2 IT infrastructure projects (nationwide fiber optic cable installation

projects), 3 water treatment plants and 1 social sector (hospital) project (IPFF Project, 2017). Built on the success of the earlier IPFF project, World Bank provides another USD 357 million under the caption IPFF-II to help boost up infrastructure development under PPP in Bangladesh. IPFF-II will help local financial institutions to lend to private sector infrastructure ventures through the Bangladesh Bank for a longer term of 8-20 years, beyond the usual term of 5 to 7 years.

2.8. Government introduced first “PPP Budget” in FY 2009-10 indicating strong commitment of Government for utilization of PPP in the country. In the budget for FY2009-10, BDT 25 billion (2.2 percent of the total budget) has been allocated for PPPs. In the following two budgets (FY 2010-11 and FY 2011-12), GoB allocated another BDT 30 billion for each year for the same purposes (Amin, 2011). Afterwards, this budget allocation has also been continued. The purpose of allocating fund in the budget is to ensure the Government’s financial participations in PPP projects along with the private sectors. The financial participation of the government in the PPP projects takes three forms viz., Technical Assistance Financing, Viability Gap Financing and Infrastructure Financing depending on the nature of the projects and models of PPP adopted for a particular type of project. Of the total amount of BDT 25 billion, BDT 1 billion was earmarked for technical assistance, BDT 3 billion for Viability Gap Funding (VGF) and BDT 21 billion for setting up an Infrastructure Development Fund (Amin, 2013).

2.9. The Government issued a position paper on PPP titled “Invigorating Investment Initiative through Public Private Partnership” in June 2009 highlighting the concept of PPP, sectoral coverage of PPP, existing legal and regulatory framework PPP, PPP models, perceived risks allocation approach of PPP, current PPP projects implementation status and future way out, etc.

2.10. The government has promulgated “The Policy and Strategy for Public-Private Partnership in 2010 to flourish PPPs in a large scale and ensuring enabling environment for PPP project implementation. The objectives of this Policy and Strategy are to spell out the principles of partnership with private sector for undertaking various projects related to infrastructure as well as public service delivery; to define an institutional framework, which is conducive and efficient in handling the PPP projects as well as effective to protect public interest; and to ensure balance between risk and reward for both the government and private partners while aiming to keep the undertaking attractive for the private sector. After adopting this new Policy and Strategy, the Bangladesh Private Sector Infrastructure Guideline (BPSIG), 2004 is repealed. Later on, PPP Law has been enacted by the National Parliament in 2015 in order to provide the strong legal basis of PPP in Bangladesh. PPP law 2015 has rescinded the Policy and Strategy for PPP 2010.

2.11. Since the introduction of PPP Policy and Strategy in 2010, significant achievement has been grabbed in the development and implementation of PPP in Bangladesh. The scale of work required to progress with the revised PPP initiatives was huge which essentially put in place a complete national transformation and change management program toward massive success in infrastructure development in the country. In order to modernize the PPP program and to ensure the PPP to be able to achieve the target investment from the private sector as set out in the national development plans, fundamental changes were brought in five core areas of the PPP program. These included institutional changes, regulatory reform, project development focus, capacity development and financial support mechanisms. As part of the institutional change’s government has set up PPP Office (now PPP Authority) in 2011 under the Prime Minister’s Office. This office is designated to re-invigorate PPPs and support Line Ministries and Agencies in developing PPP projects.

Government has also established PPP Unit in the Finance Division to oversee, support and process request for financing (TAF, VGF³, etc.) for the PPP program. In addition, government has created Bangladesh Infrastructure Finance Fund Ltd. (BIFFL) to provide lending support to PPP projects.

2.12 Under regulatory changes specific guidelines were introduced for the first time for the development and procurement of PPP projects. Major guidelines and manuals include guidelines for the application of the Public Private Partnership Technical Assistance Financing and Viability Gap Financing, PPP Screening Manual, PPP Project Proposal Form, PPP Technical Assistance Financing Form, Procurement Guidelines for PPP Projects, Guidelines for Unsolicited Proposals and the Bangladesh Public Private Partnerships Act. Transformations undertaken for PPP project development include application of structured mechanism for the appointment of internationally experienced transaction advisors and development of projects on the basis of key milestones, consisting of a combination of inception overview, preliminary findings, draft feasibility outputs and final report. During the period 2010-2017, feasibility assessments were either on-going or had been completed on around 20 projects and the process was on-going for the appointment of advisors to conduct feasibility studies on another dozen or so projects (PPP Authority 2017). For capacity development and awareness creation towards PPP, PPP Authority arranges various training programs, workshops, seminars, etc. for public sector officials, private sector stakeholders, local and international investors and financial institutions. During 2012-17, PPP Authority has organized more than 40 events in which more than 3000 public officials and private sector executives have participated. Under financial support from the government to PPP

³ Till date, government has provided USD 306 fund as VGF to First Dhaka Elevated Expressway (FDEE) PPP project and extended commitment VGF to another expressway project called Dhaka Bypass (for up gradation to 4 lane).

projects, government allocates funds in the budget each year since FY2009-2010 and has established a non-bank financial institution (BIFFL) to broaden the availability to long term finance in the local market. With a strong mandate to invest in the large infrastructure projects including power and energy, ports, connectivity, tourism and economic zones, BIFFL extends long term financing facility. Since its inception in 2011 to till date, BIFFL has financed a total of BDT 697.44 crore in 8 PPP projects (BIFFL, 2017).

2.13. From the inception to date, PPP Authority has identified and developed 47 PPP projects in diverse sectors. Of the 47 pilot projects identified and developed by PPP Authority, 2 projects have started operation, 2 projects are in construction stage, 3 projects got the contract signed, 4 projects are awaiting for signing contract, 2 projects have completed negotiation, 11 projects are in procurement stage (IFB, RFQ, RFP, etc.), 11 projects are undergoing detailed feasibility study, 7 projects have got transaction advisors appointed, and the remaining 5 projects got CCEA in-principles approval (PPP Authority, 2017). Apart from the structured chronology of PPP initiatives in Bangladesh, a good number of PPP projects belonging to the domain of PPP model, have been implemented in power, port, roads, ICT, etc. sectors. During 1997-2015, a total number of 47 projects with a total investment of USD 5742 million have been implemented under PPP mode (Banerjee et al., 2016). Table 2.1 summarizes the gradual record of PPP development in Bangladesh.

Table 2.1: PPP in Bangladesh: Summarized Record of Gradual Development

Period	Gradual Development
1970-80	Initiation of partnership concept between public and private sectors for developing BIRDEM and the National Institute of Cancer Research & Hospital
1988	Establishment of KAFCO as a joint venture between Japan and Bangladesh
1996	Issuance of Private Sector Power Generation Policy (PSPGP)

1997	Launching of ‘Private Sector Infrastructure Development Project (PSIDP)’ by World Bank as Technical Assistance Project for infrastructure development with private participation.
1997	Establishment of IDCOL as specialized NBFIs under ERD, Ministry of Finance to mobilize long-term funds in association with other institutional and commercial partners for private infrastructure projects.
2000	Creation of a technically specialized entity IIFC under the ERD, Ministry of Finance to assist relevant ministries, divisions or agencies to formulate and screen project proposals and provide technical assistance.
2004	Promulgation of Bangladesh Private Sector Infrastructure Guidelines (PSIG) to laid down current PPP in Bangladesh
2006	Establishment of IPFF with the assistance of the World Bank to facilitate long term financing in private sector-led infrastructure PPP projects as well as capacity enhancement.
2009	Issuance of a position paper on PPP titled ‘Invigorating Investment Initiative through Public Private Partnership’.
2009-10	Introduction of PPP Budget as part of the strong commitment of Government for utilization of PPP in infrastructure development and allocation of fund for PPP.
2010	Promulgation of the ‘Policy and Strategy for Public-Private Partnership’ to flourish PPPs in a large scale and ensuring enabling environment for PPP project implementation.
2011	Setting up of PPP Office (now PPP Authority) under the Prime Minister’s Office as ‘one stop service provider of PPP’ in Bangladesh
2011	Creation of BIFFL with a solid mandate to invest in large infrastructure projects.
2012	Issuance of Guidelines for VGF and PPPTAF as well as Scheme for PPPTAF.
2015	Enactment of PPP Law by the National Parliament.
2016	Issuance of Procurement Guideline for PPP Projects, and Guidelines for Unsolicited Proposals.
2017	Issuance of Policy for Implementing PPP Projects through Government to Government (G2G) Partnership.
2012-2017	Identification and initiation of 47 pipeline PPP projects by PPP Authority with close coordination with line ministries and different government agencies.
1997-2015	Within the domain of PPP model, a total number of 47 projects with a total investment of USD 5742 million have already been implemented (Banerjee et al., 2016).

Source: Authors’ Compilation

3. Literature Review

A large body of literature has been emerged since 1990s on the critical success factors and constraints as well as challenges of PPP implementation. Some of the studies have documented the CSFs, obstacles and challenges in PPP projects from the perspective of developed economies while some have focused on the issues from the perspective of developing economies. It is quite mentionable that the CSFs, obstacles and challenges in PPP implementation differ between the developed and developing countries considering diverse conditions and risk factors. The available literature has been reviewed in the following section under CSFs, constraints and challenges respectively.

3.1 Literature on Critical Success Factors (CSFs)

In the area of Critical Success Factors (CSFs) of PPP projects, there are two types of literature on the CSFs of PPP viz., (1) studies that assess the CSF of PPP projects in general; and (2) studies that examine the CSFs of a specific PPP project. Studies have also shown that CSFs differ between developed and developing countries.

In respect of specific case studies, Jefferies et al. (2002) examine the CSFs of a stadium in Australia, which was built using the Build Operate Own Transfer (BOOT) mode of PPP. The authors identify and examine 15 success factors relevant to the project and the most significant CSFs include: compatibility/complementary skills among the key parties, “technical innovation in overcoming project complexity” and efficient approval process. Other important success factors include environmental impact, developed legal/economic framework, political stability, selecting the right project, existing strategic alliances, good resource management, trust, community support, feasibility study, transfer of technology, financial capability, and consortium structure. Likewise, Jefferies (2006) investigates the CSFs of the Super Dome PPP project, which has also been constructed using the BOOT scheme. The study considers the same CSFs as have

been examined in Jefferies et al. (2002) and includes new success factors: negotiation, client brief/ outcome, bid feature, business diversification, business viability, competition, credit rating investor, teamwork, existing infrastructure, delivery of asset, investment growth, and project identification. The findings reveal that the most important success factors for the Super Dome project are: the issue of bidding, which has been successfully, managed by the government, the project agreement, which is a very streamlined approval and the negotiation process.

Jamali (2004) investigates the CSFs for PPP implementation in the telecommunication industry in Lebanon. Using a case study approach, the findings indicate that trust, openness and fairness are basic foundational underpinnings of successful PPPs. Zhao et al., (2010) investigate the factors contributing to the success of two PPP power projects – thermal power and wind power – that have been developed using the Build Own Transfer (BOT) mode. From an extensive review of relevant literature and interviews with experts, the authors identify 31 success factors for the power projects. Then a questionnaire survey has been conducted to investigate the relative importance of the success factors specific to the individual thermal and wind power project. The results reveal common CSFs for the two projects, which include: the necessity for the project, the expected debt paying ability of the project and the financial capacity of the contractor. In addition, there are CSFs that are unique to the individual projects. For the thermal power project, level of project financing management of the project company and level of business operation and qualification of the contractor are the important success factors while for the wind power, competency of personnel of the project company, financial capacity of the contractor, expected profitability of the project, and legal environment are the CSFs.

Aziz (2010) adopts a questionnaire survey and interviews to examine the CSFs of ten PPP housing projects in Malaysia. The study identifies 15 success factors for PPP housing projects: action against errant developer, robust and clear agreement, reputable developer, constant communication, developer's profit-sharing accountability, developer's social accountability, house buyer's demand, negotiation skills, adequate negotiation staff, and realistic projection, and competition, ample time to evaluate proposal, political influence, consistent monitoring, and compatibility between partners. The results reveal that all 15 factors except political influence contribute significantly to the success of a PPP housing project. Aziz and Kassim (2011) conduct a similar study that also focuses on PPP housing projects and uses the same 15 success factors as identified by Aziz (2010) but extends the study by investigating the objectives as well as the success and failure factors of PPP housing projects. In terms of the CSFs, the study reveals that action against errant developers is the most influential variable on the success of PPP housing, while absence of robust and clear agreement has the most impact on the failure of housing PPP's.

Tiong (1996), Tiong and Alum (1997) and Gupta and Narasimham (1998) identify CSFs in winning BOT contracts, which include factors such as right project identification, strength of consortium, financial package differentiation and supportive and understanding community. Li et al. (2005) conducts a questionnaire survey to examine the relative importance of 18 potential CSFs for PPP/PFI construction projects in the UK. The study concludes that the three most important factors are: a strong and good private consortium, appropriate risk allocation and available financial market.

Zhang (2005) identifies 47 CSFs of PPP projects, which have been classified into five main aspects: economic viability, appropriate risk allocation via reliable contractual arrangements, sound financial package, reliable concessionaire consortium with strong technical

strength, and favorable investment environment. The author also examines the relative importance of the CSFs based on the perceptions of experts comprising academics and industry players. The results show a good agreement in the ranking of the factors between the respondents from the industrial sector and those from the academic sector. A grounded theory research undertaken by Trafford and Proctor (2006) discovers five key characteristics that are crucial in ensuring the success of PPP projects: good communication, openness, effective planning, ethos and direction.

Jacobson and Choi (2008) adopt a qualitative analysis using in-depth interviews and observations to examine principal factors that contribute to successful PPP projects. Ten success factors have been investigated: specific plan/vision, commitment, open communication and trust, willingness to compromise/collaborate, respect, community outreach, political support, expert advice and review, risk awareness, and clear roles and responsibilities. The results show that high degrees of commitment and shared vision between the client, architect, and contractor are the most important factors for construction success.

Jooste (2010) evaluates the success of PPP projects in three countries viz, Canada, Australia and South Africa using the empirical metrics that he formulated from five CSFs of PPP project that are a competitive PPP market, an efficient project development process, a growing but well-controlled flow of PPP projects, acceptance and legitimacy of the PPP model and opinion of central field actors. The results reveal different levels of success of PPP implementation in the three countries for each of the five success factors measured.

3.2 Literature on Constraints

Many studies related to constraints of PPP implementation have been accompanied by scholars based on case study method, questionnaire survey etc. Among a pool of researchers, the study of Adam et al. (2006) is a significant one. By using case study approach, he examines

a PPP project and finds that project implemented under PPP has experienced reduced accountability which results due to the lack of effective supervision. Ball et al. (2007) investigate a school PPP project in the UK by using the case study method too. They report that the restrictions put on the public to effectively monitor the projects-unclear risk allocation between parties, lack of clear government objective and evaluation criteria for project, and corruption-are the main constraints in achieving Value For Money (VFM) from the PPP project. The other issue relating to the contract is the bidding costs, which are more expensive compared to the conventional procurement method. It has been stated that the bidding cost for PPP projects can be seven times higher compared to the traditional procurement method with the total costs for all bidders reaching 3 per cent of the overall project cost in some cases. Therefore, the high bidding cost means that PPP projects are only suitable for the relatively high-capital projects (Ball et al., 2007).

Another study by Ball et al. (2000) discover that the PPP negotiating process is a very long process (may sometimes take 18 months or longer) due to the nature of PPP contracts, which are more complex to evaluate (since different private sector entities submit different designs and different funding packages), and, sometimes, require the use of external consultants. Therefore, careful judgment must be exercised to ensure the successful implementation of PPP projects.

Li et al. (2005) conduct a research using a questionnaire survey to test the perceptions of the public and private sectors in the UK concerning the negative factors that make the adoption of PPP less attractive. In their study they have considered 13 negative factors. The results show that both the public and private sectors have similar perceptions concerning the top three most problematic issues in PPP adoption. The study concludes that the top three negative factors for adopting PPP include “a lot of management time in contract transaction, lengthy

delays in negotiation and high participation costs. Using the idea of Li et al. (2005), Cheung et al. (2010) have conducted a similar study on the industrial practitioners of Hong Kong by using the same 13 hindrance factors to investigate their relative importance in adopting PPP. The findings reveal that the top three negative factors ranked by Hong Kong respondents are lengthy delays because of political debate, lengthy delays in negotiation and very few schemes have actually reached the contract stage (aborted before contract).

Carrillo et al. (2008) in their another study find that the key negative factors responsible for hampering the adoption of PPP, as perceived by the public sector, include high transaction and bidding costs, complex transactions and lengthy period of negotiation. Their study also incorporates the opinion of the private parties. As per their findings on the private sector survey, high transaction and bidding cost, lengthy negotiation period and inexperienced staff are the major factors hindering PPP adoption. Takim et al., (2009) has conducted a study on the Malaysian PPPs by using questionnaire survey method and finds that the majority of the respondents consider confusion over project objectives and evaluation criteria, and time spent in contract transaction as the key hindrance factors for adopting PPP.

Liu and Wilkinson (2011) conduct a research on the obstacles for the adoption of PPP in New Zealand. They apply a semi-structured questionnaire for interviewing senior industry players in New Zealand. They have been able to receive feedback from eight big industrialists. They then presented the results of the questionnaires received from the eight industrialists in three consecutive round table discussions to compare their finding. Their findings from the industrialists' survey have been supported by the round table discussion. The results show that the obstacles identified as negative factors, which may make the adoption of PPP less attractive, are political, social and legal risks, unfavorable economic and commercial conditions, high transaction

costs and lengthy lead time as well as problems associated with the contracting partners, namely, the public and private sector providers.

Adams et. al., (2006) have documented that the key constraint of PPP project implementation in China is access to capital. Most of the PPP projects in China involve large consortiums inclusive of foreign companies. For extending PPP into social infrastructures (education, health, social care etc.) many more local and smaller firms need to be involved. Such firms have great difficulty in getting access to investment capital. The difficulty is not availability of fund rather the fund is effectively idle. Currently, in China domestic savings rate is more than 40 percent but these funds are exclusively kept for personal and family insurance purpose in a very scattered manner. The amount of capital available from these funds for investment purposes is actually low. It clearly indicates the lack of effective utilization and management of fund (Li and Chen, 1997).

3.2.1 PPP Implementation Constraints in Developed Countries

In the context of developed economies/countries, major constraints in implementation of PPP projects include high transaction and participation costs, lengthy contract negotiations, excessive time spent in managing contract and transaction, confusion over government objectives and evaluation criteria (Cheung et al., 2010; Li et al., 2005a; Chan et al., 2010a; Algarni et al., 2007; Grimsey and Lewis, 2007; Liu and Wilkinson, 2011; Xenidis and Angelides, 2005). According to Cheung and Chan (2011), lengthy bidding process of PPP poses high transactions cost to both public and private parties. On the one hand, in the bidding process, public authority is required to appoint professionals as transaction advisors. On the other hand, private bidders also engage professionals to provide legal, technical and financial advisory services. Undeniably, the cost incurred by both parties in engaging professionals for advisory services is often very high. This is because the professionals have to be involved throughout

the bidding process which can take several months or years before negotiations are finalized (Corbett and Smith, 2006).

In addition to incurring cost of engaging professionals, private sector bears the cost of assembling and setting up consortium (Ezulike et al., 1997). Delay in finalizing negotiations has impeded the progress of many PPP projects in the developed countries (Cheung and Chan, 2011). As PPP is a complex contractual deal which covers many critical issues i.e. transfer of risks, payment terms and imposition of legal terms, unless the project parties are fully satisfied with the terms, the final agreement is not reached quickly. Some negotiations can prolong for over years particularly for complex projects (Cheung et al., 2010). This result in lingering proposed project completion time and hence loses public interest toward such projects.

3.2.2 PPP Implementation Constraints in Developing Countries

In developing economies/countries, the acts of corruption have been identified as a major challenge in PPP project development, which is quite uncommon in the developed economies/countries (Demuijnck and Ngnodjom, 2011; Chan and Ameyaw, 2013). As per Loxley (2013), corruption allegations provoke public and political protests, which impede the progress of PPP projects. Inevitably, they gradually diminish the general public's trust, which in turn, fuel the negative public perceptions on government dealings with the private sector (Osei-Kyei and Chan, 2015b). Pessoa (2010) and Loxley (2013) opined that weak institutional framework/structure in developing countries greatly hampers the development of PPP projects. They also stated that a dedicated and competent public authority is required to effectively negotiate and bargain on the contract terms for the interest of the general public. If strong public institutions are not established, PPP projects end up facing lots of hindrances particularly at the operational period. Another major factor deterring the success of PPP development in developing countries is high user fee. The reason of

considering high user charge as one of the critical impediments is that the income levels in developing countries vary largely. Specifically, a large number of people have very low income (Amadi et al., 2014; Ismail and Haris, 2014). As a result, toll increment is not well received by users and local travelers (Osei-Kyei and Chan, 2015). High user charge often results in numerous public protests and agitations, which may compel the host government to provide subsidies. It also forces users to look for alternatives particularly for toll roads. This, therefore, reduces the economic benefit of the project to the society. Other critical constraints in developing economies/ countries include the lack of competition in the procurement process, unstable macroeconomic indicators, immature financial market, incomplete risk transfer and the high use of unsolicited proposals (Loxley, 2013; Pessoa, 2010; Marin, 2009; Abdul-Aziz and Kassim, 2011; Askar and Gab-Allah, 2002; World Bank, 2012).

Shendy et al., (2011) in their study on six African countries have categorized the constraints of PPP implementation into two categories namely financial limitation and weak PPP enabling environment. As per their study, major financial limitations include access to local currency and affordable long-term debt and the need for government support to the capital investment required to make a PPP transaction commercially viable. The weak PPP enabling environment calls for a clear legal and regulatory framework; improved competitive bidding procedures; more consistent sector policies, including tariff regimes that allow for greater, if not complete cost recovery; a more robust PPP pipeline; and strengthened management of fiscal commitments from PPPs. In regard to financial limitations, they have documented that the size of local commercial banks is small relative to the significant funding required for infrastructure projects; loans have short tenors, with a maximum of five years; there are no long-term pricing benchmarks because of a short government yield curve; and banks lack the experience and skill to undertake project financing. They have also

observed that private investors are hesitant because of a general lack of competitive and transparent bidding process, undefined tariff regimes, and inconsistent strategies for engaging with the private sector across the different sectors/industries. In addition, lack of coordination among government agencies stall PPP transactions from developing in a timely, efficient and consistent fashion. Problems reported with PPP/PFI procurement include issues such as: high costs in tendering, complex negotiation, cost restraints on innovation, and differing or conflicting objectives among the project stakeholders (Akintoye et al., 2001).

3.3 Literature on Challenges

According to UNECE (2008) one of the key challenges facing by the governments of many developing countries is that despite the traditional procurement methods, which focus on inputs, PPPs requires skills to identify the output of the projects. In addition, the management of PPP contracts is complex, demanding, prone to failure, and subject to abuse by unscrupulous individuals, firms or politicians, unless controlled and disciplined, through highly transparent procedures, and professional contracts and conscientious monitoring processes.

Amin (2013) in his study on Bangladesh PPP has found that lack of coordination among stakeholders, regulatory independence, lack of transparency in project awarding, poor appraisal of project, absence of practices of non-recourse financing, cost and time overruns, tariff fixation, inherent risk risks involved in infrastructure financing, inadequacy of project development support by government, absence of government guarantee, lack of active Domestic bond market, lack of corporate governance, discontinuity of political and policy support, lack of skill of public sector are the major challenges in implementing PPP as an alternative model for infrastructure development in the country.

4. Critical Success Factors (CSFs) and Constraints: Experiences of Developed and Developing Countries

As PPP is almost obvious for infrastructure development, researchers of both developed and developing countries pay their utmost attention to identify the critical success factors of and constraints to PPP implementation. In this perspective, a list of CSFs and constraints shown in previous studies are summarized below in subsections 4.1 and 4.2.

4.1 Critical Success Factors (CSFs)

4.1.1. Since the evolution of PPP, a number of studies have highlighted the concept of CSFs to enhance the understanding and best ways of implementing PPP policy for infrastructure development (Liu et al., 2014). This concept has been employed in diverse areas of PPP arrangement ranging from different infrastructure sectors, project models and stages within the PPP arrangement. Some studies highlighted the CSF concept for general PPP infrastructure projects (Chan et al., 2010; Cheung et al., 2012; Hwang et al., 2013). Attention has also been given to develop and developing countries employing PPP policy to foster infrastructure growth; the CSFs for implementing PPP projects in these countries have also been explored by researchers (Babatunde et al., 2012). A seminal study on the CSFs of PPP projects is conducted by Osei-Kyei and Chan in 2015 by using meta-analysis.⁴ The study covers a total of 72 publications from 52 different journals for the year 1990 to 2013. The identified CSFs for that particular period are placed in Table-4.1.

⁴ Meta-analysis is a quantitative, formal, epidemiological study design used to systematically assess the results of previous research to derive conclusions about that body of research. A key benefit of this approach is the aggregation of information leading to a higher statistical power and more robust point estimate than is possible from the measure derived from any individual study.

Table 4.1: Findings from Studies on PPP CSFs from 1990 to 2013

CSFs	Publications																											Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
Appropriate risk allocation and sharing	×					×	×			×			×			×	×	×		×		×	×	×	×			13
Strong private consortium		×	×							×	×		×			×	×	×	×	×		×			×			12
Political support				×		×							×	×	×		×	×						×		×		9
Public/community support						×							×	×				×				×	×			×	×	8
Transparent procurement	×				×			×		×	×		×	×												×		8
Favorable legal framework	×				×					×			×					×							×	×		7
Stable macroeconomic condition	×	×																×	×						×	×	×	7
Competitive procurement	×			×				×																×	×		×	6
Strong commitment by both parties						×		×		×			×	×												×		6
Clarity of roles and responsibilities among parties				×		×		×		×	×																×	6
Financial capabilities of the private sector			×					×							×				×			×						5

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CSFs	Publications																											Total	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		
Technology innovation		×															×		×	×		×							5
Good feasibility studies	×				×								×				×					×							5
Open and constant communication				×		×	×	×			×																		5
Detailed project planning		×	×													×									×		×		5
Government providing guarantees		×	×													×						×			×				5
Trust						×	×				×												×						4
Selecting the right project									×											×	×		×						4
Long term demand for the project	×		×					×								×													4
Clear project brief and design development					×			×				×												×					4
Political stability	×																	×						×					3
Competitive financial proposals									×								×				×								3
Mature and available financial market												×		×										×					3
Acceptable level of tariff			×																		×	×							3
Streamline approval process		×																					×	×					3

Source: Osei-Kyei and Chan (2015)

4.1.2. Given the wide range and coverage of studies on the CSFs of PPP, it would still be difficult for both policymakers and researchers to identify the most important CSFs for implementing PPP projects irrespective of the country, sector, stages or project model. The factor which is the CSF for one country may not be the CSF for the other country. Since the characteristics of developed country significantly vary with developing country in terms of capital formation, political and social stability, infrastructure demand, government and private sector strength, financial market development, etc., it is important to identify the CSFs differently for both the developed and developing countries in order to broaden the understanding of the most important CSFs for delivering PPP project. Tables 4.2 and 4.3 show the CSFs in developed and developing countries under various groups.

Table 4.2: CSFs in Developed Countries

Grouping	Developed Countries
Project Development and Procurement	Realistic cost benefits analysis
Financial	Well organized and committed public agency
	Selecting right project
	Efficient approval process
	Competitive procurement process
	Transparent procurement process
	Strong financial market
	Financial capability
Political and Policy Environment	Political support
Social and Environmental	Strong private consortium
	Social support
	Environmental impact
Technical	Technical innovation
	Strategic alliance
	Project feasibility
Risk Sharing between Public and Private Parties	Proper risk allocation and sharing Public and private sectors' commitment and responsibility

Grouping	Developed Countries
Macroeconomic Environment	Trustworthiness and image of private sector
	Stable macro-economic conditions
	Sound economic policy
	Multi-benefits objectives
Government Support and Control	Developed legal framework
	Government involvement by providing guarantees
	Political stability

Source: Authors' compilation from literature

Table 4.3: CSFs in Developing Countries

Grouping	Developing Countries
Project Development and Procurement	Thorough and realistic cost benefits analysis
	Well organized and committed public agency
	Comprehensive feasibility study
	Availability of project development fund (PPP Technical Assistance Fund)
	Competitive procurement process
	Transparent procurement process
Financial	Mature capital market and availability of diversified financial instruments
	Availability of long-term credit from financial institutions
	Control over project cash flow by financial institutions
	Acceptable level of tariff/toll
Political and Policy Environment	Political support
	Strong and good private consortium
	Good governance
Social and Environmental	Social support
	Employment generation
	Proper rehabilitation and settlement of affected people
Technical	Project management capacity of private sector
	Quality of private consortium and international joint venture partner
	Project technical feasibility
	Availability of skilled professionals or advisors
	Appropriate risk allocation and sharing

Grouping	Developing Countries
Risk Sharing between Public and Private Parties	Institutional arrangement for public sector risk management
	Commitment and responsibility of public and private sectors
	Sharing authority between public and private sectors
Macroeconomic Environment	Stable macro-economic conditions
	Comprehensive economic policy
	Multi-benefits objectives
	Favorable legal framework
Government Support and Control	Availability of government guarantees
	Strong political support

Source: Authors' compilation from literature

4.2 Constraints to PPP Implementation

PPPs involve complicated structures that require multidimensional involvement and support; those lack by many developed and developing countries. Additionally, infrastructure project are complex, capital intensive, long gestation projects that involve multiple and often unique risks. Therefore, to implement such projects, every country faces some difficulties although it varies from country to country. However, as usual developing countries suffer more than the developed countries due to resource constraints, political and social structure, policy and legal framework, technological inadequacy, etc. The current study identifies some constraints faced by both developed and developing countries through reviewing existing research work. These are exhibited in Tables-4.4 and 4.5.

Table 4.4: Constraints in PPP Implementation in Developed Countries

Grouping	Developed Countries
Financial constraints	High transaction cost
	Higher direct charges to users
Non-financial constraints	Inefficiency of the private sector
	Complex contractual negotiations
	Excessive restriction on participation
	High risk relying on private sector

	Much management time in contract transaction
	Confusion over government objectives and evaluation criteria
	Delay in finalizing negotiations
	Political risk
	Unfavorable economic and commercial conditions
	Lengthy lead time

Source: Authors' compilation from literature

Table 4.5: Constraints in PPP Implementation in Developing Countries

Grouping	Developing Countries
Financial constraints	Difficulties in securing credit
	Delays in receiving payments
	High end user fee charges
	Underdeveloped corporate bond market and lack of long-term financing
	Lack of a reliable interest-rate benchmark
	High customs duties on infrastructure equipment
	Lack of equity and quasi-equity financing
	Less participation of banks and FIs due to regulatory and institutional issues
Non-financial constraints	Lengthy delay due to political debate
	Unstable economic and commercial conditions
	Misallocation and incomplete transfer of risks
	Lengthy delay due to public opposition and agitations
	Lack of experience and appropriate skills in PPP project delivery
	Potential conflict of interest
	Restrictive government policies and regulatory guidelines
	Difficulty in importing spare parts
	Lengthy delay in finalizing negotiations
	Difficulties from changing governments
	Lack of access to supportive infrastructure
	Lack of coordination between government ministries/ departments
	Weak public institutional structure and capacity

Source: Authors' compilation from literature

5. Findings and Discussion

The data were analyzed using descriptive statistics, reliability tests using α , one-way analysis of variance and factor analysis. The reliability for the factors was 0.922 suggesting that the data collected for the critical factor analysis were reliable (Norusis, 1992). The subsequent sections present the overall findings and discussion of the results

5.1 Respondents' Profile and Response Rate

The whole survey process consisted of several visits to the premises of respondents in different locations. In the first visit, the researchers or their team dropped off the survey questionnaires to the respondents with a short description of the research objective. In the subsequent visits, the entire completed questionnaires were collected from the respondents as mentioned in methodology part of this study.

Out of total respondents, 39 percent were the line ministry and government agencies, 50 percent were the top-level executives of the participating financial institutions (Banks and NBFIs) and 11 were the local and foreign CEO of sponsoring company. Around 60 percent of the respondents had more than 10 years of working experience in relevant field and 24 percent of respondents had 5-10 years of similar experiences. Number of respondents with less than 5 years of working experiences was only 16 percent.

Table 5.1: Overall Summary of the Response Rate

Respondents' Type				Questionnaire Distributed	Questionnaire Received	Response Rate (Percent)
Line Ministry and Govt. Agencies				35	24	68.57
Banks/NBFIs				43	31	72.09
Sponsor				11	7	63.64
Total				89	62	69.66

Source: Calculated by the researchers

Researchers distributed 35 questionnaires to the line ministry and various Govt. agencies and received 24 questionnaires yielding 68.57 percent response rate. Out of 43 questionnaires distributed among banks and NBFIs, researchers received 31 questionnaires within the survey time that results 72.09 percent response rate. The response rate from the sponsor was 63.64 percent since the researchers received 7 questionnaires out of 11 distributed questionnaires. Therefore, the overall response rate was 69.66 percent (Table 5.1).

5.2 Findings and Discussion of CSFs

5.2.1 Mean Score Ranking of the Perceived Importance of CSFs in PPP Implementation

5.2.1.1. In this section, ranking of the Critical Success Factors (CSFs) has been shown to know the importance of the factors in implementing PPP projects. The analysis of the survey response data produced mean importance values for 41 CSFs ranging from 4.56 to 3.55. Table 5.2 shows that 17 factors have mean values greater than 4.0 and the remaining 24 factors have mean values between 3.0 and 4.0. The ranking of the perceived importance of CSFs in PPP implementation has been computed both from combined and individual stakeholder's point of view. The combined ranking differs from the individual ranking and the individual ranking differs among the group. The table displays the combined ranking of CSFs as well as the rankings from the perception of the different stakeholders.

5.2.1.2. As per Table 5.2, *identification of right projects* has been ranked in first position obtaining a mean value of 4.56 in terms of combined ranking. Respondents from banks and NBFIs classified this factor as the first CSFs, the line ministry/agencies ranked as the second and the respondents from sponsors considered it as the third important CSFs. This indicates that when the government or private parties can select the right project in terms of social demand, high priority and value for money, then the project can be implemented successfully

5.2.1.3. The second most important factor for a successful PPP project is *appropriate allocation and sharing of risk* between public and private parties. The mean value for this factor is 4.32 (Table 5.2). Banks and NBFIs considered this factor as highly important, the line ministry/agencies also ranked it as the fifth important factor whereas the sponsor group did not consider the factor as such important.

5.2.1.4. The third ranked factor (mean value 4.31) is whether the private sector has *adequate capacity to manage the project* under diverse scenarios. By nature, PPP projects are complex in terms of contractual arrangement as well as in terms of magnitude. Lots of ups and downs, uncertainties, etc. especially in financial closure, construction and operation stages may arise in PPP projects. The private party must have the expertise, commitment and attitude to put required drive to overcome any problem that may jeopardize the successful implementation of the projects. It should be kept in mind that in PPP model, majority of the responsibilities including designing, financing, constructing, and operation of the proposed infrastructure rest on the shoulder of the private party.

5.2.1.5. *Continuity of policy support* is the fourth critical factor for successful implementation of PPP projects in Bangladesh carrying a mean value of 4.30. Both the groups of respondents from the banks/NBFIs and sponsors ranked it as the fifth and the line ministry/agencies considered the factor as the eighth important CSFs for PPP implementation in Bangladesh. Irrespective of the change of the government bodies, the terms and conditions should be same until the completion of the project.

5.2.1.6. The fifth critical success factor scoring mean value 4.29 for succeeding PPP implementation in Bangladesh is the *land acquisition for the project and resettlement* of the victims properly. In country like Bangladesh, we have severe scarcity of land for dwelling, cultivation as well as infrastructure provision. A significant portion of

underprivileged people live in government spared land, nearby railway lines and premises, road sides, port regions where infrastructure projects are thought to be built at large. As a result, success of many PPP projects significantly depends on smooth acquisition of required land and rehabilitation of the victims.

5.2.1.7. It is revealed that *transparency in procurement process* is ranked sixth for success of PPP projects with mean value 4.28 (Table 5.2). As documented by NAO (2001), transparency in bidding process or negotiation lies with the public client, private contractor and their advisers. Similarly the respondents of the study identify this factor as the vital for PPP implementation in Bangladesh. The respondents of the line ministry/agencies ranked this factor as the first CSFs, the group of respondents from banks and NBFIs considered it as twelfth whereas the group of sponsor considered the factor as the moderately important.

5.2.1.8. Another critical success factor for PPP in Bangladesh is the *certainty of contract enforcement* by all contracting parties. The mean value of this factor is 4.27 and the ranking is 7. All parties in a PPP are tied up by contract. If any party becomes unable to perform his duty as per the contract, then he will be liable to compensate for the loss. Both Legal environment and enforceability of law should be such that no party in a PPP contract can escape the consequence of the breach of contract.

Table 5.2: Respondents' Perceptions of the Relative Importance of CSFs

Critical Success Factors (CSFs)	Line ministry/ Govt.		Banks/NBFIs		Sponsor		Total	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Project Development and Procurement								
Identification of right projects	4.54	2	4.65	1	4.29	3	4.56	1
Detailed project planning by line ministry	4.13	17	3.90	22	3.57	30	3.95	23
Comprehensive feasibility study by transaction advisor in coordination with PPP authority	4.33	6	4.19	10	4.00	10	4.23	9
Clear project brief and design development	3.88	31	4.03	17	3.86	16	3.95	22
Quick approval process	3.83	33	3.84	28	4.00	14	3.85	28
Clear outcome indicators	4.33	7	3.90	20	4.14	7	4.10	16
Availability of project development fund (PPP Technical Assistance Fund)	3.79	36	3.77	31	4.14	9	3.82	30
Competitive procurement process	4.25	12	3.90	21	3.29	35	3.97	21
Transparent procurement process	4.62	1	4.16	12	3.71	22	4.29	6
Financial								
Sponsors' capability to provide adequate equity	4.04	23	4.39	3	3.86	15	4.19	12
Mature capital market and availability of diversified financial instruments (credit guarantee, credit enhancement, Mezzanine finance, etc.)	3.92	29	3.71	34	3.86	18	3.81	32
Availability of long-term credit from financial institutions	4.21	14	4.10	16	4.57	1	4.19	11
Adequacy of project's Cash Flow (CF)	4.13	18	4.19	11	3.71	21	4.11	15
Financial institutions' control over project CF	3.83	34	4.00	18	3.14	37	3.84	29
Life cycle cost analysis	4.08	21	3.84	27	3.29	36	3.87	27
Acceptable level of tariff/toll	4.04	24	3.77	30	4.14	8	3.92	24
Political and Policy Environment								
Land acquisition and resettlement	4.54	3	4.16	13	4.00	11	4.29	5
Certainty of contract enforcement	4.25	13	4.32	4	4.14	4	4.27	7
Continuity of policy support	4.33	8	4.29	5	4.14	5	4.29	4

Critical Success Factors (CSFs)	Line ministry/ Govt.		Banks/NBFIs		Sponsor		Total	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Social and Environmental								
Strong public demand for project	4.21	15	3.87	24	3.71	26	3.98	19
Public/community support	3.92	30	3.61	37	3.00	41	3.66	36
Employment generation	3.71	37	3.52	40	3.71	28	3.61	39
Proper rehabilitation and settlement of affected people	4.29	10	4.10	15	3.71	23	4.13	14
Quality of Environmental and Social Impact Assessment (ESIA)	4.04	25	4.23	9	3.71	20	4.10	17
Technical								
Project management capacity of private sector	4.42	4	4.26	7	4.14	6	4.31	3
Quality of private consortium and international joint venture partner	4.33	9	3.84	26	3.57	31	4.00	18
Continuity of joint venture partner	3.67	38	3.65	36	3.43	33	3.63	38
Contract flexibility	3.67	39	3.55	39	3.14	38	3.55	41
Presence of appropriate exit clause in contract	3.63	40	3.58	38	3.43	34	3.58	40
Availability of skilled professionals/advisors	4.29	11	4.26	8	3.71	19	4.21	10
Risk Sharing between Public and Private Parties								
Appropriate risk allocation and sharing	4.38	5	4.45	2	3.57	29	4.32	2
Institutional arrangement for public sector risk management	4.13	19	3.74	32	3.57	32	3.87	26
Private sector ability to discharge risk	4.00	26	3.48	41	3.14	39	3.65	37
Trustworthiness and image of private sector	3.88	32	3.90	23	3.71	25	3.87	25
Macroeconomic Environment								
Country risk rating	3.83	35	3.65	35	3.71	27	3.73	35
Incentive in macroeconomic policy (tax exemption, tax holiday, subsidy, etc.)	3.96	28	3.71	33	3.86	17	3.82	31
PPP in line with sectoral priority of government	4.08	22	3.87	25	4.00	13	3.97	20
Government Support and Control								
Government involvement through Viability Gap Funding (VGF)	3.58	41	4.00	19	3.71	24	3.81	33

Critical Success Factors (CSFs)	Line ministry/ Govt.		Banks/NBFIs		Sponsor		Total	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Inter agencies/Inter ministerial coordination	4.13	20	4.16	14	4.00	12	4.13	13
Coordination between public and private stakeholders	4.17	16	4.29	6	4.43	2	4.26	8
Constant monitoring by line ministries/agencies	4.00	27	3.81	29	3.00	40	3.79	34

Source: Authors' calculation based on survey data

5.2.1.9. *Coordination between public and private stakeholders* is being considered as the 8th important factor with mean value of 4.26 in success of PPP projects. Proper coordination among private sponsors, lenders and implementing agencies/line ministries will enhance the trust worthiness and bring harmony among the parties which in turn will lead to success of the projects. The respondents from the group of sponsors ranked it as the second highest important and the group of banks and NBFIs ranked as sixth whereas the line ministry/agencies considered as the sixteenth position.

5.2.1.10. The ninth ranked CSF is *comprehensive feasibility study by transaction advisor in coordination with PPP authority* securing a mean value 4.23. Fundamental to the success of PPP projects is the necessity to carry out detailed feasibility studies considering technical, environmental, social, financial, economic, etc. It is important for satisfying the regulatory requirements, assessing the potential impacts and offering a bankable project to the private party.

5.2.1.11. Another very important factor for successful implementation of PPP is *availability of skilled professionals/advisors* (Table-8). This factor obtains a mean value of 4.21 and ranks in tenth position. In PPP

projects, skilled professionals are required for project feasibility study, preparing bidding documents and conducting bid, negotiating with parties, managing contract, monitoring project progress, etc. Availability of expert professionals will help speeding up PPP implementation with affordable costs.

5.2.1.12. *Availability of long-term credit from financial institutions* has been ranked in eleventh position (mean value 4.19). Accessibility of long-term fund from financial institutions is an incentive to private sector to take part in PPP projects (Akintoye et al., 2001b). In country like Bangladesh where widely used long-term financing sources such as capital market, insurance and pension etc., are inaccessible, financial institutions including banks are the last resort for long-term funding. In Bangladesh, several domestic and international banks have developed expertise and experience in financing large projects through syndication in large commercial projects. But this expertise is yet to be utilized in infrastructure projects. Financial market has to be developed adequately to match the long-term financing requirements for PPP projects.

5.2.1.13. *Sponsors' capability to provide adequate equity* with mean value 4.18 is another crucial factor for the success of PPP projects. Sponsors' funding will build the foundation of financial closure of PPP projects and lenders' fund will leverage process. Capacity to inject adequate equity not only builds the confidence of the public sector to grant the project, but also creates interest to financial institutions to participate in PPP projects. Sponsors' equity also works as cushion against any unforeseen contingencies.

5.2.1.14. *A number of other CSFs* have been indicated by respondents for the implementation of PPP projects. These are included *inter agencies/inter-ministerial coordination* (mean value 4.13), *adequacy of project's cash flow* (mean value 4.11), *clear outcome indicators* (mean value 4.10), *quality of environmental and social impact*

assessment (mean value 4.09), quality of private consortium and international joint venture partner (mean value 4.00), strong public demand for project (mean value 3.98), PPP in line with sectoral priority of government (mean value 3.97) etc.

5.2.1.15. The above ranking has been done based on mean of all respondents from line ministries, banks/NBFIs, and sponsor. However, all CSFs are not equally considered as important by each group of respondents. For example, *identification of right projects* has been marked as the top-ranking CSF both by all the respondents and banks/NBFIs group whereas line ministries/government agencies perceive this factor as the second ranked CSF, and sponsors perceive it as the third ranked CSF. Line ministries/government agencies consider *transparent procurement process* to be the top most CSF whereas banks/NBFIs think of *availability of long-term credit from financial institutions* as the top most CSF. The rankings of the perceived importance of all the factors from different point of views are depicted in table 5.2.

5.3.2 Perceived Top 20 CSFs of PPP Implementation

The top 20 out of 41 CSFs have been listed in Table 5.3. The first ranked CSF *identification of right project* belongs to Project Development and Procurement, second factor *appropriate risk allocation and sharing* belongs to Risk Sharing between Public and Private Parties, third ranked factor *project management capacity of private sector* belongs to Technical part, fourth positioned factor *continuity of policy support* belongs to Political and Policy Environment, and fifth factor land acquisition and resettlement belongs to Political and Policy Environment. Among the 20 factors, 18 factors have mean value greater than 4.00. On the other hand, over 20 factors, four factors are related to project development and procurement, three factors are related to each of financing; political and policy environment; social and environmental, and technical part, two factors

are related to government support and control and one factor is associated with both risk sharing between public and private parties; and macroeconomic environment.

Table 5.3: Top 20 CSFs based on Respondents' Perceptions

Critical Success Factors	Total	
	Mean	Rank
Project Development and Procurement		
Identification of right projects	4.56	1
Comprehensive feasibility study by transaction advisor in coordination with PPP authority	4.23	9
Clear outcome indicators	4.10	16
Transparent procurement process	4.29	6
Financial		
Sponsors' capability to provide adequate equity	4.19	12
Availability of long-term credit from financial institutions	4.19	11
Adequacy of project's cash flow (CF)	4.11	15
Political and Policy Environment		
Land acquisition and resettlement	4.29	5
Certainty of contract enforcement	4.27	7
Continuity of policy support	4.29	4
Social and Environmental		
Strong public demand for project	3.98	19
Proper rehabilitation and settlement of affected people	4.13	14
Quality of Environmental and Social Impact Assessment (ESIA)	4.10	17
Technical		
Project management capacity of private sector	4.31	3
Quality of private consortium and international joint venture partner	4.00	18
Availability of skilled professionals/advisors	4.21	10
Risk Sharing between Public and Private Parties		
Appropriate risk allocation and sharing	4.32	2
Macroeconomic Environment		
PPP in line with sectoral priority of government	3.97	20
Government Support and Control		
Inter agencies/ Inter ministerial coordination	4.13	13
Coordination between public and private stakeholders	4.26	8

Source: Authors' calculation based on survey data

5.3.3 Factor Analysis (FA) of CSFs for PPP Implementation

Factor analysis (FA) is used here to reduce a large number of variables into fewer numbers of factors. This technique extracts maximum common variance from all variables and puts them into a common score.

Various tests were required to examine the appropriateness of FA for the extraction. The KMO measure of sampling adequacy and Bartlett's test of Sphericity for the extraction individual factors were conducted. The value of the test statistic for Sphericity was large (Bartlett test of Sphericity is 497.901) and the associated significance level was small ($p=0.000$), suggesting that the population correlation matrix is not an identity matrix (See Appendix-1). All the variables show a significant correlation at the 5 percent level, suggesting that there is no need to eliminate any of the variables for the principal component analysis. The value of the KMO statistic is 0.675, which according to Kaiser (Norusis, 1992) is satisfactory for factor analysis. The overall α value for the 41CSFs was 0.923, indicating that there is good internal consistency reliability.

In the first stage, Principal Component Analysis (PCA) is done and it produces an eight-factor solution with eigenvalues greater than 1, explaining 64.671 percent of the variance, as shown in Table 5.4. The remaining factors together accounted for 35.329 percent of the variance. Table 5.5 shows the factor grouping based on varimax rotation. Each factor belongs to only one of the groups, with the factor loading exceeding 0.50.

Table 5.4: Total Rotated Factor Variance Explained for Critical Success Factors for PPP/ PFI Projects

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	Percent of Variance	Cumulative Percent	Total	Percent of Variance	Cumulative Percent
1	10.935	26.670	26.670	10.935	26.670	26.670
2	3.561	8.686	35.356	3.561	8.686	35.356
3	2.767	6.750	42.106	2.767	6.750	42.106
4	2.201	5.368	47.473	2.201	5.368	47.473
5	2.012	4.907	52.381	2.012	4.907	52.381
6	1.733	4.470	56.851	1.833	4.470	56.851
7	1.460	4.048	60.899	1.660	4.048	60.899
8	1.146	3.772	64.671	1.546	3.772	64.671
9	.995	3.478	68.149			
10	.992	3.054	71.203			
11	.895	2.775	73.977			
12	.874	2.682	76.660			
13	.828	2.427	79.087			
14	.807	2.419	81.506			
15	.762	2.183	83.689			
16	.708	1.726	85.415			
17	.661	1.612	87.027			
18	.619	1.510	88.537			
19	.557	1.358	89.895			
20	.462	1.126	91.021			
21	.438	1.068	92.089			
22	.407	.993	93.083			
23	.364	.888	93.971			
24	.354	.864	94.835			
25	.302	.736	95.571			
26	.276	.673	96.245			
27	.269	.655	96.900			
28	.240	.586	97.486			
29	.182	.444	97.929			
30	.147	.358	98.287			
31	.128	.312	98.599			
32	.118	.288	98.887			
33	.114	.279	99.166			
34	.087	.213	99.379			
35	.069	.169	99.548			
36	.055	.134	99.683			
37	.041	.100	99.783			
38	.034	.082	99.865			

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	Percent of Variance	Cumulative Percent	Total	Percent of Variance	Cumulative Percent
39	.028	.068	99.933			
40	.020	.049	99.982			
41	.007	.018	100.000			

Note: Extraction Method: Principal Component Analysis

In order to facilitate the explanation of the results of FA, it is necessary to assign an identifiable, collective name to the groups of individual factors of high correlation coefficients, as each of the underlying grouped factors is an aggregation of individual factors (Sato, 2005). It is important to note that the suggested name of the groups is subjective and researchers may use a different name. PCA produced an eight-factor solution with eigenvalues greater than 1. Each variable belongs to only one of the factors, with the loading on each factor exceeding 0.50. It is noticed that the 11 factors out of 41 factors do not belong to any of the factor groupings since their factor loading were below 0.5, and therefore cannot be grouped in this way. Finally, a total of 30 factors were grouped under the eight underlying grouped factors. The name of the groups was identified as follows:

Factor Group 1: Project Development and Procurement

Factor Group 2: Financial

Factor Group 3: Technical

Factor Group 4: Political and Policy Environment

Factor Group 5: Social and Environmental

Factor Group 6: Risk Sharing between Public and Private Parties

Factor Group 7: Macroeconomic Environment

Factor Group 8: Government Support and Control

5.3.4 Explanation of the Underlying Grouped CSFs of PPP

Factor Group 1: Project Development and Procurement

This factor grouping accounts for 26.67 percent of the total variances between critical success factors (Table-5.4). This underlying group consists of seven CSFs including: competitive procurement process, availability of project development fund (PPP Technical Assistance Fund), clear outcome indicators, transparent procurement process, comprehensive feasibility study, clear project brief and design development, and identification of right projects. An effective project development and procurement process is highly important for the success of PPP project. Competitive procurement process and availability of project development fund demonstrate high loading (significance 0.812 and 0.808, respectively). The other two high loading components are clear outcome indicators and the transparent procurement process those enhance project value for money with a loading of 0.740 and 0.734. In order to get the success from a PPP project a comprehensive feasibility study, clear project brief and design development, and identification of right projects are also the significant components.

Factor Group 2: Financial Factors

This principal factor is responsible for 8.68 percent of the total variances of critical success factors (Table 5.4). There are six CSF components in the financial factors group those are adequacy of project's Cash Flow (CF), availability of long-term credit from FIs, sponsors' capability to provide adequate equity, mature capital market with diversified instruments, acceptable level of tariff/toll, and financial institutions' control over project CF. The first factor under this group is adequacy of project's cash flow followed by availability of long-term credit from FIs with factor loading of 0.757 and 0.697. Sponsors' capability to provide adequate equity and mature capital market with diversified instruments are also significant CSFs in

Bangladesh (factor loading is 0.644 and 0.627). Acceptable level of tariff/toll to the society and financial institutions' control over project CF should also be ensured.

Table 5.5: Rotated Factor Matrix (Loading) of Critical Success Factors

Factor Components	Component							
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Competitive procurement process	.812							
Availability of project development fund	.808							
Clear outcome indicators	.740							
Transparent procurement process	.734							
Comprehensive feasibility study	.712							
Clear project brief and design development	.647							
Identification of right projects	.639							
Adequacy of project's cashflow (CF)		.757						
Availability of long term credit from FIs		.697						
Sponsors' capability to provide adequate equity		.644						
Mature capital mkt. with diversified instruments		.627						
Acceptable level of tariff/toll		.570						
Financial institutions' control over project CF		.560						
Availability of skilled professionals/advisors			.671					
Presence of appropriate exit clause in contract			.669					

Factor Components	Component							
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8
Quality of private consortium and international joint venture partner			.661					
Continuity of joint venture partner			.652					
Land acquisition and resettlement				.732				
Continuity of policy support				.709				
Certainty of contract enforcement				.577				
Trustworthiness and image of private sector					.748			
Appropriate risk allocation and sharing					.709			
Institutional arrangement for public sector risk management					.697			
Incentive in macroeconomic policy						.751		
Country risk rating						.738		
PPP in line with sectoral priority of government						.708		
Public/community support							.726	
Strong public demand for project							.523	
Constant monitoring by line ministries/agencies								.791
Coordination between public and private stakeholders								.748

Notes: Extraction method: Principal Component Analysis.

Rotation method: Varimax with Kaiser Normalization.

Factor Group-3: Technical

The third principal factor is *technical* with 6.75 percent (Table-5.4) of total variance in the factor analysis meaning that it has significance of 6.75 percent in factor analysis. In technical issues, skilled professionals and advisors with 0.671 and exit clause with loading components of 0.669 are demonstrating highly important CSFs for technical feasibility. These are followed by continuity of joint venture partner and quality of private consortium and international. It is, therefore, revealed that technical feasibility covering aforesaid issues are required to be considered in undertaking PPP projects.

Factor Group-4: Political and Policy Environment

Political and policy environment is imperative particularly in developing country. It is also significant for PPP in Bangladesh as it is showing 5.368 percent of total variance (Table-5.4). In this principal factor, land acquisition and resettlement have been contemplated as the most important variable with loading components of 0.732. Quick settlement of land is therefore an important precondition for adopting PPP. Continuity of policy support and certainty of contract enforcement are not also lagging behind as both components have 0.709 and 0.577 loading value, respectively.

Factor Group-5: Social and Environmental

This group consisting of two CSFs like public/community support and strong public demand for project with loading component 0.726 and 0.523 is indicating significant of both CSFs in adopting PPP. It is therefore suggested that enough discussion is necessary to be conducted among stakeholders for having community support and creating public demand before undertaking any PPP project

Factor Group-6: Risk Sharing between Public and Private Sector

The CSF with the highest factor loading in this group is trustworthiness and image of private sector. It accounts of 0.748 factors loading. It is

well recognized that success of a PPP initiative mostly depends on experience and excellent track record of private partner in the same nature of project. It is expected that private sector will be selected without undue influence. The other two CSFs namely appropriate risk allocations and institutional arrangement for public sector risk management with factor loading of 0.709 and 0.697 respectively are also showing almost same importance in this group. In this case, some forms of govt. guarantee, joint investment funding and supplemental periodic service payment might be needed to be considered.

Factor Group-7: Macro Economic Environment

This factor grouping is responsible for 4.048 percent (Table-5.4) of the total factor variance in CSFs. Incentive in macroeconomic policy, country risk rating and PPP in line with sectoral priority of Govt. are in this group. A high leading is given to incentive in more economic policy. It indicates that stable macroeconomic policy along with proper incentives in the mode of tax, subsidy, and guarantee can increase the possibility of success of PPP project.

Factor Group-8: Govt. Support and Control

This factor is sharing 3.772 variability among all critical success factors. Under this factor grouping, two CSFs components are found. The constant monitoring by line ministries shares the high loading of 0.791. It shows that a capable monitoring team with competent members is required to be formed for monitoring the progress of the project. Proper coordination between public and private stakeholder, till completion of the project, is also noticed highly important.

5.4 Findings and Discussion of Constraints

Considerable studies have been conducted to assess the barriers to successful PPP implementation in different countries. However, such kind of research, to the best of researchers' knowledge, is almost absent in Bangladesh. Therefore, the current research also aimed to

empirically evaluate and identify the constraints in PPP implementation in Bangladesh. The study identified 21 constraining factors from different previous studies and examined the relevance and severity of the constraints in Bangladesh based on descriptive and factor analysis those are presented in following sections.

5.4.1 Mean Score Ranking of the Perceived Importance of Constraints in PPP Implementation

This section delineates the ranking of the perceived importance of constraints in PPP implementation in Bangladesh. These factors have been classified into two sub-headings viz., financial and non-financial. Table-5.6 shows the ranking of constraints from combined as well as from individual respondent group's point of view. *Immature bond market* has been opined as the top-ranking constraint by all respondents obtaining mean value of 4.06. Banks/NBFIs and sponsors groups have also echoed with the opinion of combined respondents (mean value 4.19 for banks/NBFIs group and 4.43 for sponsors group). But respondents from the line ministries/government agencies differ from this view. They have identified 'immature bond market' as the fourth important constraint (mean value 3.79). However, respondents from the group of line ministries/ Govt. agencies think that *lack of long-term financing* from banks/ financial institutions is the top most constrain (mean value 4.17) in implementing PPP in Bangladesh.

The second crucial constraint as pronounced by the overall respondent group and banks/ NBFIs group is the *long-term financing* (mean value 4.05 for combined group and 3.97 for banks/ NBFIs group). This factor has been ranked as the top by line ministries/ government agencies group. The sponsors have marked this factor as the sixth important constraint (mean value 4.00). Sponsors perceive that delays in bidding and implementation of project due to political intervention is the second vital constraint in implementation of PPP with a mean value of 4.43.

Table 5.6: Respondents' Perceptions about Constraints of PPP Implementation

Constraints	Line ministry/ Govt.		Banks/ NBFIs		Sponsor		Total	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Financial								
Difficulties in raising adequate fund	3.79	3	3.52	10	4.14	3	3.69	5
High project costs	3.58	6	3.74	5	3.43	15	3.65	7
Lack of long-term financing	4.17	1	3.97	2	4.00	6	4.05	2
High cost of project financing	4.04	2	3.55	9	3.71	10	3.76	4
Problems of delays in receiving payments	3.46	9	3.26	16	3.57	11	3.37	12
High transaction cost	3.42	11	3.16	19	3.00	18	3.24	15
High charge to direct users	3.46	10	3.13	20	3.00	19	3.24	16
High participation costs	2.88	18	3.00	21	3.14	16	2.97	21
Lack of fund from donor agencies/ foreign fund	3.42	12	3.45	12	4.14	4	3.52	11
Immature bond market	3.79	4	4.19	1	4.43	1	4.06	1
Non-financial								
Lack of transparency in contract award	2.75	19	3.39	14	3.57	12	3.16	18
Credibility of the private sponsor(s)	3.37	15	3.32	15	3.00	20	3.31	14
Lack of Govt. officials' knowledge in PPP	3.54	7	3.58	8	3.86	8	3.60	10
Delays in bidding and implementation of project due to political intervention	3.62	5	3.71	7	4.43	2	3.76	3
Lack of policy continuity across	3.50	8	3.77	4	3.86	9	3.68	6

Constraints	Line ministry/ Govt.		Banks/ NBFIs		Sponsor		Total	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
different governments								
Standard evaluation criteria	3.38	13	3.23	17	3.57	13	3.32	13
Excessive restrictions on participation	3.00	17	3.45	13	2.86	21	3.21	17
Delays in negotiation	3.38	14	3.84	3	3.57	14	3.63	8
Lack of govt. guidelines and procedures on PPP	2.63	21	3.48	11	3.14	17	3.11	19
Limited exit options for private sponsor(s)	2.67	20	3.23	18	4.00	7	3.10	20
Misallocation and inappropriate risk sharing between public and private stakeholders	3.33	16	3.74	6	4.14	5	3.63	9

Source: Authors' calculation based on survey data

In terms of the combined ranking, *delays in bidding and implementation of project due to political intervention* has been cited as the third top critical factor in PPP implementation in Bangladesh. The combined mean value is 3.76. Although sponsors think the aforesaid factor as the second critical constraint (mean value 4.43), line ministries/government agencies ranked it as the fifth (mean value 3.62) and banks/NBFIs ranked it as the seventh (3.71) vital constraint.

High cost of project financing (mean value 3.76) and *difficulties in raising adequate fund* (mean value 3.69) have been identified as the fourth and fifth acute constraints by the combined group of respondents in PPP implementation, respectively. Table-5.6 presents the details of rankings of other factors creating hindrances in implementing PPP in Bangladesh.

5.4.2 Perceived Top 10 Constraints of PPP Implementation

The top 10 negative factors of PPP implementation in Bangladesh as per the opinions of all participants has been shown in Table-5.7. Out of the ten factors, 'immature bond market' has been identified as the most important constraint (mean value 4.06) for adoption of PPP in Bangladesh, followed by *lack of long-term financing* from financial banks/financial institutions (mean value 4.05) and so on. It is interesting to mention here that out of the 10 major constraints, financial factors have pre-dominance over non-financial factors in terms of order. Other significant constraint factors along with their mean values are presented in Table-5.7.

Table 5.7: Perceived Top 10 Constraints of PPP Implementation

Constraints	Total	
	Mean	Rank
Financial		
Immature bond market	4.06	1
Lack of long term financing	4.05	2
High cost of project financing	3.76	4
Difficulties in raising adequate fund	3.69	5
High project costs	3.65	7
Non-financial		
Delays in bidding and implementation of project due to political intervention	3.76	3
Lack of policy continuity across different governments	3.68	6
Delays in negotiation	3.63	8
Misallocation and inappropriate risk sharing between public and private stakeholders	3.63	9
Lack of Govt. officials' knowledge in PPP	3.60	10

Source: Authors' calculation based on survey data

5.4.3 Factor Analysis of Constraints for PPP Implementation

The value of the test statistic for Sphericity was large (Bartlett test of Sphericity is 690.151) and the associated significance level was small ($p=0.000$), suggesting that the population correlation matrix is not an identity matrix (See Appendix-II). All the variables show a significant correlation at the 5 percent level, suggesting that there is no need to

eliminate any of the variables for the principal component analysis. The value of the KMO statistic is 0.527, which according to Kaiser (Norusis, 1992) is satisfactory for factor analysis.

Principal component analysis produced a three-factor solution with eigenvalues greater than 1.000, explaining 51.943 percent of the variance, as shown in Table-5.8. The remaining factors together accounted for 48.057 percent of the variance. Table-5.9 shows the factor grouping based on varimax rotation. Each factor belongs to only one of the groups, with the factor loading exceeding 0.50.

Table 5.8: Total Rotated Factor Variance Explained for Constraints

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	Percent of	Cumulative	Total	Percent of	Cumulative
	Variance	Variance	Percent	Variance	Variance	Percent
1	4.693	27.110	27.110	5.693	27.110	27.110
2	2.449	14.994	42.104	3.149	14.994	42.104
3	1.266	9.839	51.943	2.066	9.839	51.943
4	.991	7.334	59.277			
5	.970	7.002	66.279			
6	.814	4.823	71.103			
7	.747	4.618	75.721			
8	.632	3.971	79.691			
9	.540	3.082	82.773			
10	.525	2.868	85.641			
11	.470	2.499	88.140			
12	.413	1.966	90.106			
13	.391	1.864	91.970			
14	.347	1.652	93.622			
15	.345	1.643	95.266			
16	.262	1.248	96.514			
17	.238	1.136	97.649			
18	.194	.922	98.572			
19	.159	.758	99.330			
20	.094	.447	99.777			
21	.047	.223	100.000			

Source: Authors' calculation

Note: Extraction Method: Principal Component Analysis.

PCA produced a three-factor solution with eigenvalues greater than 1. Each variable belongs to only one of the factors, with the loading on

each factor exceeding 0.50. It is noticed that the 8 factors out of 21 factors do not included with any of the factor groupings since their factor loading were below 0.5, and therefore cannot be grouped in this way. Finally, a total of 13 factors were grouped under the three underlying grouped factors. The name of the groups was identified as follows:

Factor Group 1: Non-financial

Factor Group 2: Financial-Financing

Factor Group 3: Financial-cost and charges

5.4.4 Explanation of the Underlying Grouped Constraints of PPP

Factor Group 1: Non-financial

This factor grouping accounts for 27.11 percent of the total variances between constraining factors (Table-5.8). This underlying group consists of six constraints including credibility of the private sponsor(s), lack of transparency in contract award, limited exit options for private sponsor(s), delays in negotiation, excessive restrictions on participation, and delays in bidding and implementation of project due to political intervention (Table-5.9). The lack of credibility of the private sponsor(s) and transparency in contract award are the two important constraining factors for PPP implementation in Bangladesh with a loading of 0.810 and 0.753. PPP project should have the appropriate exit option for the sponsor and requires prompt bidding and negotiation. These are the important constraining factors with the loading of 0.745, 0.723 and 0.624.

Factor Group 2: Financial-Financing

The second factor group is responsible for 14.99 percent of the total variances of constraining factors (Table-5.8). There are four components in the financial-financing factors group, those are problems of delays in receiving payments, lack of fund from donor

agencies/foreign fund, immature bond market or lack of diversified financial instruments, and lack of long-term financing (Table-5.9). The prompt reception of payment among different units and availability of funds from the donor agencies for the developing countries are very much essential for PPP project implementation. These two financing factors occupy the highest significant loading of 0.791 and 0.751. The other two important financing factors are immature bond market or lack of diversified financial instruments, and lack of long-term financing with factor loading of 0.694 and 0.629. Although efficient bond market is highly required for the development of infrastructure project under PPP, Bangladesh lacks mature bond market with diversified instruments except very few government and corporate bond those are not targeted for the PPP project. PPP projects in Bangladesh lack long term financing specially the funds generated from bank or NBFIs due to the asset liability mismatch of banks and their perceived riskiness in future cash flow.

Table 5.9: Rotated Factor Matrix (loading) of Constraints

Factor components	Component		
	Factor 1	Factor 2	Factor 3
Non-financial			
Credibility of the private sponsor(s)	.810		
Lack of transparency in contract award	.753		
Limited exit options for private sponsor(s)	.745		
Delays in negotiation	.723		
Excessive restrictions on participation	.685		
Delays in bidding and implementation of project due to political intervention	.624		
Financial-Financing			
Problems of delays in receiving payments		.791	
Lack of fund from donor agencies/foreign fund		.758	
Immature bond market or lack of diversified financial instruments		.694	
Lack of long term financing		.629	
Financial- Cost and Charges			
High cost of project financing			.834
High charge to direct users			.769

Factor components	Component		
	Factor 1	Factor 2	Factor 3
High transaction cost			.715

Source: Authors' calculation

Notes: Extraction method: Principal Component Analysis.

Rotation method: Varimax with Kaiser normalization.

Factor Group 3: Financial-cost and Charges

The third factor group, financial-cost and charges, is responsible for 9.84 percent of the total variances of constraining factors (Table-5.8). There are three components in this group those are high cost of project financing, high charge to direct users and high transaction cost (Table-5.9: significance level is 0.834, 0.769 and 0.715 respectably). In Bangladesh, the project cost is usually high due to long tenure of project completion, lack of technical know-how and technological deficiency, lack of fund availability and others. On the other hand, charge to direct users as well as high transaction cost are the severe constraints for PPP implementation in Bangladesh.

5.5 Findings and Discussion of Challenges

5.5.1 Mean Score Ranking of the Perceived Importance of Challenges in PPP Implementation

It is evident that cost and time overrun has been mentioned as the top most challenge by overall respondents (4.03) and Banks/NBFIs (mean value 4.16) to implement PPP in Bangladesh (Table-5.10). Respondents from line ministries/government agencies have identified this factor as the second ranked (mean value 3.96), whereas sponsors have marked this as the fifth (mean value 3.71) critical challenge. Overall respondents ranked project appraisal/ feasibility (mean value 3.84) as the second critical challenge for implementing PPP.

Banks/NBFIs respondents' group individually support this finding (mean value 3.94). However, sponsors rank this factor as the third (mean value 3.86) and line ministries/government agencies rank it as the fourth (mean value 3.71) significant challenge, respectively.

Project monitoring by government is the third (mean value 3.84) critical challenge as opined by all respondents and by the respondents from banks/NBFIs group (mean value 3.94), although sponsors have accredited this factor as the top most (mean value 4.43) challenge. On the other hand, respondents from line ministries/ government agencies group perceive this factor as less challenging. Other important challenges have been outlined in Table-5.10.

Table 5.10: Survey Respondents' Perceptions of the Level of Challenges

Challenges	Line Ministry/ Govt.		Banks/ NBFIs		Sponsor		Total	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Transparency	3.96	1	3.71	5	3.29	9	3.76	4
Project appraisal/ feasibility	3.71	4	3.94	2	3.86	3	3.84	2
Non-recourse financing mechanism	3.42	11	3.65	8	3.29	10	3.52	10
Cost and time overruns	3.96	2	4.16	1	3.71	5	4.03	1
Tariff/toll not being adequate	3.54	8	3.65	7	3.43	7	3.58	9
Risk mitigation	3.79	3	3.35	11	3.14	11	3.5	11
Government guarantee	3.67	5	3.45	10	4	2	3.6	7
Sources and modes of financing	3.58	7	3.55	9	3.86	4	3.6	8
Project monitoring by Govt.	3.5	9	3.94	3	4.43	1	3.82	3
Corporate governance	3.5	10	3.68	6	3.71	6	3.61	6
Capacity building	3.67	6	3.74	4	3.29	8	3.66	5

Source: Authors' calculation based on survey data

5.5.2 Perceived Top 5 Challenges of PPP Implementation

Top five critical challenges have been demonstrated in Table-5.11. Clearly, cost and time overrun (mean value 4.03) is the biggest challenge for implementing PPP in Bangladesh, followed by project appraisal/feasibility analysis (mean value 3.84). Capacity building of

the stakeholders is the fifth (mean value 3.66) critical challenge in PPP implementation.

Table 5.11: Perceived Top 5 Challenges of PPP Implementation

Challenges	Total	
	Mean	Rank
Cost and time overruns	4.03	1
Project appraisal/feasibility	3.84	2
Project monitoring by Government	3.82	3
Transparency	3.76	4
Capacity building	3.66	5

Source: Authors' calculation based on survey data

5.5.3 Factor Analysis of Challenges for PPP Implementation

The value of the test statistic for sphericity was large (Bartlett test of sphericity is 229.945) and the associated significance level was small ($p=0.000$), suggesting that the population correlation matrix is not an identity matrix (See Appendix III). All the variables show a significant correlation at the 5percent level, suggesting that there is no need to eliminate any of the variables for the principal component analysis. The value of the KMO statistic is 0.721, which according to Kaiser (Norusis, 1992) is satisfactory for factor analysis. The overall α value for the 21 constraints is 0.813, indicating that there is good internal consistency reliability.

Principal component analysis produced a three-factor solution with eigenvalues greater than 1.000, explaining 61.576 percent of the variance, as shown in Table 5.12. The remaining factors together accounted for 38.424 percent of the variance. Table-5.13 shows the factor grouping based on varimax rotation. Each factor belongs to only one of the groups, with the factor loading exceeding 0.50.

Table 5.12: Total Rotated Factor Variance Explained for Challenges

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	percent of Variance	Cumulative percent	Total	percent of Variance	Cumulative percent
1	3.993	36.298	36.298	3.993	36.298	36.298
2	1.491	13.554	49.852	1.491	13.554	49.852
3	1.290	11.725	61.576	1.290	11.725	61.576
4	.929	9.358	70.934			
5	.754	6.856	77.790			
6	.623	5.665	83.456			
7	.550	5.003	88.459			
8	.471	4.284	92.743			
9	.331	3.010	95.753			
10	.265	2.413	98.166			
11	.202	1.834	100.000			

Source: Authors' calculation

Note: Extraction Method: Principal Component Analysis.

PCA produced a three-factor solution with eigenvalues greater than 1. Each variable belongs to only one of the factors, with the loading on each factor exceeding 0.50. It is noticed that the 3 factors out of 11 factors are not included with any of the factor groupings since their factor loading were below 0.5, and therefore cannot be grouped in this way. Finally, a total of 8 factors were grouped under the three underlying grouped factors. The name of the groups was identified as follows:

Factor Group 1: Financial factors

Factor Group 2: Government efficiency

Factor Group 3: Private sector compliance and efficiency

5.5.4 Explanation of the Underlying Grouped Challenges of PPP

Factor Group 1: Financial Factors

The first factor grouping accounts for 36.30 percent of the total variances between constraining factors (Table-5.12). This underlying

group consists of three components those are sources and modes of financing, tariff/toll not being adequate and cost and time overruns (Table 5.13). The financing sources and their modes are very challenges for PPP implementation which accounts the significance of loading 0.743. PPP requires long term financing (loading 0.720). However, the sources and instruments for this long term need are not sufficient in Bangladesh. Since PPP is the public desired project and implemented by the government, sometimes the toll or tariff collected from the particular project are not adequate (loading 0.667) and therefore the private sector does not get interest to invest. The other challenging factor is the cost and time overruns of the project. This is a common phenomenon in Bangladesh that the project cannot be implemented within the planned time and budget.

Factor Group 2: Government Efficiency

The second factor group is responsible for 13.55 percent of the total variances of constraining factors (Table-5.12). There are three components in the government efficiency factors group those are capacity building, transparency and project monitoring by government (Table-5.13). The first important challenge is the capacity building with factor loading of 0.858. Since PPP is a relatively new concept in Bangladesh, relevant training, workshop, seminar should be arranged for capacity building regarding PPP concepts, techniques, legal issue, etc. for different stakeholders especially for the line ministries/ implementing agencies and other government agencies. The second important component is the transparency with factor loading of 0.748. As PPP projects are large in size and the implementation of those is very much challenging, the selection of private sector partners will be done strictly on the basis of their financial and technical capacity. Project awarding should also be transparent and unbiased. The third factor in this group is the project monitoring by government (loading

0.643). From the initiation to the operation, the whole life project monitoring is a great challenge for the government.

Table 5.13: Rotated Factor Matrix (loading) of Challenges

Factor components	Component		
	Factor 1	Factor 2	Factor 3
Sources and modes of financing	.743		
Tariff/toll not being adequate	.720		
Cost and time overruns	.667		
Capacity building		.858	
Transparency		.748	
Project monitoring by government		.643	
Risk mitigation			.781
Corporate governance			.647

Source: Authors' calculation

Notes: Extraction method: Principal Component Analysis.

Rotation method: Varimax with Kaiser normalization.

Factor Group 3: Private Sector Compliance and Efficiency

The third factor group, private sector compliance and efficiency, is responsible for 11.72 percent of the total variances of constraining factors (Table-5.12). There are two components in this group those are risk mitigation and corporate governance (Table 5.13). The first factor is the risk mitigation with factor loading of 0.781. Infrastructure projects in developing and under developed countries are perceived as unusually vulnerable to risks, which constraints financing. Equity investors may be willing to accept higher levels of risk in return for higher expected returns on their equity, but lenders typically have a lower tolerance for risk and a greater need for risk mitigation mechanism. The second important challenge is corporate governance with factor loading 0.647. Good corporate governance will succeed in attracting a better deal of public interest because of its apparent importance for the economic health of corporates and society in general. The corporate governance practices of the parties involving in PPP have to match with the benchmarking corporate governance practices with the best in the rest of the world.

6. Interview Findings Conducted among Three Groups of Stakeholders

The researchers have conducted face to face interview of the three groups of respondents who are actively involved in implementing PPP in Bangladesh. The interviewees include several private sponsors who are currently implementing PPP projects; government high officials (including few PPP project directors) from various line ministries/governments agencies such as ministry of finance, PPP unit, Bangladesh Parjatan Corporation, Bangladesh Bridge Authority, Roads and Highway department, Bangladesh Economic Zones Authority, Civil Aviation Authority, Bangladesh Investment Development Authority, PPP Authority, etc. and top executives from different banks/NBFIs who have experiences and expertise in financing PPP project. Apart from the structured set of questions about CSFs, constraints and challenges, the interviewees were requested to identify CSFs, barriers and challenges which are particularly relevant in the context of Bangladesh PPP projects. The interviewees have mentioned about some CSFs and specific impediments of implementing PPP in Bangladesh. They have also provided their suggestions to overcome the challenges.

The interviewees from the line ministries/government agencies have mentioned that familiarization of PPP concept among top level management of government, creation of positive mindset of government officials towards PPP, Transparency of the implementing agency and the decision makers, identifying PPP projects based on actual public demand and financial feasibility (with or without VGF), capacity building at the agency level and policy level, retaining the trained up officials at the same desk after training, stringent enforceability of PPP agreement, timely delivery of projects, etc. are the CSFs in the context of Bangladesh.

Among the significant constraints as identified by line ministries/government agencies are lack of long-term financial sources, lack of risk mitigation strategy, lack of detailed project preparation and development, less availability of low risk investment opportunity, inadequacy of project development fund and VGF, lack of proper project monitoring, etc.

The interviewees from this group have put forward some overall suggestions to overcome the challenges to implement PPP projects in Bangladesh. The major suggestions include maintaining transparency and accountability throughout the project life by the stakeholders, expediting project approval and awarding process, stakeholders' consultation to finalize the feasibility reports depending on PPP model, proper project implementation monitoring by government party, ensuring enforceability of PPP contract, bond market development, taking more risk by the Government sector initially (such currency risk and demand risk), proactive role by implementing agencies, etc. Table-6.1 shows the summary of the interview findings from the line ministries/government agencies.

Table 6.1: Summary of Interview Findings from the Line Ministries/ Government Agencies

Interviewee Group	Area	Findings of the Interviews
Ministries/ Government Agencies	CSFs	<ul style="list-style-type: none"> • familiarization of PPP concept among top level management of government, • creation of positive mindset of government officials towards PPP, • transparency of the implementing agency and the decision makers, • identifying PPP projects based on actual public demand and financial feasibility (with or without VGF), • capacity building at the agency level and policy level, • retaining the trained-up officials at the same desk after training,

Interviewee Group	Area	Findings of the Interviews
		<ul style="list-style-type: none"> • stringent enforceability of PPP agreement, • timely delivery of projects
	Constraints	<ul style="list-style-type: none"> • lack of long-term financial sources, • lack of risk mitigation strategy, • lack of detailed project preparation and development, • less availability of low risk investment opportunity, • inadequacy of project development fund and VGF, • lack of proper project monitoring
	Suggestions to Overcome the Challenges	<ul style="list-style-type: none"> • maintaining transparency and accountability throughout the project life by the stakeholders, • expediting project approval and awarding process, • stakeholders' consultation to finalize the feasibility reports depending on PPP model, • proper project implementation monitoring by government party, • ensuring enforceability of PPP contract, • bond market development, • taking more risk by the Government sector initially (such currency risk and demand risk), • proactive role by implementing agencies

Source: Authors' compilation

The interviewees from the banks/ NBFIs have mentioned that proper coordination among stakeholders, transparency in selecting private sponsors, clear project outline, government guarantee, realistic feasibility study, mutual trust between public and private partners, policy continuity, adequate sharing of risk, etc. are the CSFs in implementing PPP in Bangladesh.

The major constraints they articulated are lack of awareness and positive attitude of government officials toward PPP projects, lack of project planning, poor contract design, coordination gap among the stakeholders, lack of expertise to conduct due diligences on technical, environmental and social issues of the PPP projects, lack of matching fund to provide long term and low cost loan to PPP projects, lack of

long term credit appetite by lenders, lack of mechanism to minimize risks by private party in PPP projects, lack of guarantee to get minimum return from the projects, lack of central bank's policy direction to finance PPP projects, etc.

To overcome the challenges in implementing PPP projects, interviewees from this group have suggested the following: sensitization of government officials on PPP initiatives, ensuring synergy and coherence among the line ministries on awarding of PPP projects and their implementations, improving bureaucracy and corruption situations, adequate sharing of risk, simplify the bureaucratic difficulties in PPP process, building transparency and trust among the stakeholders, balanced and controlled monitoring of PPP projects implementation by banks/NBFIs along with government party, developing bond and capital market as sources of alternative fund for the PPP projects. Table 6.2 shows the summary of the interview findings from the banks/ NBFIs.

Table 6.2: Summary of Interview Findings from the Banks/ NBFIs

Interviewee Group	Area	Findings of the Interviews
Ministries/ Government Agencies	CSFs	<ul style="list-style-type: none"> • familiarization of PPP concept among top level management of government, • creation of positive mindset of government officials towards PPP, • transparency of the implementing agency and the decision makers, • identifying PPP projects based on actual public demand and financial feasibility (with or without VGF), • capacity building at the agency level and policy level, • retaining the trained-up officials at the same desk after training, • stringent enforceability of PPP agreement, • timely delivery of projects
	Constraints	<ul style="list-style-type: none"> • lack of long-term financial sources, • lack of risk mitigation strategy,

Interviewee Group	Area	Findings of the Interviews
		<ul style="list-style-type: none"> • lack of detailed project preparation and development, • less availability of low risk investment opportunity, • inadequacy of project development fund and VGF, • lack of proper project monitoring
	Suggestions to Overcome the Challenges	<ul style="list-style-type: none"> • maintaining transparency and accountability throughout the project life by the stakeholders, • expediting project approval and awarding process, • stakeholders' consultation to finalize the feasibility reports depending on PPP model, • proper project implementation monitoring by government party, • ensuring enforceability of PPP contract, • bond market development, • take more risk by the Government sector initially (such currency risk and demand risk), • proactive role by implementing agencies

Source: Authors' compilation

The third interviewee group, sponsor, indicates that alignment of the goals of public sector with private sector, independence of implementing agencies, maintaining transparency in awarding projects, proper coordination among stakeholders, strong feasibility study by transaction advisor conducted before implementing the tender process, reasonable government subsidy and support, sharing risks and rewards under a contractual obligation, expediting PPP implementation process, providing government guarantee to secure project risk for long-term low cost financing, adequate level of secured revenue from government authorities, availability of local long-term fund for PPP project, etc. are the CSFs in implementing PPP in Bangladesh.

The interviewees have mentioned a number of constraints in implementing PPP in Bangladesh. The major constraints as mentioned

by the sponsors are influence of public authority over the investment, reduction of bargaining position, high transaction costs, lack of commercial focus, lack of experience in project development, financial risk and political risk for private partner, difficulty in securing long term overseas investment due to country credit rating, delayed in appraisal process, lack of technical knowledge especially engineering to approval project development, extra ordinary cost overrun, corruption and bribery in project activities approval from different government agencies, mindset of government officials, etc.

A set of suggestions have been provided by the sponsors to overcome the challenges in implementing PPP in Bangladesh. The key suggestions are ensuring robust stakeholders' engagement through international and local road shows to attract clients' financial institutions, technical and strategic partners in PPP projects, establishing a private sector coordination division to implement projects more efficiently, providing government guarantee on revenue as well as loan guarantee by GOB, increasing VGF facility to make PPP projects commercially viable, Bangladesh bank's instruction to commercial banks to reserve fixed funds only for PPP projects or creating an independent fund for PPP projects, speeding up of execution of projects in every phases (planning to implementation), etc. Table-6.3 shows the summary of the interview findings from the sponsors.

Table 6.3: Summary of Interview Findings from the Sponsors

Interviewee Group	Area	Findings of the Interviews
Sponsors	CSFs	<ul style="list-style-type: none"> • alignment of the goals of public sector with private sector, • independence of implementing agencies, • maintaining transparency in awarding projects, • proper coordination among stakeholders, • strong feasibility study by transaction advisor conducted before implementing the tender process,

Interviewee Group	Area	Findings of the Interviews
		<ul style="list-style-type: none"> • reasonable government subsidy and support, • sharing risks and rewards under a contractual obligation, • expediting PPP implementation process, • providing government guarantee to secure project risk for long-term low-cost financing, • adequate level of secured revenue from government authorities, • availability of local long-term fund for PPP project
	Constraints	<ul style="list-style-type: none"> • influence of public authority over the investment, • reduction of bargaining position, • high transaction costs, • lack of commercial focus, • lack of experience in project development, • financial risk and political risk for private partner, • difficulty in securing long term overseas investment due to country credit rating, • delayed in appraisal process, • lack of technical knowledge especially engineering to approval project development, • extra ordinary cost overrun, • corruption and bribery in project activities approval from different government agencies, • mindset of government officials
	Suggestions to Overcome the Challenges	<ul style="list-style-type: none"> • ensuring robust stakeholders' engagement through international and local road shows to attract clients' financial institutions, • technical and strategic partners in PPP projects, • establishing a private sector coordination division to implement projects more efficiently, • providing government guarantee on revenue as well as loan guarantee by GOB, • increasing VGF facility to make PPP projects commercially viable, • Bangladesh bank's instruction to commercial banks to reserve fixed funds only for PPP projects or creating an independent fund for PPP projects, • speeding up of execution of projects in every phases (planning to implementation)

7. Recommendations

The main objective of the paper was to highlight the financial and non-financial issues in implementing PPP in Bangladesh with the special focus to identify the CSFs, the constraining factors as well as the challenges for PPP implementation. The study has pointed out a number of CSFs, constraints and challenges from the previous studies and questionnaire survey. After analyzing the mean score results and applying factor analysis technique, the study identified the most crucial CSFs, constraints and challenges those are highly important for PPP implementation in Bangladesh. Based on the observations and findings as well as the discussions in the seminar (Appendix-V), the study recommends the required actions to ensure critical success factors for implementing PPP projects and to overcome the constraints and challenges for such implementation.

7.1 Critical Success Factors

▪ Land Acquisition and Resettlement

Land acquisition and resettlement have been identified as one of the important CSFs in PPP implementation in Bangladesh. Bangladesh faces severe scarcity of land for dwelling, cultivation as well as infrastructure provision. A significant portion of underprivileged people live in government spared land, nearby railway lines and premises, road sides, port regions where infrastructure projects are thought to be built up at large. As a result, success of many PPP projects significantly depends on smooth acquisition of required land and rehabilitation of the victims. In this regard, government and its related agencies should properly acquire the land with appropriate rehabilitation and compensation to the affected people.

▪ Coordination between Public and Private Stakeholders

Proper coordination between public and private stakeholders is a significant CSF for PPP implementation in Bangladesh. Proper

coordination among private sponsors, lenders and implementing agencies/line ministries will enhance the trust worthiness and bring harmony among the parties which in turn will lead to success of the projects. In this regard, implementing agency/line ministry should be proactive with respect to providing adequate information to all the concerned parties about the status of the projects. If required, inputs and opinions of potential private investor may be considered during the selection of consultants for the Detailed Feasibility Study (DFS) for ensuring transparency and avoiding information asymmetry. In fact, elimination of gap in project screening, approval, implementation, management, etc. may encourage the private parties including banks for participating in PPP projects.

▪ **Appropriate Risk Allocation and Sharing**

Appropriate risk allocation is a precondition for the success of PPP project in Bangladesh. Generally, the best practice in allocating risk in PPP projects entails that risks are to be allocated to the party which is best able to manage it. In theory, this approach reduces individual risk premiums and the overall cost of the project, because the party in the best position to manage a particular risk should be able to do so at the lowest price. Before entering into the contract, government bodies and the private parties should coordinate each other for proper risk allocation and sharing.

▪ **Transparent Procurement Process**

A widespread consensus exists among economists that transparency is crucial for the success of PPP projects. An effective procurement process should demonstrate transparency. As PPP projects are large in size and the implementation of those is very much challenging, project awarding should be transparent and unbiased. In this regard, instead of direct negotiation, the selection of private sector partners should be done through bidding process following international standard. The selection criteria of private sponsors done by line ministry/

implementing agency should also coincide with the criteria desired by the financiers (lenders). This can be done by ensuring that the terms of concession agreements are transparent and protective of public interest.

▪ **Identification of Right Projects**

Private sector and financiers (banks/ financial institutions) including foreign investors will be attracted to PPP projects if the government chooses appropriate projects in terms of creating value for money, social demand, service delivery, and high priority. Therefore, while selecting the PPP project, both government and private parties should list and rank the project according to their merits (in terms of cost and benefits) and finally should select as per social demand and priority.

▪ **Continuity of Policy Support**

Policy support and its continuity have close relationship with the project undertaking and implementation. Government may change by turn. But if the policy support continues, then stakeholders will get confidence which in turn will lead to the growth of PPP projects. Therefore, the terms and conditions as set by one government in its policy for PPP project should be continued for the same project until the completion of the project irrespective of the change of the government bodies.

Beside the aforesaid CSFs, others for PPP implementation in Bangladesh are project management capacity of private sector, certainty of contract enforcement, comprehensive feasibility study, availability of project development fund, adequacy of project's Cash Flow (CF), incentive in macroeconomic policy, trustworthiness and image of private sector, PPP in line with sectoral priority of government, and strong public demand for project. A good integration among different parties with proper policy and financial support based

on the project priority and social demands as well as the capacity building are also important for PPP implementation in Bangladesh.

7.2 Constraints

• High Cost of Project Financing

High cost of project financing is a significant constraining factor for PPP implementation in Bangladesh. There are several reasons for such high cost. Most of the project financing follow the non or limited recourse financing which increase the riskiness of project financing. Besides, return estimation is another problem as long term anticipation of cash flow is very difficult and more uncertain. In addition to that, project parties some time lose their control over the cash flow of the project. In order to reduce such cost, the sources of long term low cost financing should be identified. Government may provide guarantee to the private participants against the future cash flow. Moreover, project parties should search the low cost funds from the donor agencies (like World Bank, IFC) applying the mechanism through central bank.

• Lack of Transparency in Contract Award

Lack of transparency in contract award is identified as a vital constraining factor for PPP implementation in Bangladesh. A transparent and efficient procurement process is essential in lowering the transaction costs and shortening the time in negotiation and completing the deal. Competitive bidding solely considering price may not help secure a strong private consortium and to obtain value for money for the public. The government should take a long-term view in seeking the right partner. Transparency in tender processes, or negotiation, lies with the public client, private contractor and their advisers. The private sector should openly consult with the public sector and its adviser, while keeping responsibility for all decisions. Hence, government departments should establish three key conditions for successful competitive tender: a good tender list of firms invited to

bid; a clear specification in requirements; and competitive tension maintained throughout the procurement process.

- **Immature Bond Market or Lack of Diversified Financial Instruments**

Another important constraint of PPP implementation in Bangladesh is the immature bond market or lack of diversified financial instruments. Usually PPP projects are financed by 20-30 percent by equity and 70-80 percent by debt. One of the objectives of PPP implementation is to lessen the financial burden of the government. Hence, with the private sector financing, the availability of flexible and attractive financial instruments, such as debt, equity, supplier and purchaser credit, and securities, is considered essential to enable the private sector to finance the PPP projects. PPPs have a long lifecycle that on an average exceeds a period of 25 years. Therefore, active bond markets are essential for a sustainable supply of long-term funds in the phases of operation and maintenance of the infrastructure facilities. Lenders, especially commercial banks and other financial institutions which supply bulk of the project's funds, would be allowed to issue long-term bonds to raise funds for subsequent lending funds to infrastructure projects. This will help banks avoid asset-liability mismatches problems. In this regard, a strong and active domestic bond market is required to provide infrastructure funds which is almost absent in Bangladesh.

- **Limited Exit Options**

Limited exit option is a significant barrier to PPP implementation in Bangladesh. The best route for financial investors to exit from an infrastructure project is to sell their stake to the sponsors, which involves an upfront agreement between the financial investor and sponsor, including agreement on the minimum price at which the financial investor could sell the equity stake to the sponsor at a future date. Therefore, exit opportunities for the investors and lenders are important for the financial success of any PPP project. In Bangladesh, we have very limited option for the lenders and investors to come out

from their equity stake. This leaves a lot of uncertainty in the minds of investors and prevents them from negotiating a floor to their return. The sponsor should undertake the initiatives to offer the best exit option for the lenders and investors. Bringing the private sectors as an investor and operator requires the government to adjust and implement policies to enable a systematic, consistent and effective framework for private sector entry, operation and exit from the PPP market.

In addition to the above constraints, the study also identified some other constraints like difficulties in raising adequate fund, delays in negotiation, lack of government officials' knowledge in PPP, credibility of the private sponsor(s), delays in receiving payments, and high charge to direct users. Therefore, the policy makers and the concern authority should take remedy to overcome aforesaid constraints for successfully PPP implementation in Bangladesh.

7.3 Challenges

▪ Cost and Time Overruns

Cost and time overruns have been identified as significant challenges for the PPP implementation in Bangladesh. Many of the projects under the PPP are delayed due to litigations, which lead to cost and time overruns in their implementation. This problem should be reduced through implementation of the projects on schedule for attracting private sector towards infrastructure investment.

▪ Project Appraisal/ Feasibility

The finding revealed that project appraisal or feasibility is an important challenge for the PPP implementation. Execution of infrastructure projects should have a clear choice about its implementation whether by the Government or private or both under PPP. Also, the technicality of the project should be clear regarding its soundness, viability and return. Clear appraisal of the project before its execution would avoid many litigations. It is also important to avoid a possible bias in favor

of the private sector. Feasibility should be done from both the corner of government and private side so that the risks associated with the project can be properly identified.

▪ **Project Monitoring by Government**

Project monitoring by Government is a great challenge for PPP implementation. Success of PPP project depends on the constant monitoring and evaluation. Monitoring gives information about the current status of project at any given time (or over time) relative to respective targets and outcomes. Monitoring focuses on efficiency, and the use of resources. Projects operated by the private parties should effectively be monitored by the government to identify whether the project activity goes in line with the project objectives. For proper monitoring, government bodies should establish close link with the private parties engaged in the project. Government may have independent project monitoring cell from where the monitoring team can continuously follow the operation and provide feedback to the authority.

▪ **Capacity Building**

Capacity building is a vital challenge for PPP project implementation. For the success of PPP project, capacity building for both the private parties and government staff are highly required. In such capacity building, PPP related training, workshop, seminar may be arranged regarding PPP concepts, techniques, legal issue, etc. for line ministries/implementing agencies, private sponsors and other stakeholders. Prospective lenders such as banks/FIs should set up a separate and dedicated PPP unit for dealing with PPP projects. Moreover, adequate manpower with sufficient expertise would require to handle such projects. Bank executives may require training on PPP policy and legal issues, PPP theme, feasibility study and project evaluation process, financial modeling, legal aspects, project

documentation, risk management techniques, etc. so that they can handle PPP projects efficiently.

In addition to the aforesaid challenges, the study also identified many other challenges for PPP implementation in Bangladesh like corporate governance, government guarantee, inadequate tariff/toll, risk mitigation, non-recourse financing mechanism, etc. Therefore, to augment the infrastructure facilities with private participation, government and policy makers should ensure good governance, adequate sufficient guarantee, better risk transfer and non-recourse financing mechanism.

8. Conclusion

PPP is being considered as a viable option for infrastructure development as it releases governments' tight budgetary pressure by injecting private sector's resources, encouraging innovation, enhancing productivity, allowing better risk allocation, increasing value-for-money and improving cost effectiveness, and so on. In the perspective of significance of applying PPP techniques, it is necessary for regulator, policymakers and other stakeholders to know the critical success factors (CSFs), constraints and challenges for implementing PPP projects successfully.

Osei-Kyei and Chan did a study in 2015 by using meta-analysis for years 1990 to 2013 and indicated top 10 CSFs namely appropriate risk allocation and sharing, strong private consortium, political support, public/community support, transparent procurement, favorable legal framework, stable macroeconomic condition, competitive procurement, strong commitment by both parties, and clarity of roles and responsibilities among parties. The study also tries to trace out CSFs by using mean and factor analysis. As per mean analysis, the study recorded top ten factors. These are identification of right projects, land acquisition and resettlement, project management capacity of private sector, continuity of policy support, appropriate risk

allocation and sharing, transparent procurement process, certainty of contract enforcement, coordination between public and private stakeholders, comprehensive feasibility study by transaction advisor in coordination with PPP authority and availability of skilled professionals/ advisors. On the other hand, factor analysis defines top ten important CSFs which are competitive procurement process, availability of project development fund, constant monitoring by line ministries/ agencies, adequacy of project's cash flow (CF), incentive in macroeconomic policy, trustworthiness and image of the private sector, coordination between public and private stakeholders, PPP in line with sectoral priority of government, strong public demand for project and land acquisition and resettlement.

The growing constraints in PPP implementation motivated the researcher to conduct research on it. The study used a questionnaire survey to investigate the key constraints and implemented factor analysis to identify the constraining factors for PPP implementation. As per mean analysis, the study recorded top ten constraining factors which are immature bond market or lack of diversified financial instruments, lack of long term financing, delays in bidding and implementation of project due to political intervention, high cost of project financing, difficulties in raising adequate fund, lack of policy continuity across different governments, high project costs, delays in negotiation, misallocation and inappropriate risk sharing between public and private stakeholders and lack of government officials' knowledge in PPP. On the other hand, the study conducted factor analysis to identify the constraints based on the principal component analysis. The overall results suggest that high cost of project financing, credibility of the private sponsor(s), delays in receiving payments, high charge to direct users, lack of fund from donor agencies/ foreign fund, lack of transparency in contract award and limited exit options for private sponsor(s) are the most important constraining factors in Bangladesh.

In addition to the CSFs and constraining factors, the study also identified the challenging factors through the mean rank score and factor analysis. According to the mean score, the top five challenges for Bangladesh are cost and time overruns, project appraisal/feasibility, project monitoring by Government, transparency and the capacity building. On the other hand, the results of factor analysis revealed that transparency, risk mitigation, project monitoring by government, tariff/ toll not being adequate and cost and time overruns are the most significant challenges for PPP project implementation in Bangladesh.

Finally, from the overall analysis, the study identified that land acquisition and resettlement, coordination between public and private stakeholders, appropriate risk allocation and sharing, transparent procurement process are the most CSFs for PPP implementation in Bangladesh. Regarding the constraints the study found that high cost of project financing, lack of transparency in contract award and immature bond market or lack of diversified financial instruments are the severe constraints. The study findings also suggest that cost and time overruns, project monitoring by Government and transparency are the great challenges for PPP implementation in Bangladesh. Therefore, the study would like to draw the attention of the policymakers and other relevant stakeholders to take a greater look into these CSFs, constraints and challenges in order to make PPP initiative a success story in the infrastructure development of Bangladesh as happened in many of the developed and developing economies.

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Appendices

Appendix I: KMO and Bartlett's Test for CSFs

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.675
Bartlett's Test of Sphericity	Approx. Chi-Square	497.901
	df	182
	Sig.	.000

Appendix II: KMO and Bartlett's Test for Constraints

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.527
Bartlett's Test of Sphericity	Approx. Chi-Square	690.151
	df	210
	Sig.	0.000

Appendix III: KMO and Bartlett's Test for Challenges

KMO and Bartlett's Test for Challenges		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.721
Bartlett's Test of Sphericity	Approx. Chi-Square	229.945
	df	55
	Sig.	0.000

Appendix IV: Case Studies

Case-1: Hemodialysis Centre at National Institute of Kidney Diseases and Urology (NIKDU) and Chittagong Medical College Hospital (CMCH)

In Bangladesh, nearly 20 million people are suffering from various kidney and urological diseases. The prevailing diagnostic and dialysis facilities are insufficient to help the patient. For example, there are around 160,000 patients with End Stage Renal Disease (“ESRD”) in need of dialysis or kidney transplant in Bangladesh, whereas, national capacity for dialysis in Bangladesh is around 650 dialysis machines that can only treat around 10,000 patients. Around 40,000 people in Bangladesh die every year due to kidney diseases; around 150,000 patients lead restricted lifestyle due to lack of access to treatment. The lack of modern dialysis machines and support infrastructure restricts the ability to offer quality dialysis services to patients suffering from ESRD, restricting their ability to lead a normal life and shortening their overall lifespan.

As a result, up gradation of the facilities, and adoption of the latest technology have become indispensable to improve the quality of dialysis service. PPP was thought to be appropriate for this project. Hence, two kidney dialysis centers: (i) Hemodialysis centre at National Institute of Kidney Diseases and Urology (NIKDU) and (ii) Hemodialysis at Chittagong Medical College and Hospital (CMCH) have been listed as prospective projects in PPP Authority's project list in 2012. These two projects have been developed as two pilot projects to test the expansion of much needed affordable health care services in Bangladesh. Projects use private sector providers while set limit on public sector investment. On successful implementation of the project, the aim is to scale up this project across the nation, and to replicate the concept to other health care services.

The need for enhancing Dialysis Services was first identified by the executing agency responsible for the services. The PPP option was considered following a field visit and review of case studies. The project was then approved by the PPP Authority and the Health Ministry. The project's scope is to renovate an existing non-efficient and partially operated dialysis facility with 30 machines, in order to offer more quality health care services with 80 machines within the existing pricing framework and the strategy is to involve private sector partner to invest in the upgrade, operation, and management of the facilities and delivery of the health care services. The key performance indicator (KPI) of the project is to delivery of 19500 dialysis sessions per year at BDT 400 (appx USD 5) per session and delivery of 1950 dialysis session at no cost. Quality of the services and the availabilities are linked with KPI.

IFC has completed the feasibility of the project under the auspices of the PPP Office (present PPPA). The feasibility study included the needs assessment, overview of market and current practice, findings from market sounding exercise, legal and regulatory environment review, infrastructure requirements, technical and quality parameters, project transaction structure, financial analysis, commercial head of terms, key evaluation parameters. The feasibility study concluded that the PPP is a feasible solution for successful implementation of the project. The project followed the PPP model of Design, Build, Finance and Operate (DBFO) with 10 years' concession period from commercial operation and with provision for extension for another 10 years.

The invitation for tender was offered on February 2014, the Request for Proposal (RFP) submission deadline was May, 2014. Two firms submitted the RFP and the RFPs for these projects were being evaluated by the Ministry of Health (MoH). Final report has been approved by the MoH's. The contract between the

government (Directorate General of Health Services) and the private party was signed in January 2015 and the financial closure was reached in March 2015. The private partner Sandor Medicaids Pvt Ltd started construction of the facilities with equity on July 2016. The project has started commercial operation in 30 November 2016 with fourteen machines initially in NIKDU and in 3 March, 2017 with 31 machines in CMCH, Chittagong. The 2nd phase will install another 45 machines in NIKDU, Dhaka within December, 2017. Developing the project on a PPP basis to design, refurbish and equip dialysis centres at NIKDU and CMCH with payment linked to KPIs enables government to ensure service delivery on mandated quality standards at an agreed price. After installation of machines in the first phase, the project has received the first payment from the government as subsidy.

The two-project description is provided below:

- 1) Hemodialysis Centre at National Institute of Kidney Diseases and Urology (NIKDU): NIKDU is the only institute for Nephrology & Urology in Bangladesh where education, research & treatment facilities for nephrology & urological diseases are available. The demand for the use of NIKDU services has continued to grow over the last 10 years. The project's objective is to establish a 70-station dialysis center within a space of approximately 7500 sq ft that will be provided within the existing institute. It is expected that the private operator will procure, install, upgrade, maintain and operate the facilities and the equipment.
- 2) Hemodialysis Center at Chittagong Medical College & Hospital (CMCH): In Chittagong, CMCH is the only tertiary medical college hospital in southern part of Bangladesh where there is provision of 9 hemodialysis beds. To meet significant demand for provision of dialysis to patients suffering from kidney diseases, establishment of 40 station dialysis center at CMCH has been proposed. The total floor space allocated for the project is approximately 4750 sq ft.

The capital expenditure includes project development cost, building refurbishment, medical treatment, installation and project development costs of around USD 2 m (NIKDU) and USD 1 m (CMCH). The debt to equity ratio for the transaction is 40:60, and debt is mainly spent on equipment and machine imports. The financier of the project is IDCOL. The Project has serviced the debt component so far very well. It has paid

three instalments of the financiers IDCOL very well and will pay the next one due on December.

It is experienced from the above two projects that developing two kidney dialysis units on a PPP basis included some key development concerns. The key development concerns included perception of shifting of critical health service delivery to the private sector, management of existing stakeholders (e.g. suppliers and labourers, etc.), dilemma on potential conflict between the competing facilities and concerns on the additional upfront time required for project development in response to the urgent need for dialysis support. License has been provided for the private provider for service delivery. The permits required include import permit, environment clearance, trade license, VAT registration, incorporation certificate, etc. will be provided by the government authority whereas concessionaire to maintain the centres for the duration of the concession (10 years).

Some mitigation measures were used to address the concerns of various stakeholders like extensive stakeholder consultation with public sector officials in the implementing agency, the executing agency and the ministry, showcasing case studies of similar characteristics successfully delivered in other countries and the benefits secured, sensitive use of key existing resources (i.e. nephrologist, etc) and robust PPP contract covering the key concerns of stakeholders regarding quality of services, governance issues, penalty regime, reputational risk, etc.

The estimated impact is to increase the national treatment capacity for dialysis by 12.3 percent, providing access to treatment to over 1000 additional patients who did not have access to treatment before and potentially saving over 1200 lives per year. The project structure ensures that patients will have access to increase number of dialysis sessions (increase in potential number of dialysis sessions at NIKDU & CMCH from the current 54 per day to about 440 per day), at higher quality standards but at a reduced charge. Additionally, patients can also access private healthcare facilities at charges below prevailing market prices (average cost to poor patients for a dialysis session decreases from about BDT 900 to BDT 400). The dialysis services availability doubled and this will enable these patients to lead a better quality of life through better health service. Patients will be able to benefit from walk in service availability, with 24 hours' service coverage, '1-stop-shop' health services without the need to purchase consumables separately. The project will also help disseminate health service best practices within the other facilities of the health complex. For proper

management of the project the private partner carried out its contractual obligations with close contact management by the Contracting Project Team. With supervision from the PPP Authority on good governance and best practices, an independent panel has been appointed to provide independent oversight and supervision.

The project provides a first step into enabling introduction of private sector providers in delivery of health services within the public sector framework. Upon successful implementation, it will enable replication of the project at national level across regions of the country where there is acute need for dialysis services. Other follow up projects that are being considered include diagnostic services, imaging facilities, and ambulance services.

The key success factors for expanding the project and replicating it into a wider program include the need for adequate demand, the availability of suitable space within existing public health institutions, and the availability of skilled medical practitioners and public sector official buy-in. Countries at a similar stage of economic development as Bangladesh and health service requirements can consider the adoption of this project to address dialysis service needs. The project featured in 'KPMG Infrastructure 100 World Markets Report 2015' as one of the top 100 projects across the globe in 2015. It is also featured as one of the two 'Pioneering projects' in the report.

Case-2: Two Jetties at Mongla Port through PPP

The Mongla Port Authority (MPA), under Ministry of Shipping (MoS), intends to engage a Private Investor for developing, designing, building financing, operating and maintaining Jetty 3 and Jetty 4 and the designated back up area for the two jetties at Mongla Port. The Project will be implemented on a Public-Private Partnership (PPP) basis through a concession agreement entered into with the Mongla Port Authority (MPA), at the end of which all assets will be transferred to MPA. At Mongla port four rows of steel encased piles in the riverside were installed at Jetty 3 and Jetty 4 in the year 1976. The remaining piles and the deck slabs were not constructed and these two Jetties were left incomplete. A technical feasibility study conducted by Institute of Water Modeling (IWM) in 2011 mentions that these piles are generally in good condition. Under the proposed project, the Private Investor would be responsible for constructing additional piles and build decks on the designated area for Jetty 3 and Jetty 4. The newly constructed jetties would be able to serve as multipurpose berths, capable of handling both general cargo and containers.

MPA would provide the Private Investor the right to use the land designated for the two jetties and back-up area, to construct and operate two jetties. It was envisaged that each jetty will be around 183m in length and 40 m in width, with a back-up area of approximately 22 acres. The Project Company would complete the additional piles and construct the two jetties, construct backup facilities for terminal operation, which includes administrative office building, workshop building, internal road, drains and culverts, boundary wall and other utilities, procure cargo handling equipment and operate the terminal (of the two Jetties) for a stipulated duration. The terminal capacity is expected to be around 70,000 TEUs per jetty per year for containers and 240,000 MT per jetty per year for general cargo. The indicative project cost is BDT 4231 million.

PPP Office (now PPP Authority) in consultation with MoS supervised the investor selection process and moderated the discussion on major terms and conditions of the agreement between MPA and the Private Investor to be selected. Investment Promotion Financing Facility (IPFF), a WB funded facility under Bangladesh Bank, provided financial support to MPA during the investor selection process. Infrastructure Investment Facilitation Company, a PPP transaction advisory organization under ERD, in association with Deloitte, India facilitated the investor selection process with necessary documentation support, as a consultant engaged by IPFF.

It was the first project to be developed by the PPP authority by the co-operation of IPFF and has approval from CCEA, but there was no prefeasibility study carried out as per the Policy and Strategy for Public-Private Partnership (PPP), 2010. Such lack of prefeasibility study has put additional resource requirement on the consortium in terms of effort and skills. A team of the technical experts from IIFC and Deloitte visited Mongla from 27 January 2013 to 30 January 2013. The overall purpose of the visit was to gather data to prepare a conceptual site layout of proposed two jetties, gather data for financial modeling to determine viability of the project and consultation with MPA officials on major linked projects such as dredging of Pussur channel and increasing traffic at the port through inland waterway cargo transportation. The site visit allowed the consultants to gather preliminary data required for design of a conceptual site layout and financial model. In the meeting with officials of MPA, the visiting team discussed on the condition of piles, dredging situation of Pussur River and jetty front, container related information for financial model, potential uses of Jetty 3 and Jetty 4, present condition of the jetties, major revenue items for MPA,

loading and unloading time of containers, imposed tax and vat and different other issues related to the port.

The results of the feasibility study indicated that construction of two jetties at Mongla Port through PPP would be financially viable when some major steps would be taken to structure the project. The proposed steps emphasized on some linked projects like dredging of Pussur River to allow regular ship traffic to the port, clearance of MG Canal for inland waterways cargo transport, and (b) dedicated ferry service at Mawa for attracting more cargo traffic through roadways. Again the feasibility study revealed that only dredging of Pussur River is not financially viable even if all linked projects have been implemented. The study revealed that construction of two jetties upfront when the port has a shortage of traffic would also be counterproductive to the needs of the country. Either combination of dedicated ferry service with Pussur river dredging or combination of clearing Ghashiakhali channel along with dredging of Pussur and dedicated ferry service to Mawa should be chosen as the PPP model for implementing the project. Under these models, construction of J3 and J4 would be deferred until traffic at port could be increased to a certain level. During this period, Terminal Operator would refurbish and operate J5. Terminal Operator would also pay US\$ 200,000 per year (escalated at 2percent per annum) to MPA as Jetty 5 fixed royalty payment in addition to US\$ 100,000 per year as land lease rental. When traffic at port rises such that Mongla Port's remaining jetties are getting close to full capacity, Terminal Operator will begin construction of J3 and J4. After construction, J3 and J4 will be operated by the Terminal Operator and J5 will be returned to MPA.

Financial analysis also shows that the project will be more viable if BGMEA/BKMEA is minority shareholders in the project company. Inclusion of the two associations in the project company will ensure Dhaka traffic to the port as well as making the project more attractive to Terminal Operators. The study recommended that in terms of the tariff Rate the terminal operator should be given the freedom to raise his tariff up to a defined ceiling. Sensitivity analysis indicates that tariff rate is the biggest factor impacting the equity IRR of the project. Allowing the terminal operator to increase the tariff will make the project more attractive to terminal operators. Based on the analysis, the Consultants opine that option of having all linked projects implemented is a valid PPP option and freedom to raise tariff needs to be implemented for this project. The next steps of the study stated that for successful project implementation, it is important to have a Project Management Unit in place in MPA. The unit needs to be

assigned with the responsibility of project implementation including all the critical issues regarding this project. The management structure should involve a project team headed by a Project Director/Manager and composition of the team may be changed time to time to meet the specific expertise needed during any phase of the project. The appropriate model of inviting Terminal Operators and the Terminal Operator's scope of work that is suitable for the investors needs to be decided by MPA. The Terminal Operator's scope work may need revision based on the feed-back from the investors during RFQ process. A list of potential investors needs to be prepared, and the concept needs to be conveyed and consulted through a consultation paper in the Investor Promotion Meeting. Based on the written feed-back, major terms and conditions will need be designed and approved by the appropriate authority. Based on the major terms and conditions, tender documents will be prepared and investors will be invited through international tender notice.

The selection of a Private Partner would follow the PPP Policy and Guidelines as PPP legal framework, (like enactment of PPP act) was not introduced at that time. The bidding process was carried out over a 2-stage process (the 'Bidding Process'). In Stage 1 (the 'Qualification Stage') the Authority would short-list Applicants, who would be invited to submit Proposals for the Project. In Stage 2 (the 'Proposal Stage') the Short-listed Applicants, who were invited to submit Proposals, in line with the RFP requirements. The Private Partner would be selected through an ICB process based upon the proposals received and evaluation criteria set out in the Requests for Proposal. The process of bidding was initiated by the publication of Pre-qualification notice by MPA in the national dailies in first week of May, 2013. The notice was also published on-line in UN Development Business on 2 May 2013 and also in PPP office's website.

The deadline for submission of response to Request for Qualification (RFQ) was 16 June 2013. In the Investment Promotion Meeting an official declaration was made to extend the deadline until 30 June 2013. The deadline was further extended to 1 July 2013. The interested potential investors who purchased the RFQ document were registered nine (09), however, the submission of RFQ were three (03) in numbers finally on 1 July, 3 p.m. The companies are SAPL-SPL Consortium, United Enterprises and Company Ltd, GMAPS-Power Pac Consortium. After evaluating the pre-qualification statements submitted by the potential investors mentioned in the section above, based on the criteria set in the section 9 of the Request for Qualification issued to investors, all three (3) were

selected as prospective bidders and subsequently approved by the Ministry of Shipping. MPA issued the RFP on 26 September 2013 to the shortlisted applicants for preparing and submitting a Technical Proposal and a Financial Proposal for the project. Two Pre-Bid meetings were held following the issuance of RFP on 10 October 2013 and on 20 February 2014. In these meetings, stakeholders and bidders of the project discussed various issues regarding the project scope and bidding process. The bidders were requested to submit their written queries by 27 February 2014 to MPA. The Bid submission deadline was 25 November 2013, which was extended up to 15 April 2014 based on the bidders' request raised in the pre-bid meetings and bidders' written requests. On 15 April 2014, GMAPS-power Pac Consortium submitted their bids.

The evaluation process contained evaluation of the Technical Proposal as well as the Financial Proposal. The technical evaluation process will consist of "Substantial Responsiveness" of Proposals. The Bidders would have to pass the Substantial Responsiveness Tests before they are eligible to proceed to Technical Responsiveness Test. The Bidder shall provide the Financial Proposal in Envelope B (in a separately sealed envelope) by filling up maximum percentage of total Jetty Traffic of Mongla Port with an upper limit of 40 percent of Annual Jetty Traffic Quota upto first 15 years of operation. The Financial Proposal of the Bidder shall be determined by summing up the present values of the Annual Jetty Traffic Quota for the first 15 years of operation. The committee evaluated only one bid submitted by GMAPS-power Pac Consortium. The evaluation committee set out the discussion whether it is possible to evaluate a single bid submitted by GMAPS-Power Pac Consortium. The PPP Office representative informed the meeting that there is no bar to evaluate a single bid submitted by the bidder. He added that the draft law of PPP, vetted by Ministry of Law had a provision that a single bid (proposal) may be accepted for PPP projects. The matter was discussed in depth and the committee unanimously agreed to verify the draft law and found that Para 18 (4) of the vetted draft PPP Law, 2013 reflected the same. Then the committee decided to proceed with the evaluation of the single bid. After evaluation the committee recommended Proposal of GMAPS – power Pac Consortium responsive both technically and financially.

Finally, the agreement was signed between Mongla Port Authority (on behalf of Government) and GMAPS-power Pac Consortium (private concessionaire) on 21 May, 2016. The concessionaire is yet to do the financial closure since the condition precedent on behalf of government has not yet fulfilled regarding environmental site clearance for an embargo by the honorable High Court against

a writ. The Jetties after construction definitely will play a significant role in making the Mongla Port vibrant enough to attract more traffic to the Port considering the rapid progress of Padma bridge construction on the southern part of the country.

Appendix V: Discussion Summary

Bangladesh Institute of Bank Management (BIBM) arraigned a seminar on “Financial and Non-Financial Issues in Implementing PPP in Bangladesh: An Examination of PPP Projects in Pipeline” on December 20, 2017. Mr. Abu Hena Mohd. Razee Hassan, Chairman, Executive Committee of BIBM and Deputy Governor, Bangladesh Bank was present in the seminar as the chief guest. Mr. S. A. Chowdhury, Former A. K. Gangopadhaya Chair Professor, BIBM, Mr. Mohammed Nurul Amin, Former Managing Director & CEO, National Credit & Commerce Bank Limited, Meghna Bank Limited, Mr. Md. Jahangir Alam, Deputy Managing Director, Sonali Bank Limited, Mr. S. M. Formanul Islam, Executive Director & CEO, Bangladesh Infrastructure Finance Fund Limited (BIFFL). Dr. Toufic Ahmad Choudhury, Director General, BIBM chaired the occasion. A total number of 120 participants including executives, high officials of different banks, government officials of relevant ministries and departments, academicians, private sponsors, media representatives and faculty members of BIBM participated in the seminar. The summary of seminar discussion on the paper is as follows:

Comments of the Chief Guest

Mr. Abu Hena Mohd. Razee Hassan, Chairman, Executive Committee of BIBM, and Deputy Governor, Bangladesh Bank has underscored the importance of PPP in infrastructure development. He added that Government has embraced PPP as one of the priority tools to navigate the country to the status of a middle-income country by 2021 and a developed country in 2041. Government is now supporting PPP initiatives in a numerous way. The major initiatives undertaken by the government include development of institutional framework (e.g. establishment of PPP Authority, PPP Unit under Ministry of Finance) and regulatory environment (i.e., issuance of Private Sector Infrastructure Guideline, PPP Strategy and Policy, PPP Law etc.) arrangement of financial support in the form of technical assistance fund and VGF, establishment of specialized financial institutions like IDCOL, IPFF and BIFFL. He also articulated the role of Bangladesh Bank in instigating PPP projects in the country. With the assistance of World Bank, BB is stimulating PPP to facilitate long term financing

in private sector led-infrastructure development as well as stakeholders' capacity enhancement since 2006 under the project named IPFF. During 2006-16, IPFF has financed a total of USD320.14 million to 21 PPP projects. Built on the success of the earlier IPFF project, World Bank has also committed another USD 357 million under the caption IPFF-II to boost up infrastructure development under PPP in Bangladesh. He postulated that PPP is a complex model and the success of this model depends on a number of critical factors. Many constraints and challenges also create barrier to the successful implementation of this innovative technique. He highlighted on some major critical success factors like identification of right projects, appropriate risk allocation and sharing, project management capacity of private sector, continuity of policy support, land acquisition and resettlement, transparent procurement process, availability of long-term credit from financial institutions etc. related to PPP in Bangladesh. He also indicated some constraints like immature bond market, lack of long-term bank financing, delays in bidding and implementation of project due to political intervention, lack of transparency in contract award, high cost of project financing, difficulties in raising adequate fund, etc. for PPP implementation in Bangladesh.

Comments of the Chairman

Dr. Toufic Ahmad Choudhury, Director General of BIBM has underscored the importance of PPP in infrastructure development of the country adding comment that government alone cannot achieve the goals of development, participation of private party with the government can only make it possible.

Comments of the Discussants

Mr. S. A. Chowdhury, Former A. K. Gangopadhaya Chair Professor, BIBM has told that PPP has started formally since 1980s in the country and in late 90s PPP got a thirst and during the last seventeen years government has taken around 22 steps for PPP implementation. Among these steps, regulatory and institutional reforms, developing ecosystem between government and private sector by reducing distance between them, etc. are prominent. He highlighted that the latest two remarkable initiatives of the government e.g. creation of PPP Authority and introduction of Government to Government (G2G) partnership would help boost up mega projects' implementation in the country. He pointed out that many other changes will happen in future in PPP depending on the requirements of the projects and their implementation contexts.

Now we need to formulate an action plan in light with the seventh five-year plan for the next five years to adopt PPP as a sustainable tool to accelerate infrastructure development. In this regard, he told that three of most critical factors we need to consider are increasing project implementation capability, checking time and cost overrun of project. He added that although we have some success in implementing small PPP projects, still we have bureaucracy problem, lack of long-term funding from banks/financial institutions as well as lack of long-term capital market instruments to support PPP financing, etc. He opined that for removing long-term financing dearth in PPP projects, we have to bring many capital market instruments such as securitization, mutual fund, bonds, commercial papers, preference shares, universal funds, bridge financing, etc. He suggested that all these funds should be accumulated by creating a public limited company. On the other hand, there may be a consortium of banks for pooling long-term fund like many countries including India along with funding arrangement from government and multilateral financial agencies. He also suggested that like Sri Lanka and Malaysia, government may take initiative to select a pool of potential private entrepreneurs based on their equity, capacity etc. and provide adequate training to implement PPP projects. He also put some suggestions to the researchers to improve the paper.

Mr. Mohammed Nurul Amin, former Managing Director & CEO, NCCBL and Meghna Bank Limited has mentioned that we have a good number of successful PPP projects particularly in power sector. He opined that government laid down the success story of power sector PPP projects through introducing PSIG in 1996. We got remarkable success in power projects by establishing two mega power plants namely Megnaghat Power Plant and Haripur Power Plant immediately after introduction of PSIG. Following the success in establishing two big power plants, many IPP projects were built which are now contributing about one-third to the national grid. He states that his bank has the experience of implementing first power projects under PPP with the help of IPFF fund. Following their success, many other power plants have established taking support from IPFF projects. He told that both public and private sectors have distinct strength and combination of these two would definitely result in success in infrastructure sector. He mentions that PPP projects may face problems if there is difference in the perception of private and public parties as well as cost and time overrun. He also emphasized that proper planning, appropriate policy, finance, construction, operation and maintenance are the critical factors for stimulating PPP idea in Bangladesh.

Mr. Md. Jahangir Alam, Deputy Managing Director, Sonali Bank Limited has also appreciated the researchers for a very good work in PPP. He underscored the importance of PPP in infrastructure development in Bangladesh.

Mr. S. M. Formanul Islam, Executive Director & CEO, BIFFL has appreciated the research team for doing a wonderful research in PPP area. He has mentioned that the research team has very methodically and clinically identified most of the factors responsible for success and failure of PPP projects in Bangladesh. He revealed that there is no denying fact that we need to develop infrastructure to achieve the vision of middle-income country, SDG, poverty reduction, etc. and also there is no denying fact that we need huge amount of money for infrastructure development. He mentioned the fact that success of PPP is not that much encouraging all over the world even in the UK, USA and other developing countries like Philipine, Thailand, India. He believes that PPP is not a mechanism of providing solution for all the problems in infrastructure need. According to him, success in PPP will not come immediately. Payback period for PPP projects is at least 15 years and, in some cases, investors may need to wait longer to get their return. Currently, we are in learning process. He opined that for making PPP projects successful, first of all, viability analysis especially commercial viability analysis should be ascertained in order to bring the private sector including foreign investors towards the projects. He indicated that unless you have a vibrant and sensible public sector, success in PPP is not easy. He cited an example from Singapore infrastructure project in which he was involved. He mentioned that even having a very strong public sector, the project was delayed for 7 years to complete. He uttered that training is important and equally important is to allocate resources properly which requires adequate preparation. He stated that in PPP, ownership of projects remains with the government. Private sector is given the right to build the infrastructure through concession agreement. After getting their money back from their investment, private parties will return the asset to the government. He underscored the importance of cash flow and stated that if the private party is not guaranteed for their investment return, banks do not see certainty as well as control over project's cash flow, they will not be interested to come up with PPP projects. He emphasized that government should need to develop a pool of expert officials through capacity building programs about PPP and retaining them in relevant desks. Accordingly, local capital market should be developed to provide long-term financing and foreign investors should be enticed for succeeding PPP initiatives.

Some key points highlighted by the participants

- For implementing PPP projects securing low cost financing is important.
- As low-cost local funding for PPP projects is not adequate, we need to raise fund from foreign sources. But foreign lenders require repayment guarantee (in some cases they demand guarantee even more than twice the total project cost from the private sponsors) which may not be possible by the private parties especially in large projects. In such cases government can provide guarantee which would provide easy access to low cost foreign funds for PPP projects.
- Central bank can ease the ceiling of borrowing amount from foreign sources namely FMO, DEG, etc. by private sponsors/commercial banks especially for financing infrastructure PPP projects.
- PPP is very instrumental for achieving SDGs. In this perspective, SDGs linked with PPP are required to be discussed more.
- Private sectors should build up their capacity to avail of the low-cost fund such as funding from World Bank, ADB, and other multilateral organizations through IPFF, IDCOL and BIFFL respectively. These funds are guaranteed by the government.
- Vibrant capital market is required to be created to raise long-term funding for PPP projects.
- To speed up the implementation of PPP projects, complexity in bidding and awarding of projects, land acquisition, bureaucracy, etc. should be removed. It will check time and cost escalation of the projects.
- Management of project monitoring and implementation should be enhanced for getting success in PPP initiatives in Bangladesh.

Appendix VI: Research Questionnaire

Financial and Non-Financial Issues in Implementing PPP in Bangladesh: An Examination of PPP Projects in Pipeline

Dear Respondents,

Bangladesh Institute of Bank Management (BIBM) is going to conduct a research on the above mentioned title. The main objective of this research is to identify the Critical Success Factors (CSFs), the constraints and challenges for implementing PPP projects those are in pipeline. We, the researchers, are seeking your kind help and cooperation in this regard. This is an academic research to

examine financial and non-financial issues in implementing PPP in Bangladesh. It would be highly appreciated if you kindly and sincerely fill-up this questionnaire with utmost care. Your valuable answer will help us derive some accurate results which will ultimately reflect true picture of the research objectives.

The questionnaire consists of five sections. It is our earnest request to go through the every question to answer properly. It is important to note that the study will not mention name of your organization and all the information you provide will solely be used for the research purpose with high confidentiality. Please provide your honest opinion regarding the issues stated in the questionnaire.

Thank you for your time and willingness to participate in this survey.

Section A

1. Your position in Business:
2. Type of your organization: Govt./Govt. Agency Banks/NBFIs
 Project Sponsor Others
3. Working experierelated to thearea(number of years)
 No 2 or less 2-5 5-10 More than 10

Section B

Critical Success Factors (CSF)

This section presents some critical success factors that are identified from the previous literature. Please read each factor and put tick [√] in appropriate box based on your knowledge and experience. You should only tick in one box for each factor. If you think any other factor (s) is/are also appropriate and relavant, please write in the blank space and put tick in appropriate box.

Not Important	Fairly Important	Important	Very Important	Extremely Important
1	2	3	4	5

	CSF	1	2	3	4	5
1	Acceptable level of tariff/toll					
2	Adequacy of project's cashflow					
3	Appropriate risk allocation and sharing					

	CSF	1	2	3	4	5
4	Availability of long-term credit from banks and financial institutions					
5	Availability of project development fund (PPP Technical Assistance Fund)					
6	Availability of skilled professionals/advisors					
7	Certainty of contract enforcement					
8	Clear outcome indicators					
9	Clear project brief and design development					
10	Competitive procurement process					
11	Comprehensive feasibility study by transaction advisor in coordination with PPP authority					
12	Constant monitoring by line ministries/agencies					
13	Continuity of joint venture partner					
14	Continuity of policy support					
15	Contract flexibility					
16	Coordination between public and private stakeholders					
17	Country risk rating					
18	Detailed project planning by line ministry					
19	Employment generation					
20	Financial institutions' control over project cashflow					
21	Government involvement through Viability Gap Funding (VGF)					
22	Identification of right projects					
23	Incentive in macroeconomic policy (tax exemption, tax holiday, subsidy, etc.)					
24	Institutional arrangement for public sector risk management					
25	Inter agencies/Inter ministerial coordination					
26	Land acquisition and resettlement					
27	Life cycle cost analysis					
28	Mature capital market and availability of diversified financial instruments (credit guarantee, credit enhancement, Mezzanine finance, etc.)					
29	PPP in line with sectoral priority of government					
30	Presence of appropriate exit clause in contract					
31	Private sector ability to discharge private sector risk					
32	Project management capacity of private sector					
33	Proper rehabilitation and settlement of affected people					
34	Public/community support					
35	Quality of Environmental and Social Impact Assessment (ESIA)					

	CSF	1	2	3	4	5
36	Quality of private consortium and international joint venture partner					
37	Quick approval process					
38	Sponsors' capability to provide adequate equity					
39	Strong public demand for project					
40	Transparent procurement process					
41	Trustworthiness and image of private sector					
	Others, if any					

Section C

Constraints: Please read each of the statement carefully and put tick [√] in appropriate box based on your knowledge and experience. You should put tick only in one box for each statement.

Very Low	Low	Moderate	High	Very High
1	2	3	4	5

	Items	1	2	3	4	5
1	Credibility of the private sponsor(s)					
2	Delays in bidding and implementation of project due to political intervention					
3	Delays in negotiation					
4	Difficulties in raising adequate fund					
5	Excessive restrictions on participation					
6	High charge to direct users					
7	High cost of project financing					
8	High participation costs					
9	High project costs					
10	High transaction cost					
11	Immature bond market or lack of diversified financial instruments					
12	Lack of fund from donor agencies/foreign fund					
13	Lack of government guidelines and procedures on PPP					
14	Lack of Government officials' knowledge in PPP					
15	Lack of long-term financing					
16	Lack of policy continuity across different governments					
17	Lack of transparency in contract award					
18	Limited exit options for private sponsor(s)					

	Items	1	2	3	4	5
19	Misallocation and inappropriate risk sharing between public and private stakeholders					
20	Problems of delays in receiving payments					
21	Standard evaluation criteria					
	Other constraints, if any					

Section D

Challenges: Please read each of the statements carefully and put tick [√] in appropriate box. Please tick only in one box for each statement.

Very Low	Low	Moderate	High	Very High
1	2	3	4	5

	Items	1	2	3	4	5
1	Capacity building					
2	Corporate governance					
3	Cost and time overruns					
4	Government guarantee					
5	Non-recourse financing mechanism					
6	Project appraisal/feasibility					
7	Project monitoring by government					
8	Risk mitigation					
9	Sources and modes of financing					
10	Tariff/toll not being adequate					
11	Transparency					
	Other challenges, if any					

**Financing Public-Private Partnership (PPP) Projects in
Bangladesh: An Assessment for Future Strategy***

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*This paper was presented in a Seminar under a Research Project held at BIBM on June 11, 2015.

Abbreviations

ADB	Asian Development Bank
ADBI	Asian Development Bank Institute
AIF	ASEAN Infrastructure Fund
ALM	Asset Liability Management
ASEAN	Association of Southeast Asian Nations
ASX	Australian Stock Exchange
AUM	Assets under Management
BB	Bangladesh Bank
BDT	Bangladeshi Taka
BIFFL	Bangladesh Infrastructure Finance Fund Limited
BLT	Built-Lease-Transfer
BOI	Board of Investment
BOO	Build-Own-Operate
BOOT	Build-Own-Operate Transfer
BOT	Build-Operate Transfer
BROT	Build-Rehabilitate-Operate-Transfer
CA	Concession Agreement
CAF	Charities Aid Foundation
CAGR	Compound Annual Growth Rate
CCEA	Cabinet Committee on Economic Affairs
CDB	China Development Bank
CEPZ	Chittagong Export Processing Zone
CGF	Credit Guarantee Financing
CPPIB	Canada Pension Plan Investment Board

DEPZ	Dhaka Export Processing Zone
<i>DFIs</i>	<i>Development Finance Institutions</i>
<i>DLA</i>	<i>Disability Living Allowance</i>
DPS	Deep Sea Port
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EPEC	European PPP Expertise Center
EPZ	Export Processing Zone
ERD	Economic Relations Division
ETP	Effluent Treatment Plant
EUR	Euro
FCB	Foreign Commercial Bank
FDI	Foreign Direct Investment
FI	Financial Institution
GDP	Gross Domestic Product
GIC	Guaranteed Investment Certificates
GOB	Government of Bangladesh
GOE	Government-Owned Enterprises
HSBC	Hong Kong and Shanghai Banking Corporation
ICB	Investment Corporation of Bangladesh
ICICI	Industrial Credit and Investment Corporation of India
ICRC	Infrastructure Concession Regulatory Commission
ICT	Information and Communication Technology
IDA	International Development Association
IDB	Islamic Development Bank

IDBI	Industrial Development Bank of India
IDCOL	Infrastructure Development Company Limited
IDFC	Infrastructure Development Finance Company
IFC	International Finance Corporation
IIFC	Infrastructure Investment Facilitation Company
<i>IADB</i>	<i>Inter-American Development Bank</i>
<i>IOPS</i>	<i>International Organization of Pension Supervisors</i>
IPDF	India Project Development Fund
IPFF	Investment Promotion and Financing Facility
IPO	Initial Public Offerings
IRR	Internal Rate of Return
MIGA	Multilateral Investment Guarantee Agency
MOF	Ministry of Finance
MRG	Minimum Revenue Guarantee
MW	Mega Watt
NAO	National Audit Office
NBFI	Non-Bank Financial Institution
NHAI	National Highways Authority of India
NPV	Net Present Value
OD	Operational Directive
O & M	Operation and Maintenance
OECD	Organization for Economic Cooperation and Development
OMERS	Ontario Municipal Employees Retirement System
OTPP	Ontario Teachers' Pension Plan
PCB	Private Commercial Bank

PDF	Project Development Facility
PFI	Private Finance Initiative
PFI	Participatory Financial Institution
PICOM	Private Infrastructure Committee
PMO	Prime Minister's Office
PPI	Private Participation in Infrastructure
PPP	Public-Private Partnership
PPPTAF	Public-Private Partnership Technical Assistance Fund
PSIG	Private Sector Infrastructure Guideline
PWC	Price Waterhouse Coopers
SAARC	South Asian Association of Regional Cooperation
SDM	Supported Debt Model
S & P	Standard and Poor's
SIBL	Social Islami Bank Limited
SOCB	State-Owned Commercial Bank
SPV	Special Purpose Vehicle
SWF	Sovereign Wealth Fund SWF
TA	Technical Assistance
THSR	Taiwan High Speed Rail
THSRC	Taiwan High Speed Rail Corporation
UK	United Kingdom
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
US	United States
USD	United States Dollar

UTI	Unit Trust of India
VFM	Value For money
VGf	Viability Gap Funding
VIF	Variance Inflation Factor
WARID	Weighted Average Interest Rate on Deposit
WB	World Bank

Financing Public-Private Partnership (PPP) Projects in Bangladesh: An Assessment for Future Strategy

1. Introduction

Controversies arise from concerns on the efficiency of public versus private investment and their contributions to long-term economic growth in developing countries (Rahman and Banerjee 2015). Amidst this controversy, Public-Private Partnership (PPP) gradually becomes an accepted initiative in both developed and developing countries for providing public services without creating fiscal burden on the Government. The 1990s has been seen the establishment of the PPP as the key tool of public policy across the world (Osborne 2000). Van and Koppenjan (2001) identify PPP as cooperation of some sort of durability between public and private sectors in which they jointly develop products and services and share risks, costs, and resources which are connected with these products through an institutional lens. Engel *et al.* (2010) observe that a PPP bundles investment and service provision of infrastructure into a single long-term contract in the projects such as highways, light rails, bridges, seaports and airports, power, water and sewage, hospitals and schools.

The current pace of economic growth and growing urbanization of the country have generated huge demand for physical infrastructure in recent decades. Like other countries, Government of Bangladesh (GOB) cannot alone make much headway in this regard owing to financing and capacity constraints. In this perspective, the Government emphasized on PPP and issued the Policy and Strategy for PPP in 2010 to facilitate the development of public infrastructure and services to achieve the Government's Vision 2021.

Success of the PPPs is largely dependent on the financing model used in the project finance. Yescombe (2007) highlights the importance of proper modeling of finance in PPP project and mentions that the

growth and spread of PPPs around the world is closely linked to the development of project finance that is a financial technique based on lending against the cash flow of a project, which is legally and economically self-contained. Project finance arrangements are highly leveraged and lenders receive no guarantees beyond the right to be paid from the cash flows of the project. Moreover, the assets of the project are specific as well as illiquid resulting in little value if the project fails.

The finance for PPP project may come from a variety of sources. The main sources include equity of sponsors, borrowing from banks and financial institutions, funds from capital market through placement of shares, bonds and other negotiable instruments, funds from multilateral banks and agencies and government grants. Financing from these alternative sources have important implications on project's overall cost, cash flow, ultimate liability and claims on project incomes and assets.

A careful analysis of alternative financial structures taking into account of size of the project, expected rate of return, payment for tax, stage of completion of the project and possible amount of cash flow is required to be done for choosing the right financing structure for a PPP project. The financing arrangement for a large project is quite complex as compared to a small project as the required finance of a large project normally comes from a large number of financiers. As the expected return on equity is higher than return on debt, the relative shares of debt and equity in the total financing package have important implications for cash flow of the project. Their relative share is also important for taxation purpose as the higher the debt the lower is the tax on return. Higher proportion of debt, however, requires larger cash flow for debt servicing, which could be problematic, particularly in the early years of project operation when the revenue earnings are generally low. This is a typical situation faced by transport and water sector projects. In such a possibility, the risk of default would be considered high.

UNESCAP (2008) has underscored the importance of selecting proper sources of finance through careful analysis of the aforesaid issues.

In Bangladesh, PPP projects are being financed through equity of sponsors, borrowing from banks and financial institutions, funds from Investment Promotion and Financing Facility (IPFF) administered by BB and loans from government owned NBFIs like IDCOL and BIFFL and support from PPPTAF. Additionally, Government also provides financial support through offering grant and subsidy as part of Viability Gap Funding (VGF). As Bangladesh is passing through a nascent stage of implementation of PPP project and mostly engaged in small projects, sources of finance currently used may apparently look reasonably enough. However, large projects mostly in pipeline in the areas of highways and expressways, port development, power generation, etc. will require a huge amount of funds from multiple sources.

In order to generate such a large amount of funds for PPP projects from multiple sources, knowing the financial structure of PPP projects across the world as well as understanding the capacity of local financial system is a prerequisite. In this perspective, several queries are required to be solved. Either worldwide accepted sources of finance can also be suitable for PPP projects in Bangladesh? What are the conduits of finance used by PPP projects so far undertaken in Bangladesh? Can banks and financial institutions finance large projects to be implemented under PPP in the face of current excess liquidity of financial sector and continuous encouragement of BB to finance PPP projects? Does the capital market of Bangladesh hold the capacity to provide funds for large PPP projects through placement of shares, bonds and other negotiable instruments? Does Bangladesh progress in implementing PPP projects by keeping pace with the world trend? Is the support provided by NBFIs specially created by Govt. for infrastructure financing praiseworthy? The answer of all questions

may not match with the expectation although growing savings of institutional investors such as investment funds, insurance companies, mutual funds and provident funds of different private organizations are suitable for long-term investment. In order to do the in-depth analysis of the aforementioned issues, an endeavor is taken to do a study on Financing PPP Projects in Bangladesh: An Assessment for Future Strategy.

It is expected that findings of this study will be helpful for policy makers to know the sources of finance used worldwide in PPP projects, to understand the current status of different conduits of finance in PPP projects in Bangladesh including position of finance given by Govt. Institutions, to know the ranking of Bangladesh across the world in implementing PPP and finally to explore appropriate sources of finance for PPP projects. The specific objectives of the study are-

- i. To examine the possible sources of finance used in PPP projects worldwide.
- ii. To analyze the current financial structure of PPP projects in Bangladesh.
- iii. To look into the position of PPP projects across the world.
- iv. To investigate the support of institutions established by GOB to facilitate PPP initiatives.

In conducting study, both primary and secondary data have been utilized. As many as 47 projects, which already achieved financial closure, have been considered in the study. However, stakeholders' refusal to share financing details citing confidentiality or commercial reasons and non-availability of PPP information of Bangladesh in the public domain do not allow researchers to get financial data of all projects. Ultimately, financial information for 38 out of the 47 projects (Appendix-1) representing around 81 per cent of the total number of PPP projects and around 78 per cent of the total amount of investment

in PPP projects have been collected and analyzed. In defining and considering PPP projects, the study has covered the infrastructure projects which are implemented under widely recognized models like BOO, BOT, BOOT, BROT, BLT and Open License (Appendix-2). In selecting projects, classification of World Bank Private Participation in Infrastructure (PPI) Projects Database¹, categorization of projects by IDCOL, IPFF and BIFFL, and grouping of concession granting authority i.e. GOB/ Govt. agencies have also been taken into consideration. Primary data on the modes of financing of the chosen projects have been collected through interviewing stakeholders covering sponsoring agencies, project developers and financial institutions, etc. A questionnaire has been administered for collecting data from banks/ NBFIs² involved in financing sample projects in order to know their exposures in PPP projects and to understand future planning and strategies towards financing PPP projects. The secondary data have been collected from World Bank PPI Projects Database and published documents of GOB, IDCOL, IPFF, BIFFL and IPFF. Project-specific data have been gathered from the project documents of lending banks/ NBFIs, sponsors as well as World Bank PPI projects' data base.

Simple financial and statistical tools to analyze the data and common techniques like tabular and graphical forms to present data have been used. Two cases, one is international and the other is local, are thoroughly studied to know the financing pattern followed in practice. Three projects which were unsuccessful to collect finance on time are also examined for knowing the consequence of failure of collection of funds on the implementation of the projects.

¹ <http://ppi.worldbank.org/>

² A total of 36 banks (4 SOCBs, 28 PCBs and 4 FCBs), 10 NBFIs, 3 government sponsored organizations (IDCOL, IPFF & BIFFL) and ICB have financed to these 38 projects as local lenders. Foreign lenders include ADB, IFC, MIGA, FMO, DEG and donor agencies include ADB, IDA, etc.

Apart from doing correlation analysis among variables, a simple econometrics analysis based on cross-section data has also been done to know the empirical relationship between investment of PPP projects and sources of finance namely debt and equity. The following model has been estimated to find out the relationship.

$$\text{LnInv}_i = \beta_0 + \beta_1 \text{Ln Debt}_i + \beta_2 \text{Ln Equity}_i + \varepsilon_i \text{-----} (1)$$

Investment status in PPP projects (INV_i), measured by total amount of investment in projects, has been contemplated as the dependent variable whereas amount of debt (Debt_i) measured through summing up loans taken from banks, Govt. sponsored and private NBFIs, and foreign organizations and amount of equity (Equity_i), measured by amount sourced as equity from developers, have been considered as the independent variables. The model has been run after taking log of all variables.

The first part of the paper states the introduction incorporating background, objectives and methodological aspects of PPP projects. Survey of relevant literature and definition of PPP concepts are presented in the second part. The third part summarises the conduits of PPP financing used in different types of projects worldwide. Financial structure currently followed in PPP projects in Bangladesh are analyzed in the fourth part of the paper. Correlation and regression analysis have been portrayed in the fifth part. Part sixth shows the position of PPP initiatives across the world. Financial contributions of institutions created by Govt. for infrastructure financing are examined in the seventh part. Finally, the report has been ended with incorporating future strategy of finance for PPP projects in the eighth part of the report.

2. PPP Financing: Concept and Review of Literature

2.1 Concept of PPP

A precise and widely accepted definition of PPP is not available and hence the concept of PPP is still contested. According to Asian Development Bank Institute (ADBI 2000), “Public Private Partnerships are collaborative activities among interested groups, based on a mutual recognition of respective strengths and weaknesses, working towards common agreed objectives developed through effective and timely communication”. The World Bank’s definition of PPPs is closely aligned to that of the ADBI. The World Bank (1999) defined Public Private Partnerships as “joint initiatives of the public sector in conjunction with the private, for profit and not-for-profit sectors”, also referred to “as the government, business and civic sector”. In these partnerships, each of the actors contributes resources (financial, human, technical and intangibles viz., information or political support) and participates in the decision-making process. World Bank has also contemplated PPP as “a win-win relationship between the government and various private sector players for the purpose of delivering a project or service by sharing the risks and rewards of the venture”. According to the Organization for Economic Cooperation and Development (OECD), PPPs refer to any form of agreement or partnership between public and private parties (OECD 2000). In most cases, PPP allows private sector to venture into areas of business that have been historically controlled by the government with respect to either infrastructure or service delivery process or both.

In the Policy & Strategy for PPP (2010) of the Government of Bangladesh (GOB), the concept of PPP is explained as follows: “Public-Private Partnership (PPP) projects normally cover public good provisions characterized by indivisibility and non-excludability, natural monopoly characterized by declining marginal cost (and associated average cost), and lumpy investment characterized by long

gestation period”. PPP is a win-win relationship between the government and various private sector players for the purpose of delivering a service by sharing the risks and rewards of the venture under a contractual obligation. In most of the cases, PPP allows private sector into areas of business, where the government holds control over infrastructure or service before such partnership. The public sector retains a significant role in the partnership, either as the sole purchaser of the services provided or as the main enabler of the project. The private party commonly provides the detailed design, construction, operation and financing for the PPP project, and is paid according to the performance (Amin 2011).

2.2 Literature Review

A large body of literature is available on PPP initiative. Thomson (2005) and Savas (2000) state that PPPs can take many forms, depending upon the exact allocation of risks and responsibilities. The most common PPP model includes Build-Operate-Transfer (BOT) (Appendix-2). In general, the financial arrangements of BOT projects are designed and financed by the private sector, and run and maintained by the private sector for the concession period. Campbell (2001) also emphasizes on financial arrangements of PPP and concludes that ‘a PPP project generally involves the design, construction, financing and maintenance and in some cases operation of public infrastructure or a public facility by the private sector under a long-term contract’. Collin (1998), after surveying 117 different public-private partnerships in Sweden, refers PPP as an arrangement between a municipality and one or more private firms where all parties were involved in sharing risks, profit, utilities and investments through joint ownership.

Usually, PPP projects are financed under Project Finance arrangements¹ all over the world. According to Finnerty (1996), project finance is “the raising of funds to finance an economically separable capital investment project in which the providers of the funds look primarily to the cash flow from the project as the source of funds to service their loans and provide the return on their equity invested in the project.” According to Nevitt and Fabozzi (2000), “a financing of a particular economic unit in which a lender is satisfied to look initially to the cash flow and earnings of that economic unit as the source of funds from which a loan will be repaid and to the assets of the economic unit as collateral for the loan”. Project finance has been using since long ago for funding the capital expenditure projects. One of the earliest recorded applications of project finance is in 1299, when the English Crown enlisted a leading Florentine merchant bank to aid in the development of the Devon silver mines. In the seventeenth and eighteenth centuries, the trading expenditures were also financed by the project finance structures. In the 1970s, project finance began to develop into its modern form. Chen *et al.* (1989) documented more than USD 23 billion worth of project financing between 1987 and 1989, and identify 168 projects financed on this format including 102 projects for power generation.

Tiong and Alum (1997) emphasize on the financial structuring of a PPP project and suggest that sourcing of PPP projects’ capital should be developed in such a way that aims at diverting the risks associated with the project from the sponsors while maximizing the project leverage through a judicious mix of the various sources of funds

¹ Project financing is generally used to refer to a non-recourse or limited recourse financing stature in which debt, equity, and credit enhancement are combined for construction and operation, or the refinancing of a particular facility in a capital-intensive industry, in which lenders base credit appraisals on the projected revenues from the operation of the facility rather than the general assets or the credit of the sponsors of the facility, and rely on the assets of the facility, including any revenue-producing contracts and other cash flow generated by the facility, as collateral for the debt (Hoffman 2001).

available in the market. They also emphasize that the financing strategies adopted for the project should result in a financial package with low capital cost, high credibility, minimal financing risk to sponsors, and minimum burden of debt servicing capacity on revenue.

Regan (2004) tries to pin point the possible sources of equity financing in PPP projects. He finds that some Australian PPP projects have utilized ordinary equity capital by floating Initial Public Offerings (IPOs) in stock market for PPP Greenfield projects in addition to developers' initial equity infusion. He cites two instances in this regard: the 'Transurban City Link Project' at Melbourne of Australia was commissioned in 2001 and in the same year the project was listed in the ASX prior to commencement of construction and 'The Eastlink Project' was listed as Connect East Group in November 2004 prior to construction commencing in early 2005 and included completion risk in the parcel of risks transferred to buyers of its securities. Some studies have been carried out to identify the new sources of equity financing to PPP projects. One recent study puts this investor base at about USD 90 trillion globally (HSBC 2013). Investors such as insurance companies or private equity funds are investing in unlisted infrastructure equity in some developed countries. The reason of growing interest of institutional investors like pension funds, insurance companies or sovereign wealth funds to PPP infrastructure projects is that they want diversified portfolio of long-term assets. Canadian pension funds have pioneered direct investment into infrastructure amounting to around 5 per cent of the world's total investments in 2012. According to the OECD's annual large pension fund review (OECD 2013a), the two large Canadian pension funds CPPIB and OMERS invested USD 9.9 billion and USD 9.1 billion in direct unlisted infrastructure equity, respectively. Australian pension funds have significant investments in infrastructure funds. Moreover, recent important policy initiatives by the G20 look at the potential of equity instruments which pool institutional investor capital (OECD 2014).

A paper published by OECD (Inderst 2009) provides estimation of the total commitments of pension funds on infrastructure for 2008. A raw estimate quantifies the total commitment in listed infrastructure stocks at USD 400 billion. Excluding utilities, the figure is estimated at around USD 60 billion. The OECD Survey on large pension funds published in October 2013 shows that despite a limited direct average allocation to infrastructure some funds are allocating important percentages to infrastructure either in the form of (listed and unlisted) equity or fixed income (OECD 2013a). Della and Loboul (2014) cite the investor survey conducted by Towers Watson and Financial Times in 2013 and reports that out of the USD 3.1 trillion total Assets under Management (AUM) by the top 100 alternative investment asset managers, \$127.6 billion were invested in infrastructure. Pension funds and SWFs were the investors more inclined to invest in infrastructure (9% and 10% of their AUM, respectively). In 2013, data reported by the OECD indicate that in a sample of the most important SWFs worldwide, the percentage allocation to infrastructure is remarkable with peaks between 10-12 per cent in Temasek and GIC (Singapore) and Alaska Permanent Fund (US).

Banks usually supply the largest share of debt financing in the initial phase of infrastructure projects. Della and Yermo (2013) have identified the role of banks in PPP infrastructure financing in their study. They documented that Chinese banks have been rapidly expanding their financing operations for infrastructure projects particularly in Africa. Bank loans for infrastructure projects are in many cases extended by a syndicate of banks rather than a single bank. Syndicated loans are common for the debt-financing of larger projects, as they allow the diversification of the large risks of a single project across a group of banks (Ehlers 2014). Ferreira and Khatami (1996) study the behavior of institutional debt financing especially by banks and found some of their weaknesses in financing PPP projects. They

claim that commercial banks in developing countries are usually unable to make long-term loans because the profile of their liabilities is mostly short-term. A recent unpublished paper by Gatti et al. (2013) has compared the characteristics of a large cross section sample of 2,564 syndicated term loans and 294 project bonds tranches for project finance transactions closed between January 1995 and March 2012. Results indicate an increase in spread of about 64 bps for loans and 20 bps for bonds before and after the outburst of the crisis in 2007. According to World Bank (2004) study, investment in infrastructure projects with private participation in developing countries was USD 890 billion from 1990 to 2003. Project Finance loans are also practiced in the Asia Pacific region. For example, in 2005 project finance loans was USD 6.7 billion in this region (Srivastava and Kumar 2010).

Although banks and financial institutions dominate the PPP projects finance, bonds financing in PPPs are also predominant in many developed countries. Particularly, bond method of financing PPPs is widely used in U.K. and Canada and is based on project finance principles and high leverage. An advantage of this financing method is the opportunity to structure financial risk management into the tenor, currency, and pricing of the bond issue. European PPP projects, for example, in the period 2004-2006, indicate initial debt capitalization averages from 76 to 82 per cent increasing to 85 per cent at the first refinancing (National Audit Office 2005; Standard and Poor 2004, 2005). According to the European PPP Expertise Center (2010), bonds have been used most extensively in PPP projects in countries with significant private-sector pension schemes which have long-term liabilities that need to be matched to long-term investments. Particularly, in UK bond financing was the dominant financing solution for large projects since the launch of the Private Finance Initiative (PFI) in the 1990s and continued until the financial crisis in 2008. According to the HM Treasury and Partnerships UK (EPEC 2010), between 1996 and 2009, a total of 663 PPP projects were

signed. During this period, of the 48 projects with a capital value of more than or equal to £ 200 million, 25 (52%); of the 28 projects with a capital value of more than or equal to £ 300 million, 18 (64%); of the 11 projects with a capital value of more than or equal to £ 500 million, 8 (72%); of the 12 hospital projects with a capital value of more than or equal to £ 300 million, 10 (83%) were bond-financed. The United States has long supported tax-exempt bonds as a method of raising private infrastructure finance for state and local governments. The program authorizes state and local governments to issue tax exempt bonds for investment in ports, urban transport, public schools, waste management systems, energy, water, intercity rail services, public housing, and airports. The scheme has been criticized for many years as an inefficient method of attracting private infrastructure investment (Regan 1999).

Another form of debt financing known as Credit Guarantee Financing (CGF) was introduced in U.K. in 2003 to provide a mechanism for using public debt capital to finance PPP projects. In UK, two health sector PPP projects in 2004 at Leeds (DLA 2006) and in Portsmouth in 2005 (Treasury 2006; Minter 2007) were built on CGF model. In the Leeds project, the consortium's financiers provided the credit guarantee and for the Portsmouth project, the guarantee was furnished by a monoline¹ insurer. An assessment of both projects identified life-cycle interest cost savings to be in the range of 8-16 per cent of aggregate finance costs. The CGF model can lower the cost of capital and improve Value for Money (VFM) as the objective of CGF is to reduce the consortium's cost of capital and thereby improve the long-run and overall VFM outcomes for the state. A hybrid variation of CGF which is known as 'Supported Debt Model (SDM)' is also prevalent in

¹ These companies are called "monolines" because, although they are legally licensed and organized as insurance companies, they are permitted by law to offer only one form of insurance-financial guarantees- as opposed to other insurance companies which may offer various insurance products and are called "multi-line" insurers.

some PPP projects in developed countries. For instance, the Queensland Government of Australia is currently running a pilot program for a PPP in the education sector using the SDM (Lester 2008).

Wibowo (2004) reviews the Indonesian state support for BOT toll road projects and documents five forms of state support to PPP road projects: revenue guarantees, interest subsidies, tariff guarantees, minimum traffic guarantees, and guarantees of debt. The study by Wibowo reveals that the probability of a guarantee being called in projects with an average 80:20 debt to equity ratio was 5 per cent compared with 89 per cent for tariff guarantees, 54 per cent for interest guarantees, and 39 per cent for traffic guarantees. On a risk payoff basis, project debt guarantees were found to be the least risky form of guarantee for government (Wibowo 2004).

3. Sources of Finance Used in PPP Projects Worldwide

A variety of financing sources are being used in PPP projects depending on the size, nature, stage and eminence of financial system of the respective country. Viability Gap Funding (VGF) is also made available by the Government to make project commercially viable. A detailed discussion on sources of finance including suitability of finance depending on the project life cycle is made in this section.

3.1 Domestic Sources of Financing

Finance from domestic sources is sine qua non for PPP projects as these sources give greater flexibility in the formulation and implementation of policies and would have more control over long-term planning and asset management. Major domestic sources for equity and debt financing include equity market, commercial banks and non-bank financial institutions, domestic bond markets, pension funds, insurance funds, securitization, etc.

3.1.1 Equity Financing

Project developers/ sponsors are responsible for arranging all sorts of funding in PPP project along with expertise required to design, build and operate the project. Equity contributors in PPP project usually include the project participants, local investors, the host government, the guarantor, other interested governments and institutional investors. Equity contributions bear the highest risk and therefore potentially receive the highest returns. Quasi-equity is another commonly used source of finance in PPP project.

3.1.2 Debt Financing

3.1.2.1 Domestic Commercial Banks and Non-Bank Financial Institutions (NBFIs)

Commercial banks and NBFIs act as principal financiers in PPP project in many economies where capital market is not developed. They play an important role by offering performance guarantees and letters of credit too. These financial institutions provide finance to projects, which have credit ratings close or equal to sovereign investment grades. Projects that lack public sector guarantees rarely attract commercial bank interest, due to the prevailing challenges of accurately measuring infrastructure project risks. According to PPP in Infrastructure Resource Center of the World Bank, banks tend to be junior member of syndication because of the complexity and duration of project, lack of technical capability of banks and less willingness to enter into these projects (WB 2011). In countries like Brazil, Chile, Mexico, commercial banking sector actually serves as one of the principal agents for infrastructure funding.

3.1.2.2 Domestic Bond Market

Domestic bond market comprising a variety of bonds has been used very effectively for sourcing funds for PPP projects. Besides senior

bonds, subordinated bonds¹ known as mezzanine capital² and sub-sovereign bond³ are extensively used in generating funds. Mezzanine financing for PPP project can be obtained from shareholders, commercial lenders, institutional investors, and bilateral and multilateral organizations. Bonds like Sukuk, Zero coupons, Deep Discount bonds are also utilized in this respect. This form of funding has been most prevalent in the United Kingdom where bond financing to PPPs is commonly happened since the launch of the UK's Private Finance Initiative in the 1990s. The special feature of the PPP bond market in Europe is that it has extensive use of monoline guarantees. Very few public bonds have been issued without such a guarantee. However, lack of a large private pension system resulting in insufficient demand for the asset, existence of a strong local banking market willing to maintain market share through aggressive pricing and terms; and insufficient knowledge of the bond market of both the public sector and private sponsors are the reasons for absence of public bond financing in PPP projects.

3.1.2.3 Pension Funds

Pension funds offer local long-term financing, particularly used as a source of finance where capital markets are underdeveloped. The risk-averse and long-term nature of pension funds fits with the long-term nature of infrastructure cash flows. Moreover, infrastructure investments offer yields that are higher, stable and linked to inflation⁴.

¹ Subordination involves a lender agreeing not to be paid until another lender to the same borrower has been paid, whether in relation to specific project revenues or in the event of insolvency.

² Use of mezzanine capital in PPP projects will allow the project company to maintain greater levels of debt to equity ratio in the project, although at a higher cost than senior debt. Mezzanine contributors will be compensated for the added risk they take either by receiving higher interest rates on loans than the senior debt contributors and/or by receiving partial participation in the project profits or the capital gains achieved by project equity.

³ Sub-sovereign infrastructure bonds are basically municipal bonds that have been considered extraordinarily successful vehicle for cities, towns and counties in many countries especially in the US to raise capital for infrastructure investments.

⁴ OECD/ IOPS Presentation in Kenya (2008)

Pension funds with fully funded systems are a prospective investor for infrastructure financing. In Canada, the Ontario Municipal Employees Retirement System (OMERS) has invested several billions Can\$ in infrastructure through its subsidiary Borealis Infrastructure, set up in 1998. The Ontario Teachers' Pension Plan (OTPP) is another example (Inderst 2009) for financing in PPP projects. However, pension investment has been quite limited in infrastructure projects despite the diversification and return potential. An estimated 1 per cent of pension funds are invested in infrastructure development globally (excluding indirect equity investments via listed infrastructure companies) (OECD 2011a). Pension funds represent 10-20 per cent of GDP in countries like Mexico and Brazil, yet pension funds in these countries are untapped (CAF 2012).

Regulations related to investment, funding, solvency and risk management may have an effect on investment in infrastructure sector. By ensuring proper regulatory environment and providing various positive incentives such as tax advantage, special subsidies, guarantees, etc. this fund can be brought in infrastructure sector¹. Vives (1999) emphasizes on developing local capital markets and infrastructure securities to tap pension funds for infrastructure investment.

3.1.2.4 Insurance Funds

Several major insurance companies around the world are moving towards infrastructure investment especially to green infrastructure investment. Allianz, the German insurer, has invested a total of EUR 1.3 billion in renewable energies, after buying three additional wind farms. At the start of 2011, Allianz's investments in wind and solar

¹Ernst and Young (2007) mention that some developing countries such as India, Brazil, and China provide infrastructure specific incentives designed to encourage private investments. The US has traditionally encouraged infrastructure financing in the public sector via the favorable tax treatment of municipal bonds.

energy surpassed the EUR 1 billion marks, and the company increased that amount by nearly 25 per cent in the past 12 months.

3.1.2.5 Export Credit Agencies

Export Credit Agencies (ECA) also take financial participation in PPP projects around the world. An export credit agency is a private or quasi-governmental institution that acts as an intermediary between national governments and exporters to issue export financing. Financing from these agencies can take various forms like direct financial support, credit insurance and guarantees (pure cover) or both. ECAs are active in a number of developing countries in financing PPP infrastructure projects (World Bank PPPIRC 2015).

3.1.2.6 Securitization in PPP Project

In case of asset securitization, the corresponding cash flows often refer to the fares, rights or tolls related to the use of the infrastructure asset. In Latin America, countries like Mexico have been able to utilize securitization as a way to channelize funds to the infrastructure sector. For example, in 2004, the company Carreteras de Cuotas Puebla (Puebla Toll Roads, CCP in Spanish) of the state of Puebla in Mexico issued a municipal bond backed by future cash flows from toll collections on state road Via Atlixcayotl. The bonds issued by Via Atlixcáyotl were the first toll road securitization executed in Mexico, with partial loan participation by a local agent.

3.2 International Source of Financing

Various international sources of financing like multilateral development banks¹, international development finance agencies², multilateral infrastructure funds³ sovereign wealth funds⁴, etc. extend funding as well as expertise in order to build, finance and operate successfully of PPP project. Additionally, Foreign Direct Investment (FDI) could also provide valuable financing alternatives for infrastructure projects in developing countries.

3.3 Government Financial Support

PPP projects may be socially viable but commercially not viable. Governments might contribute funds to enhance the viability of the project lenders. A key reason for this is to make the PPP project “bankable” to the private financiers. Table-1 highlights some forms of government support mechanism in PPP projects.

¹ This group includes the World Bank, Asian Development Bank, African Development Bank, Inter-American Development Bank, etc.

² International Development Finance Institutions (DFIs) are International Finance Corporation (IFC), European Bank for Reconstruction and Development (EBRD), CDC Group (UK’s development finance institution), DEG (the German development finance institution), Proparco (the French DFI) and European Investment Bank (EIB). Some of these DFIs also have specialist products and facilities that support project development and seed equity to projects, such as IFC’s Infraventures initiative.

³ Multilateral Infrastructure Funds: In an effort to increase infrastructure investment in the ASEAN region, the governments of 10 South East Asian countries (Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei, Myanmar, Cambodia, Laos and Vietnam) recently collaborated with the Asian Development Bank (ADB) in order to establish the ASEAN Infrastructure Fund (AIF). Under the AIF, debt will be issued to leverage 1.5 times the fund’s equity, using hybrid capital (perpetual bonds) to target high-investment grade credit ratings. In December of 2013, AIF announced its first loan transaction, US 25 million to finance improvement in power transmission between Java and Bali, Indonesia. The ADB and Indonesian government will finance the remaining USD 410 million for the project (“Indonesia Power Project”, 2013).

⁴ Sovereign Wealth Funds (SWF) are state-owned investment fund composed of financial assets such as stocks, bonds, property, precious metals or other financial instruments. They are typically created when governments have budgetary surpluses and have little or no international debt. Since 2000, the number of sovereign wealth funds has increased dramatically. The first SWF was the Kuwait Investment Authority.

Table 1: Government Support Mechanism in PPP Projects

Key Government Supports	Description
Viability Gap Funding (VGF) or Operational Subsidy	A payment by the public sector subject to minimum performance standards is being met. Generally provided where there is a need to reduce user charges for social or affordability considerations. VGF mechanisms are usually used during the construction phase and are therefore sometimes viewed as construction subsidies.
Minimum Revenue Guarantee	A guarantee by which a sponsoring government shares the traffic risk or demand risk for a project.
Annuity Payments/ Availability Payment Mechanism	Payment by the public sector against project costs which is linked to availability of the required service and amortized over the life of the contract.
Debt Service Guarantee/ Credit Enhancement	A guarantee of the loan that the PPP Company obtains from a financial institution for a project. The credit guarantee increases the viability of the PPP project by reducing repayment and political risk.

Source: ICRC PPP Toolkit (2012)

3.3.1 Viability Gap Funding (VGF)

Through VGF, government provides grants to public-private partnership infrastructure projects that are often having long gestation period and inability to increase user fees to commercial levels. Usually, Governments will set certain conditions, such as the need for a concessionaire of a project to spend its agreed share of the equity before disbursing government grants, a minimum investment amount in the project, etc. Department of Economic Affairs of the Government of India has recently approved a viability gap funding grant for a metro railway project in the city of Hyderabad, Andhra Pradesh, of about \$244 million, which constitutes 12.35 percent of the total cost of the project¹. In Indonesia, the Government began developing a (viability gap funding) scheme to support public-private partnerships in

¹www.thehindu.com/news/cities/Hyderabad/hyderabad-metro-rail-gets-rs-1458-coreviability-gap-funding/article4693041.ece.

infrastructure investments in 2013¹. In Bangladesh, viability gap funding is also made available by giving capital grants and annuity payments or both, for up to 30 percent of a build-operate-transfer project, excluding the cost of land². Recently, one mega metro rail project (Dhaka Elevated Expressway PPP project) in Bangladesh has got commitment of USD 305.55 million as VGF. Of the VGF, 50 percent will be given during construction phase in three equal installments upon reaching specific construction milestone and remaining 50 percent will be provided during operation phase upon fulfilling certain conditions specified by the government authority³.

3.3.2 Minimum Revenue Guarantee

Under minimum revenue guarantee, the sponsoring government compensates the private developer of an infrastructure asset if the actual revenues from users fall short of the guaranteed amount. One widely used method for minimum revenue guarantee is public partner's assurance for a minimum number of vehicles (in case of a toll-based transport project) at an agreed toll level. For instance, a significant share of the projected revenue in Republic of Korea was guaranteed by the state.

3.3.3 Annuity Payments/ Availability Payment Mechanism

This is used where there are no user charges or the public sector is the sole user of the service. Some projects are deemed unsuitable for user-charging schemes and the Government may provide the equivalent amount of revenue from the public purse. For example, India used a private finance initiative-type model called the “annuity concession” model, under which the National Highways Authority of India agreed

¹ Indonesia country report submitted to the third Asia-Pacific Ministerial Conference on Public-Private Partnership for Infrastructure Development, Tehran, 11-14 November, 2012.

² Bangladesh “Guideline for Viability Gap Financing (VGF) for Public-Private Partnership (PPP) Project”. Presentation made at the Indonesia PPP Infrastructure Investment Forum-Issues and Outlook for PPP Infrastructure Development in Indonesia, Tokyo, January 2013. (Available from www.pppo.gov.bd/download/ppp_office/Guideline-for-VGF-PPP-Sep2012.pdf).

³ Based on Project Document.

to pay the private operator a fixed, semi-annual payment (annuity) over an agreed period to compensate them for the construction, operation and maintenance costs of a given section of highways. The typical operating and maintenance period was 10 years.

3.3.4 Debt Service Guarantee/ Credit Enhancement

Government issues debt service guarantee to allow private promoters to access commercial loans¹. Government covers the potential liabilities of the public-private partnership vis-à-vis its lenders, in order to enhance the creditworthiness of the operation, as has been done for some projects in Turkey. Some countries have set up dedicated funds to issue such guarantees. For example, Indonesia Infrastructure Guarantee Fund was created in 2010² and the Korean Infrastructure Credit Guarantee Fund was established in 1994.

3.4 PPP Project Lifecycle and Suitable Financing Option

In PPP projects, sources of finance change over the project's life cycle. During construction, expenses are financed with sponsor equity complementing with bridge loans, subordinated or mezzanine debt and bank loans. In some cases, it may receive government subsidies/ grants and/or guarantees in money or kind. However, at this stage there is ample scope for moral hazard. Tirole (2006) and Yescombe (2007) prefer bank finance at this stage as banks perform a monitoring role suitable to mitigate moral hazard by exercising tight control over changes in contract and behavior of SPV³ (Appendix-3). Banks

¹In this case, special care is needed to avoid the private sector being in a “no loss, no incentive” situation.

²For further details, see, Price Waterhouse Coopers, “The Report: Indonesia 2012”. Available at www.pwc.com/id/en/publications/assets/thereport_indonesia_2012_obg.pdf

³ Establishing an SPV is a common structure (Appendix-3) in PPP projects where the SPV is a new standalone firm that owns and manages the infrastructure assets until the investment costs are recuperated. The SPV is managed by a sponsor, an equity investor responsible for bidding, developing, and managing the PPP project. SPV provides a way to funding against the cash flow of the project and ring fence the proceeds. This structure can be regarded advantageous to investing in corporations, where inventors expose themselves to all business activities of the firm, including those that do not relate to the specific infrastructure project being considered.

disburse funds gradually by taking into account completion stages of PPP projects.

After completion of the project, risk falls abruptly and is limited to events that may affect cash flows. At this stage, bond finance substitutes bank loans because bondholders care only events that significantly affect the security of the cash flows. On the other hand, the sponsor's equity may be bought out by a facilities operator, or even by third-party passive investors, usually institutional investors (Table-2).

Table 2: Phases of PPP Based Infrastructure Projects and Financial Characteristics

Phase	Economic and Contractual Issues	Financial Characteristics	Potential Investors
Planning	Contracts are written in the planning phase and are crucial to the success of projects. The planning phase can take a long time (10 to 30 months) and the involved parties may attempt to renegotiate contract commitments. Ratings from rating agencies are important to secure interest from debt investors, credit insurers or government guarantees.	The procuring authority needs to find equity investors. The equity sponsor needs to secure commitments by debt investors (mostly banks). Given the long planning period, early commitments by debt investors come at a high cost.	Equity sponsors are often construction companies or governments. In rare cases, infrastructure funds (Australia, Asia) or direct investments by pension funds (Canada) may be involved. Debt investors are mostly banks through (syndicated) loans. Bond financing is rare, as projects carry high risks in the initial phases.
Construction	Monitoring incentives are essential. Private involvement (as opposed to purely	Initial commitments by debt-holders must extend far beyond this stage, as a project does not	Refinancing or additional financing is very difficult and costly at this stage. Equity sponsors may have

	public investment) can ensure this.	generate cash flows in this phase. This is a high-risk phase. Unexpected events are likely due to the complexity of infrastructure projects.	an incentive to provide additional finance if risks materialize.
Operational	Volatility of cash flows due to demand risks is the key. Models such as flexible term present value contracts and availability-based fees reduce volatility, risk and financing costs, but have adverse incentive effects.	The risk of default diminishes considerably.	Bonds are a natural choice, but they are not very common. Refinancing with bank loans or government funds is common.

Source: Based on Ehlers (2014)

4. Financial Structure and Sources of PPP Projects in Bangladesh: Analysis and Findings

4.1 PPP Financing in Bangladesh: Analysis and Findings

4.1.1 PPP Projects in Bangladesh: An Overall Analysis

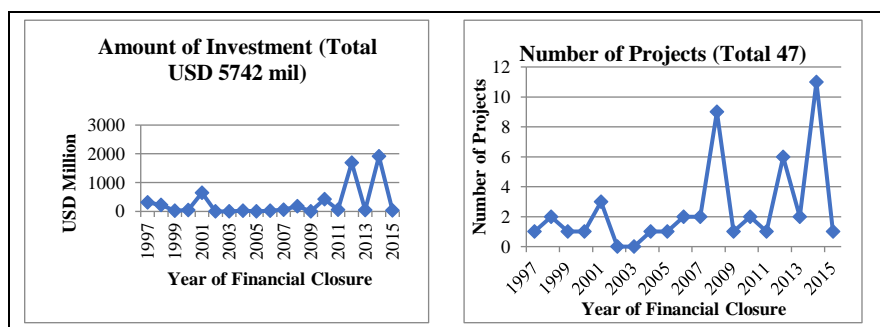
After adoption of private sector power generation policy by the Government of the People’s Republic of Bangladesh, PPP actually initiated its journey in 1996 and is now contributing actively to country’s infrastructure development. Meanwhile, about 47 projects with investment of USD 5,742 million achieved financial closure under this arrangement.

4.1.1.1 PPP Projects: Number and Amount of Investment

PPP projects show a sharp increase in the last 5 years after experiencing a long slow growth rate after its initiation (Figure-1). In terms of amount of investment, majority of investment constituting

about 65 percent of total investment has been made during the period 2011-2015. As per number of projects, a boom has been observed during 2008-2010 and 2014-2015. It is occurred due to establishing many power projects by private sector in response to government’s massive target of producing much needed electricity. As many as 10 power plants have been established during the period 2008-2010. Afterwards, between 2014 and 2015, 11 more power plants have been set up followed by four water treatment projects, one inland container depot and two mega road sector projects¹ (Figure-1).

Figure 1: PPP Projects: Trends in Number and Amount of Investment (1997-2015)



Source: Researchers’ Own Calculation

Table-3 shows the momentum in launching PPP projects since 2006. The Compound Annual Growth Rate (CAGR) of number of projects undertaken in the entire period is 8.30 percent. On the other hand, a total of USD 3,748 million has been invested during 2011-2015 in all projects covering all the sectors indicating a very steeper growth rate of 439 percent over the period 2006-2010. The CAGR is 10.60 percent for the whole period 1997-2015.

¹Two mega road and bridge sector projects are Mayor Mohammad Hanif (Jatrabari-Gulistan) flyover and Dhaka Elevated Expressway. During the period 2007-2009 and 2013-2015, a total of 33 projects in different sectors have got financial closure and most of the projects have launched their operation.

Table 3: PPP Projects: Number and Amount of Investment

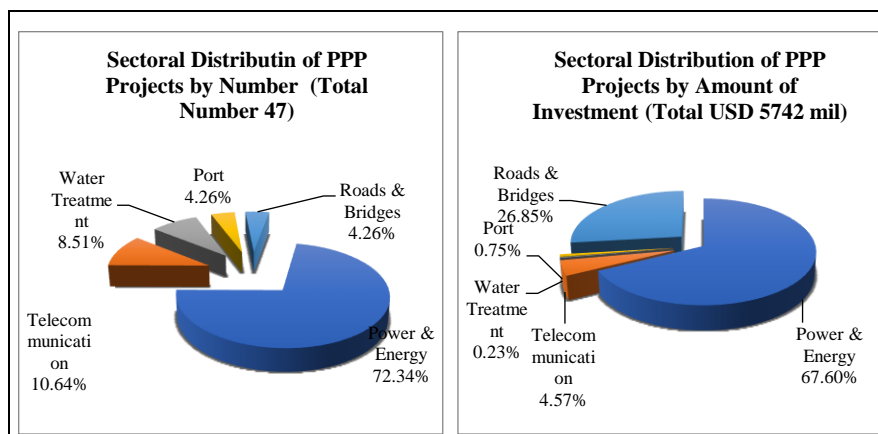
Year	PPP Projects by Number		PPP Projects by Amount of Investment (USD Mil)	
	Number of Projects	Growth Rate (%)	Investment (USD Million)	Growth Rate (%)
1997-2000	5		611.16	
2001-2005	5	0.00%	686.68	12.36%
2006-2010	16	220.00%	695.80	1.33%
2011-2015	21	31.25%	3747.99	438.66%
Total	47		5742	
CAGR	8.30%		10.60%	

Source: Researchers' Own Calculation

4.1.1.2 PPP Projects: Sector-Wise Number and Amount of Investment

Sector-wise allocations of projects in terms of both number and amount of investment are highlighted in Figure-2. The figure clearly postulates the dominance of power and energy sector over other sectors in terms of both number and amount of investment. It is indicated that almost 72.34 percent projects have been established in power and energy sector followed by telecommunication sector of 10.64 percent and water treatment sector of 8.51 percent. A small number of projects have been undertaken in port, and road and bridge sector constituting two projects in each sector. The figure also shows that 67.60 percent of total investment has been poured into power and energy sector followed by the road and bridge sector of 26.85 percent of the total amount of investment. It is viewed that road and bridge sector is holding only 4.26 percent of total number of PPP projects capturing 26.85 percent of total investment (Figure-2). It happens because huge amount of investment is associated with these projects.

Figure 2: PPP Projects: Sector-wise Number and Amount of Investment



Source: Researchers' Own Calculation

4.1.1.3 PPP Projects: Model-Wise¹ Number and Amount of Investment

It is revealed that majority of the projects in Bangladesh are implemented under BOO scheme (Table-4). Among the projects implemented under PPPs, 40 projects (85.11%) follow BOO model, 2 projects under BOT and open license, and three projects follow other models (Table-4). All the power and energy sector projects have been established under BOO model, but the road sector projects are built under BOT and BOOT models. As is the case in number of projects, major portion of investment has gone to BOO projects absorbing about 61 percent of total investment followed by BOT projects (21%).

¹ In Bangladesh, PPP infrastructure projects are implemented by widely established PPP models such as BOO, BOT, BOOT, etc. which are followed all over the world in infrastructure financing. The variations of PPP model can be explained as: BOO means Build-Own-Operate, BOT means Build-Operate Transfer, BOOT means Build-Own-Operate Transfer, BLT means Built-Lease-Transfer, BROT means Built-Rehabilitate-Operate-Transfer.

Table 4: PPP Projects: Model-wise Number and Amount of Investment as of December, 2015

PPP Model	By Number		By Amount of Investment (USD Million)	
	No. of Projects	% of Projects	Amount	% of Investment
BOO	40	85.11%	3511.33	61.16%
BOT	2	4.26%	1214.19	21.15%
BOOT	1	2.13%	331.67	5.78%
BLT	1	2.13%	313.7	5.46%
BROT	1	2.13%	318.73	5.55%
License	2	4.26%	52.01	0.91%
Total	47	100.00%	5742	100.00%

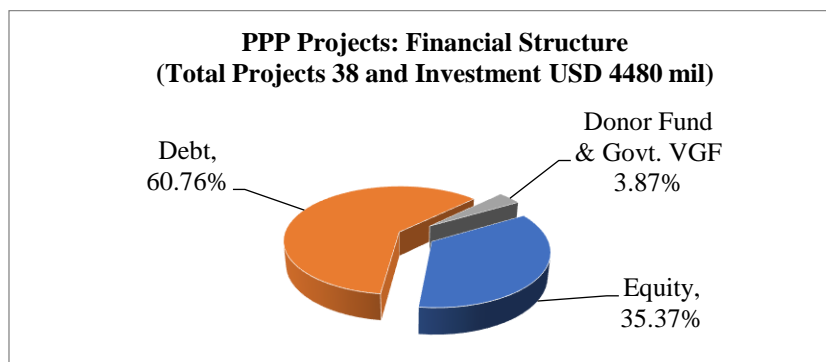
Source: Researchers' Own Calculation

4.1.1.4 PPP Projects: Financial Structure¹

Figure-3 shows that PPP projects in Bangladesh have been largely financed by debt. On an average 61 percent of the project cost has been financed by debt, 35 percent by equity and the remaining around 4 percent of the project cost has been given by donor agencies and government in the form of grants and Viability Gap Funding (VGF). Till date, only one PPP project has got sanction for VGF from the government. Usually, VGF is provided to those projects which are somewhat socially viable but commercially is not viable. A total of USD 4,480 million has been invested to these 38 PPP projects.

¹ As mentioned earlier, financial data were collected only from 38 projects although some other data were collected from 47 projects. As such, financial analysis has been done on the basis of 38 projects only.

Figure 3: PPP Projects: Financial Structure as of December, 2015

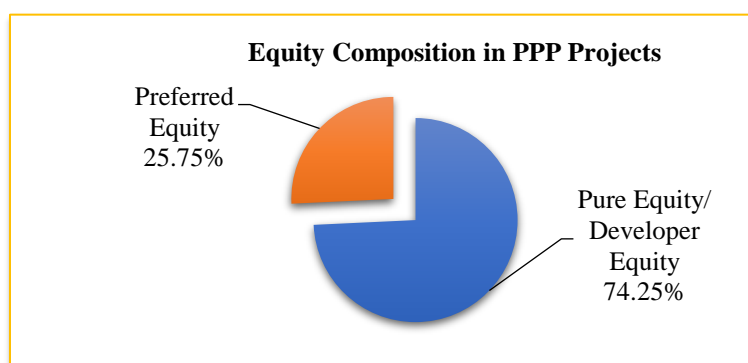


Source: Researchers' Own Calculation

4.1.1.5 PPP Projects: Equity Financing

In Bangladesh, only sponsor equity and quasi-equity have been utilized in PPP projects. It is seen from the Figure-4 that, about 75 percent (USD 1176.67 million) equity has been supplied by the project developers and remaining equity (USD 407.98 million) has been collected from preferred stockholders.

Figure 4: PPP projects: Equity Composition in PPP Projects



Source: Researchers' Own Calculation

In terms of absolute figure, total infused amount of equity in PPP projects is USD 1584.65 million till 2015 (Table-8). In this investment, power and energy sector collects the highest amount of equity amounting to USD 886.10 followed by road and bridge sector of USD

635.75 million. It is noted that this large amount of equity investment is made by the promoters of the PPP projects only. Other probable suppliers of equity like bank and financial institutions that normally participate in equity after completing construction phase, are not taking part in equity of PPP projects in Bangladesh as of today because of lack of exit options, lock-in, etc.¹. It is noted that the scope and ability of developers to reduce their equity in the project either in construction stage and/or operation stage is important so that they can recycle the equity into other projects. Additionally, equity can be supplemented by preferred or quasi-equity and sub-debt² which is commonly followed

¹ One major reason for the predominance of equity infusion by developers is that currently there are several restrictions on equity investments in PPP infrastructure projects. For example, many concession agreements do not allow the developer to sell off their equity in the project. The way rules are structured in Bangladesh makes taking out of the equity by the developers very expensive. Internationally, it is common for financial/strategic investors to take over the project once the construction phase is over. This is because once the construction risk is over financial institutions are more adept at increasing the returns on the project equity as compared to a developer. The financial investor in turn hires a contractor/s to provide for O&M. In the context of Bangladesh, instances of selling down of the equity after a certain period of awarding concession agreement are very limited. Only few instances are observed regarding this issue in which only equity stake has been sold out/ transferred by one/ some of the partners of the initial joint venture project company (SPV) to the other partners. For example, in the case of Jatrabari-Gulistan Flyover PPP project, initially an SVP has been formed by the name 'Belhasa Accom and Associates Limited' as a member company of Orion Group to whom concession agreement has been awarded by Dhaka City Corporation as the government agent. The Belhasa Accom & Associates Limited, the SVP of this project, has been formed jointly by the Bahasa Accom and Associate Ltd. of Dubai and the Orion Group, Bangladesh. Later on, Belhasa Accom and Associates Limited have sold out its stake to the Orion Group and now the Orion group is the sole owner of the Jatrabari-Gulistan project. The Orion Group has changed the name of the SPV to new name 'Orion Infrastructure Limited' to build, own, operate and transfer the project to the government after concession period.

² Sub-debt is an innovative financing instrument which is issued as an advance on equity or as bridge finance usually by banks to cover a portion of the common equity pertinent to PPP infrastructure projects. In India, sub-debt has emerged as the primary means by which developers reduce their equity infusion in PPP projects. As has been seen, in India, commercial banks provide sub-debt to PPP project developers to whom banks have already extended senior term loan on syndicated basis. In India, the tendency of equity infusion by project developers is decreasing in some sectors especially in road sector while senior debt (term lending by banks) is increasing. To compensate for the lower levels of equity, banks in India often insist on sub debt to be taken by the promoter for bankable PPP projects. In some cases, this sub-debt has gone up to 25% of the project cost. The use of sub-debt has lessened the equity position below the commonly acceptable level of 30% in some PPP projects. In some projects, especially in the road sector, promoter equity even went below 10% (PWC 2007).

in PPP projects in many developing countries. In Bangladesh, there is no application of sub-debt in PPP projects. However, some PPP projects have utilized preferred stocks and advance on equity (bridge finance) as supplementary of developer equity. Four state-owned commercial banks (Sonali, Janata, Agrani and Rupali Banks Ltd.), one private commercial bank (SIBL) and only one state-owned investment bank (ICB) have supplied USD 83.33 million funds to Jatrabari-Gulistan Flyover PPP project against fully convertible cumulative preference shares. Additionally, these four state-owned commercial banks have also provided USD 128.21 million to the same project against fully redeemable cumulative preference shares. A total of USD 76.92 million fund has been supplied as advance on equity to Jatrabari-Gulistan Flyover project as bridge finance facility by three of the state-owned commercial banks (except Rupali Bank Ltd.) to complete the construction of the project.

4.1.1.6 PPP Projects: Debt Financing

Of the debt, 53.58 percent has been raised from local sources and the remaining 46.42 percent has been arranged from foreign sources (Figure-5). Local debt for PPP projects in Bangladesh has been provided by commercial banks¹, Non-Bank Financial Institution (NBFIs)², and three government sponsored organizations³, etc. Foreign sources of debt include multilateral and bilateral development financial

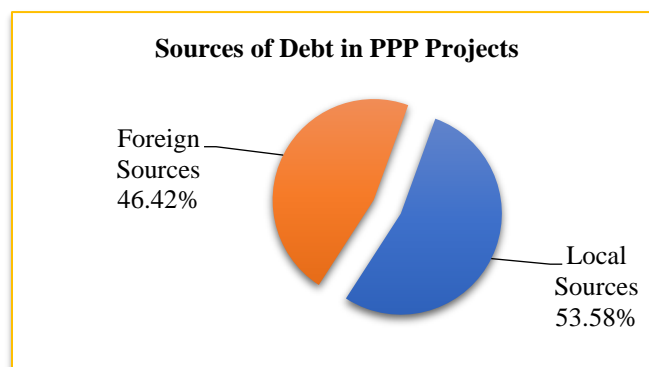
¹ A total of 36 commercial banks (SOCBs, PCBs and FCBs) have provided USD 1,014.95 million local debt to the 38 PPP projects considered for the current study. Among the banks, 4 are State-owned commercial banks, 29 are private commercial banks and 3 are foreign commercial banks.

² A total of 10 NBFIs have extended USD 35.76 million debt fund to 38 PPP projects.

³ IDCOL, IPFF and BIFFL.

institutions like IFC, ADB, China Development Bank, FMO¹, DEG², etc. A total of USD 1,263.48 million has been collected from foreign sources for the PPP projects implemented so far (Figure-5).

Figure 5: PPP Projects: Debt Composition in PPP Projects



Source: Researchers' Own Calculation

4.1.1.7 PPP Projects: Sources of Debt Financing

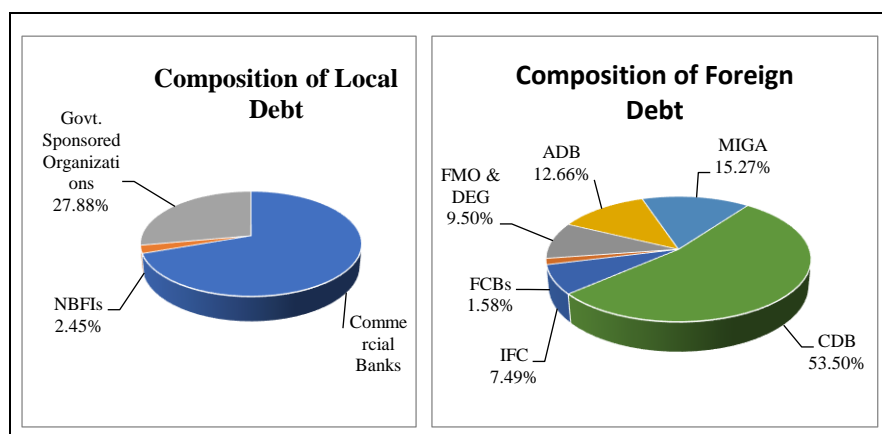
The institutions which dominate PPP project financing in Bangladesh are commercial banks. Out of total debt financing, nearly 70 percent is

¹FMO (Entrepreneurial Development Bank) is the Dutch Development Bank established in 1970 on a PPP basis in which 51% of the shares held by Dutch State and 49% held by commercial banks, trade unions and other members of private sector. The goal of FMO is to empower entrepreneurs in emerging economies to build a better world. FMO provides financing support to innovative and promising businesses as equity, loans and guarantees, mezzanine and other tailor-made solutions, long-term project finance, etc. Usually financial institutions, energy, agribusiness and food & water related infrastructure projects are their preferred area. Source: (<https://www.fmo.nl/page/586>)

² DEG (Deutsche Investitions- und Entwicklungsgesellschaft mbH) is a wholly-owned subsidiary of KfW (Bank für Sozialwirtschaft) Group. KfW has been established in 1948. The development of KfW Group has been closely connected to the economic development of the Federal Republic of Germany. As a promotional bank having headquarter at [Frankfurt am Main](#), KfW Group supports change and encourages forward-looking ideas – in Germany, Europe and throughout the world. The mission of KfW is domestic promotion, export promotion, environmental protection and development finance. As a subsidiary of KfW, DEG (founded in 1962) helps promoting business initiative in developing and emerging market countries as a contribution to sustainable growth and improved living conditions of the local population. DEG makes long-term financing and advice available to private enterprises notably in agribusiness, infrastructure, manufacturing and service industry and the finance sector. Source: (<https://www.deginvest.de/International-financing/DEG/Die-DEG/>)

sourced as term loans from commercial banks. The three government sponsored institutions provide around 28 percent and the rest of the debt is provided by NBFIs (2.45%) (Figure-6 and Table-5). It reveals that banks' finance is too high in PPP projects compared to other local financial institutions. This is supported by the World Bank estimation on infrastructure financing in developing countries wherein nearly 62 percent of the financing in PPP projects comes from financial institutions (PWC 2007). Among the foreign sources of debt, China Development Bank (CDB) provided more than 50 percent, followed by MIGA of the World Bank Group (15.27%); ADB guaranteed foreign loan (12.66%), FMO and DEG loans (9.50%), IFC loan (7.49%), and Foreign Commercial Banks loan (1.58%), respectively.

Figure 6: PPP Projects: Compositions of Debt Financing



Source: Researchers' Own Calculation

In examining period-wise financing pattern, it is seen that majority of debt financing has been extended during 2006-2015. Table-5 shows that commercial banks have provided about 97 percent (USD 981.96 million of the total USD 1,014.95 million) in the last ten years. The same trends of financing have also been observed by government sponsored organizations and foreign sources. NBFIs have extended about 92 percent (USD 33.07 million out of total USD 35.76 million) and government sponsored organizations have extended about 77

percent (USD 312.78 million out of total USD 406.54 million) of their total financing, respectively to PPP projects during this period (Table-5). However, foreign lenders are consistently financing PPP projects more or less in all periods and a total of USD 1,263.48 million have come from these sources as of today. CAGR of lending by commercial banks is very high of 20.81 percent compared to a moderate growth rate of foreign sources (13.41%) and NBFIs (11.54%) and a low growth rate of government sponsored financing (5.93%) during the period 1997-2015.

Table 5: PPP Projects: Source-Wise Debt Financing (1997-2015)

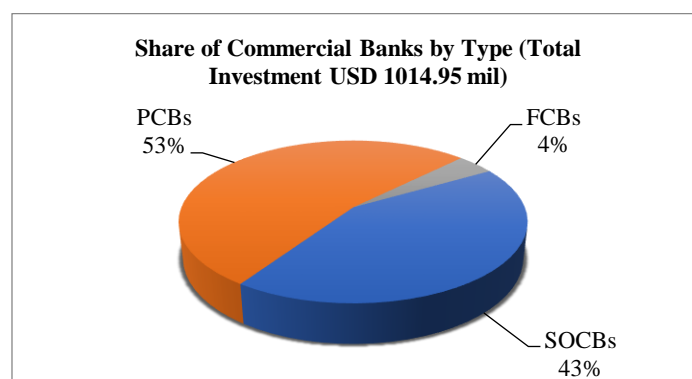
Year	Local Sources									Foreign Sources		
	Commercial Banks			NBFIs			Govt. Sponsored Org.			Multi/ Bilateral		
	Number	Value	Growth Rate	Number	Value	Growth Rate	Number	Value	Growth Rate	Number	Value	Growth Rate
1997-2000	2	25.88		0	0.00		0	0.00		1	103.7	
2001-2005	2	7.11	-72.53%	1	2.69		3	93.76		1	160	54.29%
2006-2010	14	204.81	2780.59%	5	19.23	614.74%	12	90.16	-3.84%	3	0.78	-99.51%
2011-2015	14	777.15	279.45%	3	13.84	-27.99%	14	222.62	146.91%	4	999	127976.92%
Total	32	1014.95		9	35.76		29	406.54		9	1263.48	
CAGR		20.81%			11.54%			5.93%			13.41%	

Source: Researchers' Own Calculation

4.1.1.8 PPP Projects: Finance of Different Group of Banks

Majority of the term lending is given by Private Commercial Banks (PCBs) followed by public sector banks and foreign commercial banks. Figure-7 shows that private sector banks dominate with a share of 53 percent, while share of public sector banks is 43 percent and foreign banks are only 4 percent, respectively.

Figure 7: PPP Projects: Bank Group-wise Financing



Source: Researchers' Own Calculation

In examining period-wise bank financing (Table-6), it is revealed that majority of funds from all type of banks has been provided in the most recent period. Particularly during the last decade, State-owned Commercial Banks (SOCBs) and Private Commercial Banks (PCBs) have disbursed about 97 percent¹ of their total PPP projects financing. SOCBs have disbursed USD 420.38 million out of the total USD 434.14 million and PCBs have disbursed USD 519.82 million out of their total USD 539.05 million in the last ten years. FCBs have financed all of their funds during these ten years. The CAGR for both SOCBs and PCBs is slightly above 20 percent but CAGR for FCBs is extraordinarily as high as about 86.77 percent. The reason of extraordinary high CAGR is that the period considered for calculating CAGR is relatively small (5 years) and the difference between beginning and ending amount is very large.

¹ A total of USD 420.38 million (USD 90.77+USD329.61) by SOCBs and USD 519.82 million (USD 112.28+USD 407.54) by PCBs equivalent to USD 940.2 million were financed, respectively between 2006-2010 and 2011-2015. This constitutes about 97% of the total financing (USD 434.14+USD 539.05+USD 41.76 = USD 1014.95 million) by all banks.

Table 6: PPP Projects: Commercial Banks Financing during 1997-2015

Year	SOCBs		PCBs		FCBs	
	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate
1997-2000	12.18	-	13.7		0	
2001-2005	1.58	-87.03%	5.53	-59.64%	0	
2006-2010	90.77	5644.94%	112.28	1930.38%	1.76	
2011-2015	329.61	263.13%	407.54	262.97%	40	2172.73%
Total	434.14	-	539.05		41.76	
CAGR	20.11%		20.74%		86.77%	

Source: Researchers' Own Calculation

Although banks are the dominant players among local debt providers to PPP projects in Bangladesh, a very small portion of aggregated amount of their loans goes to PPP infrastructure sector. Due to the issue of Asset Liability Mismatch, banks shy to provide long term loan to infrastructure projects. The major source of funds for banks operating in Bangladesh is saving and term deposits, the maturity profile of which ranges from less than 3 months to maximum 5 years. These deposits account for over 80 percent of the liabilities of SOCBs and around 73 percent for PCBs. Lending long-term with such a short-term fund base exposes the banks to ALM risks (BB 2014). Also infrastructure projects are not unique in the need for long-term loan.

Internationally many banks avoid asset liability mismatch risk by participating in infrastructure projects through bridge loans and mini perm loans¹ during the riskier construction period of infrastructure projects. After the operations begin when construction risk is over, then financing can be sought from other less expensive long-term lenders (like insurance firms) through issuing bond. In Bangladesh, this type of credit culture is yet to be introduced. International banks

¹ Mini-perm loans are typically characterized by the presence of a bullet payment for the total or partial amount of the principal. They finance the construction phase but must be repaid only after a short period of time during the construction phase, forcing the SPV to refinance the loan and exposing it to refinancing risk.

also manage their long-term asset liability matching by selling down their loans in a variety of ways through packaging several project debts together by targeting buyers with different risk appetite. Typically, these buyers include banks, pension funds, insurance companies, other institutional investors, etc. Since, the market is very liquid for such products, banks or the buyers of such products do not have major issue of asset-liability mismatches.

Banks are encouraged in emerging economies to lend long term infrastructure projects. In India, banks are allowed to issue long-term bonds to raise fund to lend long term infrastructure projects through issuing a circular by RBI in 2004¹. The circular allowed the banks to raise rupee denominated long term bonds for infrastructure projects with residual maturity of more than 5 years. However, the cost of these long-term funds to banks and ultimately to the PPP project is high. Some institutions/ banks of India like IDBI, ICICI, UTI and IDFC have raised long-term funds through issuing bonds for lending in long-term infrastructure projects (PWC 2007).

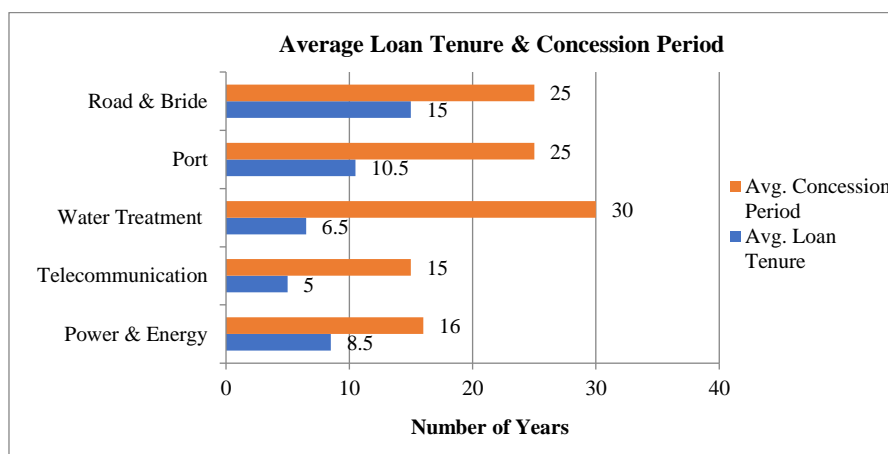
4.1.1.9 PPP Projects: Sector-Wise Concession Period and Average Loan Tenure

In addition to ALM, another issue with respect to debt financing to infrastructure projects relates to the short tenure of loans and longer period of concession period of projects. If the loan tenure is lower than the concession period, then either the loan will need to be reset to match the concession period or new sources of financiers have to be brought which may not be an easy task. Presently, the tenure of infrastructure loans to projects considered for the study is less than half of the concession period for almost all sectors except for road and bridge sector. From Figure-8, it is observed that loan tenure in telecommunication sector is one-third of the project concession period.

¹ Circular number RBI/2004/236-DBOD No. BP.BC. 90 /21.01.002/ 2003-04 dated June 11, 2004

For water treatment sector, it is even much lower. In power and energy, and port sectors, loan tenure is about half of the project concession period (Figure-8).

Figure 8: PPP Projects: Sector-Wise Concession Period and Loan Tenure



Source: Researchers' Own Calculation

4.1.1.10 PPP Projects: Financing by Government Sponsored Organization¹

In Bangladesh, government has created three organizations to provide financing facilities in order to attract private sectors in PPP projects. So far, these three organizations² have extended USD 406.54 million to 31 PPP infrastructure projects in the country. Of this fund of USD 406.54 million, IDCOL has provided 57 percent, IPFF 39 percent and the remaining 4 percent by BIFFL, respectively (Figure-9). IDCOL and BIFFL participate in syndicated term lending along with other banks and NBFIs either as lead arranger or as participating members. IPFF sanctions long-term loan to PPP projects through PFIs as part of its on-

¹Detail Analysis of the contribution of these govt. sponsored organizations is provided in section-7.

² IDCOL has financed 14 PPP infrastructure projects, IPFF 15 Projects and BIFFL 2 projects till date. Apart from PPP projects, IDCOL has also financed several infrastructure projects in different sectors including solar energy, renewable energy, ICT, etc.

lending component which is mandated by World Bank and Ministry of Finance.

Figure 9: PPP Projects: Financing by Government Sponsored Organizations



Source: Researchers' Own Calculation

In examining year-wise participation of government sponsored organizations, it is found that IDCOL has disbursed a total of USD 232.70 million since its inception and CAGR of this financing to PPP projects is 1.30 percent for entire period (Table-7). IPFF has financed a total of USD 157.17 million with CAGR of 7.22 percent. BIFFL has been established recently and it has financed USD 16.67 million to only two PPP projects till date (Table-7).

Table 7: PPP Projects: Financing by Government Sponsored Organizations during 1997-2015

Year	IDCOL		IPFF		BIFFL	
	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate
1997-2000	0.00	-	0	-	0	-
2001-2005	93.76	-	0	-	0	-
2006-2010	25.13	-73.20%	65.03	-	0	-
2011-2015	113.81	352.85%	92.14	41.69%	16.67	-
Total	232.70	-	157.17	-	16.67	-
CAGR	1.30%		7.22%		-	

Source: Researchers' Own Calculation

4.1.1.11 PPP Project Financing: Debt and Equity Participation

Depending on the nature of projects, on an average 20-30 percent of the PPP projects' cost is supplied by the equity holders and 70-80 percent of the fund comes from debt holders across the world. However, it is noted that equity participation in PPP projects in Bangladesh is above the world standard. Table-8 shows that all sectors except water treatment sector are holding equity financing more than 30 percent. One of the reasons of lower debt level in PPP projects may be that lenders are not yet willing to go for long term finance as it is required in infrastructure sector.

Table 8: PPP Projects: Debt/ Equity Participation

Sector	Debt (USD mil)	Equity (USD mil)	Total (USD mil)	Debt/Equity
Power & Energy	1863.36	886.10	2749.46	68/32
Water Treatment	9.33	3.72	13.05	71/29
Telecommunication	72.38	39.79	112.17	65/35
Port	23.89	19.29	43.18	55/45
Road & Bridge	752.92	635.75	1388.67	54/46
Total	2721.88	1584.65	4306.53	63/37

Source: Researchers' Own Calculation

4.1.1.12 PPP Project Financing: Sector-Wise Interest Rate

Table-9 indicates that the sector-wise average lending rate of debt financing to PPP projects. The average interest rate is below 14 percent for power and energy, telecommunication and water treatment sectors. Lenders have charged comparatively higher rate of return which is 15 percent and 16 percent, respectively in the port, and road and bridge sectors. This may be because these two sectors entailing higher risk than other sectors. It is noted that one Flyover belonging to road and bridge sector constructed under PPP in Bangladesh is currently

collecting less amount of toll than their projections and hence is facing problems for servicing debt severely.

Table 9: PPP Project Financing: Sector-Wise Interest Rate

Sector	Average Interest Rate
Power & Energy	13.97%
Telecommunication	13.50%
Water Treatment	13.50%
Port	15.00%
Road & Bridge	16.00%

Source: Researchers' Own Calculation

4.1.2 PPP Project Financing in Bangladesh: Sector-Wise Distribution

4.1.2.1 Power and Energy Sector

Power and energy sector dominates the sectoral coverage of PPP projects till date. Out of the 38 PPP projects considered in the study as many as 26 projects are in power and energy sector. In this sector, a total of USD 2770 million has been invested. Most of the power projects have been undertaken in the last ten years (2006-2015) in which a total of USD 2267.20¹ has been invested. If we look at the number of projects implemented, it is seen that a jump has been taken place during the period 2006-2010. In this period somewhat 900 percent growth has been documented. In terms of amount, 572.66 percent growth has been experienced during the period 2011-2015. The CAGR for number of projects implemented for the entire period is 8.01 percent whereas it is 14.14 percent in terms of amount of investment (Table-10).

¹ This amount is the summation of USD 293.43 million and USD 1,973.77 million invested in 2006-2010 and 2011-2015 periods, respectively.

Table 10: PPP Projects: Financing in Power and Energy Sector (1997-2015)

Year	By Number		By Amount of Investment (USD mil)	
	Number of Projects	Growth Rate	Amount	Growth Rate
1997-2000	3		182.46	
2001-2005	1	-66.67%	320.00	75.38%
2006-2010	10	900.00%	293.43	-8.30%
2011-2015	12	20.00%	1973.77	572.66%
Total	26		2770	
CAGR	8.01%		14.14%	

Source: Researchers' Own Calculation

PPP Projects: Financial Structure of Power and Energy Sector Projects

The financial structure of power and energy sector projects shows that about 32 percent (USD 886.1 million) of the total project cost has been infused by the equity holders, 67.27 percent (USD 1863.36 million) by debt holders and the remaining portion has been given by donor agency and government under VGF program. A significant amount of both equity and debt capital has been invested during 2011-2015 and as much as 635.70 percent and 534.77 percent growths have been observed for equity and debt, respectively during the same period. The CAGR has been stood at 15.08 percent for equity, 13.62 percent for debt and 14.14 percent for total financing to PPP projects, respectively for the period 1997-2015.

Table 11: PPP Projects: Financial Structure in Power and Energy Sector

Year	Equity		Debt		Donor & VGF		Total
	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	
1997-2000	52.88		129.58		0		182.46
2001-2005	80	51.29%	240	85.21%	0		320
2006-2010	90.13	12.66%	203.30	-15.29%	0		293.43

Year	Equity		Debt		Donor & VGF		Total
	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	
2011-2015	663.09	635.70%	1290.48	534.77%	20.2		1973.77
Total	886.1		1863.36		20.2		2770
CAGR	15.08%		13.62%				14.14%

Source: Researchers' Own Calculation

4.1.2.2 Water Treatment Sector

A small number of water treatment and waste management projects¹ have been established under PPP in the last few years. The study has identified four small PPP projects in this sector where a total of USD 13.05 million has been invested. All projects have been established in three EPZs (CEPZ, Comilla EPZ and Adamjee EPZ). Of the four plants, three have been constructed during the period 2011-2015. The CAGR of the number of projects is 24.57 percent whereas CAGR for amount of investment is 30.95 percent (Table-12).

Table 12: PPP Projects: Financing in Water Treatment Sector (1997-2015)

Year	By Number		By Amount of Investment (USD Mil)	
	Number of Project	Growth Rate	Investment	Growth Rate
1997-2000	0	-	0.00	-
2001-2005	0	0.00%	0.00	0.00%
2006-2010	1	0.00%	2.69	0.00%
2011-2015	3	200.00%	10.36	285.13%
Total	4	-	13.05	-
CAGR	24.57%		30.95%	

Source: Researchers' Own Calculation

¹ Environment friendly business is getting top priority by the policy makers, international stakeholders, business bodies, environmentalist as well as end-users recently. Establishment of ETP for purifying and recycling of industrial wastages has become a must for establishing new industries and continuing the existing factories in recent time. For this reason, construction water treatment and waste management plants particularly in EPZs is getting momentum. Many lenders including banks and financial institutions in general and government sponsored financial institutions in particular prefer financing these types of projects.

PPP Projects: Financial Structure of Water Treatment Sector Projects

If we notice the financing pattern of the PPP projects under water treatment sector, it is seen that 28.50 percent (USD 3.72 million) of the project cost has been provided by the project developer and the remaining 71.5 percent (USD 9.33 million) funds come from debt sources. The CAGR for equity capital is 29.56 percent and the CAGR for debt capital is 31.53 percent, respectively. However, no fund is injected in this sector from donor agencies and government VGF scheme. These projects have been financed by sponsors' equity as well as term loans from banks, IPFF and IDCOL.

Table 13: PPP Projects: Financial Structure in Water Treatment Sector

Year	Equity		Debt		Donor & VGF		Total
	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	
1997-2000	0	-	0	-	0	-	0
2001-2005	0	-	0	-	0	-	0
2006-2010	0.8	-	1.89	-	0	-	2.69
2011-2015	2.92	265.00%	7.44	293.65%	0	-	10.36
Total	3.72	-	9.33	-	0	-	13.05
CAGR	29.56%		31.53%		-		30.95%

Source: Researchers' Own Calculation

4.1.2.3 Telecommunication Sector

Bangladesh is one of the fastest growing countries in terms of mobile user. Although private sector has invested billions of money in telecommunication sector, but only a few of the telecommunication companies have been established under PPP mechanism. Table-14 shows that four telecom projects were established under PPP model. In these four projects as much as USD 112.17 million has been invested. No noticeable growth has been found in this sector during the study period except a significant growth rate in 2006-2010 compared

to the previous period. The compound annual growth rate during the period is very insignificant (only 0.26%).

Table 14: PPP Projects: Financing in Telecommunication (1997-2015)

Year	By Number		By Amount of Investment (USD Mil)	
	Number of Project	Growth Rate	Amount	Growth Rate
1997-2000	0	-	0.00	-
2001-2005	1	-	29.49	0.00%
2006-2010	2	100.00%	52.01	76.36%
2011-2015	1	-50.00%	30.67	-41.03%
Total	4	-	112.17	-
CAGR	00.00%		0.26%	

Source: Researchers' Own Calculation

PPP Projects: Financial Structure of Telecommunication Sector Projects

The financing pattern of telecommunication projects under PPP model points out that project sponsors have invested USD 39.79 million (35.47%) while USD 72.38 million funds sourced as debt (64.53%). No VGF and donor fund has been given to this sector. The largest amount has been invested during 2006-2010 period. The CAGR for both equity capital and debt capital is significantly low compared to other sectors.

Table 15: PPP Projects: Financial Structure in Telecommunication Sector

Year	Equity		Debt		Donor & VGF		Total
	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	
1997-2000	0	-	0	-	0	-	0
2001-2005	8.85	-	20.64	-	0	-	29.49
2006-2010	19.14	116.27%	32.87	59.25%	0	-	52.01
2011-2015	11.8	-38.35%	18.87	-42.59%	0	-	30.67
Total	39.79	-	72.38	-	0	-	112.17
CAGR	1.94%		-0.60%		-		0.26%

Source: Researchers' Own Calculation

4.1.2.4 Port

Port development, renovation, modernization and expansion are usually considered as one of the priority sectors of PPP investment. Many of the world ranking busiest sea ports such as Busan Port of South Korea, Colombo Port of Sri Lanka, etc. have been expanded and modernized through PPP models. Bangladesh has huge potentials of investment in port sector under PPP mechanism. Government of Bangladesh had earlier decided to construct the Sonadia Deep Sea Port (DSP) under PPP with an approximate cost of USD 3 billion. Some land ports are supposed to be operated under BOT basis (Amin 2013). But progress of port sector development here in Bangladesh is not significant. Only two projects that have been established under PPP till date are in operations now. One of the projects is Panama SonaMosjid land Port and the other is KDS Logistics which is an inland container depot. Total investment in these two projects is USD 43.18 million made in the period 2001-2005 and 2011-2015. The CAGR of investment in this sector is 16.03 percent.

Table 16: PPP Projects: Financing in Port Sector (1997-2015)

Year	By Number		By Amount of Investment (USD Mil)	
	Number of Project	Growth Rate	Amount	Growth Rate
1997-2000	0	-	0.00	-
2001-2005	1	-	4.19	-
2006-2010	0	-100.00%	0	-100.00%
2011-2015	1	-	38.99	-
Total	2	-	43.18	-
CAGR	00.00%		16.03%	

Source: Researchers' Own Calculation

PPP Projects: Financial Structure of Port Sector Projects

The financing in these two projects have been done by debt and equity. Debt/ Equity position in these two projects is almost 55/ 45. A total of USD 19.29 million funds has been given by the project developers and

USD 23.89 million has come from banks as debt. The CAGR for equity and debt is 19.34 percent and 14.05 percent, respectively (Table-17).

Table 17: PPP Projects: Financial Structure in Port Sector Projects

Year	Equity		Debt		Donor & VGF		Total
	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	
1997-2000	0	-	0	-	0	-	0
2001-2005	1.27	-	2.92	-	0	-	4.19
2006-2010	0	100.00%	0	59.25%	0	-	0
2011-2015	18.02	-	20.97	-42.59%	0	-	38.99
Total	19.29	-	23.89	-	0	-	43.18
CAGR	19.34%		14.05%		-		16.03%

Source: Researchers' Own Calculation

4.1.2.5 Road & Bridge Sector

Insufficient provision of roads, bridges and flyovers is the main reason of endless suffering of mass people particularly in urban areas and mega cities. Perhaps, this sector requires the largest amount of investment among all infrastructure sectors because of the coverage and magnitude of projects. However, significant initiative is not visible in this sector¹ although two mega projects in this sector have been undertaken in Dhaka Mega City under PPP route in the last five years. One is the Jatrabari-Gulistan Flyover which is already in operation and the other is Dhaka Elevated Expressway which has started construction

¹The reason of low level of participation by private sector in this sector may be that huge amount of investment, longer project period, unguaranteed return, longer gestation period and difficulty in getting banks' debt, etc. Additionally, government's top priority sector is now to produce power as required by the country. Quick outcome from road and bridge sector is not also possible in many cases because of problems in getting land acquired, incurring cost overrun and collecting competent private bidders.

work recently. The aggregate amount of investment in these two projects is USD 1541.67 million (Table-18).

Table 18: PPP Projects: Financing in Road and Bridge Sector (1997-2015)

Year	By Number		By Amount of Investment (USD Mil)	
	Number of Project	Growth Rate	Amount	Growth Rate
1997-2000	0	-	0.00	-
2001-2005	0	-	0	-
2006-2010	1	-	331.67	-
2011-2015	1	0.00%	1210	264.82%
Total	2	-	1541.67	-
CAGR	00.00%		29.54%	

Source: Researchers' Own Calculation

PPP Projects: Financial Structure of Road and Bridge Sector Projects

The financial structure of these two projects truly represents ideal PPP models which are prevalent all over the world. PPP projects of this sector have incorporated all types of financiers. The project cost has been shared by developers, local and foreign lenders and VGF facility also. Of the total amount of project cost, 41.24 percent (USD 635.75 million) has been provided by equity holders, 48.84 percent (USD 752.92 million) has been given by lenders and the remaining part has been committed by the government as VGF (Table-19). The CAGR for equity capital is 8.38 percent and debt capital is 54.45 percent, respectively.

Table 19: PPP Projects: Financial Structure in Road and Bridge Sector Projects

Year	Equity		Debt		Donor & VGF		Total
	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	
1997-2000	0	-	0	-	0	-	0
2001-2005	0	-	0	-	0	-	0
2006-2010	254.75	-	76.92	-	0	-	331.67

Year	Equity		Debt		Donor & VGF		Total
	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	Amount (USD mil)	Growth Rate	
2011-2015	381	49.56%	676	778.84%	153	-	1210
Total	635.75	-	752.92	-	153	-	1541.67
CAGR	8.38%		54.45%		-		29.54%

Source: Researchers' Own Calculation

4.1.3 PPP Projects Financing in Bangladesh: Size-Wise Distribution

With a view to analyzing size wise PPP projects, three ranges such as less than USD 50 million, between USD 50-100 million and greater than USD 100 million have been formed. Of the 47 projects, 27 projects have investment of less than USD 50 million each. As such, this category of project constitutes about 57.45 percent of the total number of projects with only 10.07 percent of the total amount of investment. The consolidated investment amount in project with less than USD 50 million has stood at USD 577.95 million. Out of these 27 projects, 17 projects (about 63%) are in power and energy sector. These projects are basically small-scale power plants which usually requires small amount of investment. The CAGR of number of projects and the amount of investments of this category of projects are 13.65 percent and 14.59 percent, respectively. In case of investment amount ranging USD 50-100 million, the number is only 8 but the aggregated investment amount is USD 575.04 million. This constitutes 17.02 percent of all numbers and 10.02 percent of total investment in all PPP projects. Most of the projects under this category have been established in the last five years (6 out of 8 projects). The CAGR for number of projects and amount of investment are 10.47 percent and 12.60 percent, respectively for the entire study period (Table-20). Finally, number of projects having investment requirement of more than USD 100 million is 12 and in terms of amount of investment it is USD 4587.49 million. Table-20 shows that in terms of number of projects, this category of projects constitutes about 25 percent of the total number of projects. But about 80 percent of the total amount of investment is done in this

range for this small number of projects. These projects are large-scale projects including a few mega projects like Dhaka Elevated Expressway which requires USD 1210 million, Jatrabari-Gulistan Flyover (USD 331.67 million) and other large power plants having investment requirement of more than USD 300 million. If we look at Table-20 we can see that large-scale projects have been established in each time bracket from 1997-2000 to 2011-2015. But the majority number of projects and amount of investment happen in the last five years (2011-2015). The CAGRs for number of projects and amount of investment are 2.88 percent and 10.14 percent, respectively in this category of projects.

Table 20: PPP Projects: Size-Wise Number and Amount of Investment (1997-2015)

Year	Project Size											
	< USD 50 mil				USD 50-100 mil				> USD 100 mil			
	By Number		By Amount		By Number		By Amount		By Number		By Amount	
	No.	Growth Rate	Amount	Growth Rate	No.	Growth Rate	Amount	Growth Rate	No.	Growth Rate	Amount	Growth Rate
1997-2000	1		22.16		1		50.30		3		538.70	
2001-2005	2	100.00%	33.68	51.99%	0	-100.00%	0	-	3	0.00%	653.00	21.22%
2006-2010	14	600.00%	265.09	687.10%	1		99.03		1	66.67%	331.67	49.21%
2011-2015	10	-28.57%	257.02	-3.05%	6	500.00%	425.70	329.86%	5	400.00%	3064.12	823.85%
Total	27 (57.45)*		577.95 (10.07)*		8 (17.02)*		575.04 (10.02)*		12 (25.53)*		4587.49 (79.91)*	
CAGR	13.65%		14.59%		10.47%		12.60%		2.88%		10.14%	

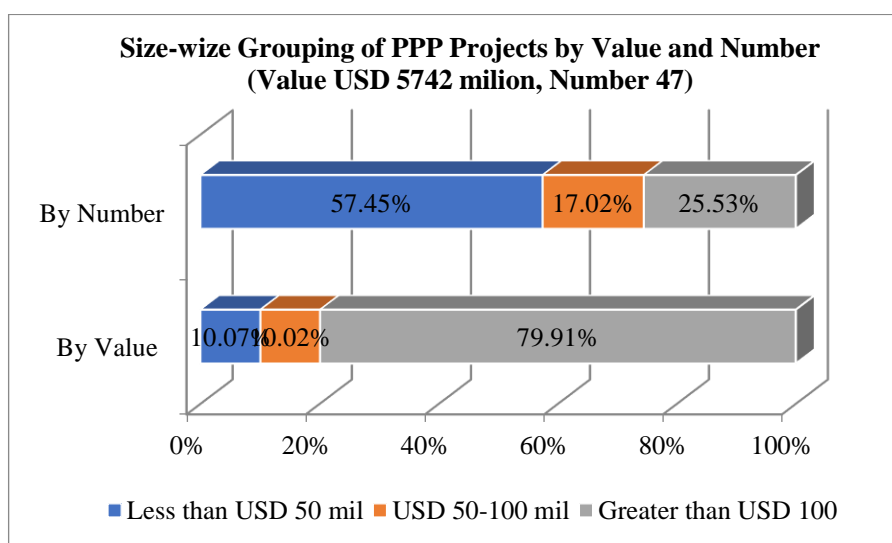
Source: Researchers' Own Calculation

***Note:** Parentheses indicate percentage of total number of projects and amount of investment.

PPP Project Financing: Size-Wise Grouping

In examining Figure-9, it is found that in terms of number of projects, 57.45 percent projects have value less than USD 50 million but these projects capture only 10.07 percent of the total investment of all PPP projects in Bangladesh. Furthermore, 17.02 percent of all the projects with 10.02 percent of total investment amount fall under USD 50-100 million size category. Finally, 25.53 percent of total number of projects having 79.91 percent of the aggregate amount of investment falls under the larger category of USD 100 million and above.

Figure 10: PPP Projects: Size-Wise Grouping



Source: Researchers' Own Calculation

PPP Projects: Financial Structure of Size-Wise Projects

The financial structure of size-wise PPP projects shows that projects having investment amount of less than USD 50 million have been financed by 32.91 percent equity capital and remaining 67.09 percent by debt with no donor and VGF facility. Projects having investment amount of USD 50-100 million constitute 37.31 percent equity, 58.31 percent debt and the remaining 4.38 percent donor funds. Finally, projects with investment amount of more than USD 100 million utilize

35.52 percent equity, 60.06 percent debt and the residual 4.42 percent VGF facility. Table-19 shows that these projects have employed as much as USD 1584.65 million of equity, USD 2721.88 million of debt and USD 173.2 million of donors and VGF fund.

Table 21: PPP Projects: Size-Wise Financial Structure

Project Size	Equity		Debt		Donor & VGF		Total	
	Amount (USD mil)	%	Amount (USD mil)	%	Amount (USD mil)	%	Amount (USD mil)	%
<USD50 mil	185.32	32.91%	377.78	67.09%	0	0.00%	563.10	100.00%
USD50-100 mil	171.93	37.31%	268.71	58.31%	20.2	4.38%	460.84	100.00%
>USD100 mil	1227.4	35.52%	2075.39	60.06%	153	4.42%	3455.79	100.00%
Total	1584.65	35.37%	2721.88	60.76%	173.20	3.87%	4480	100.00%

Source: Researchers' Own Calculation

4.1.4 PPP Projects Financing in Bangladesh: Geographical Distribution

In examining geographical distribution of PPP projects, Table-22 shows that most of the PPP projects (39 out of 47 projects) are concentrated in Dhaka and Chittagong. About 55.32 percent of the projects are concentrated in Dhaka Division followed by 27.66 percent in Chittagong in terms of number. Barisal and Rangpur divisions do not have any PPP project. Other divisions have 2/3 projects each. Although Dhaka division has captured about 55.32 percent of the PPP projects by numbers, in terms of amount of investment this Division shows more concentration (i.e. 87.49% of total investment). It indicates that most of the large size projects have been established in Dhaka division. If we look at the distribution of PPP projects in Chittagong division, it is seen that although in terms of number, this division holds 27.66 percent but this division has only 6.81 percent of the aggregated amount of investment. This indicates that more small-

scale PPP projects have been established in Chittagong. In addition, amount of investment in other divisions is quite small.

Table 22: PPP Projects: Division-Wise Number and Amount of Investment

Division	By Number		By Investment (USD mil)	
	No. of Projects	% of Projects	Amount	% of Amount
Dhaka	26	55.32%	5022.21	87.49%
Chittagong	13	27.66%	390.98	6.81%
Rajshahi	3	6.38%	76.10	1.33%
Sylhet	1	2.13%	7.00	0.12%
Khulna	2	4.26%	209.03	3.64%
Barisal	0	0.00%	0.00	0.00%
Rangpur	0	0.00%	0.00	0.00%
Nation Wide	2	4.26%	35.16	0.61%
Total	47	100.00%	5742	100.00%

Source: Researchers' Own Calculation

4.2 Case Study on PPP Project in Bangladesh

Financial Structure and Technique of Mayor Mohammad Hanif (Jatrabari-Gulistan) Flyover, Bangladesh

Dhaka is one of the most densely populated cities in the world. But the infrastructure availability is very insufficient for this large population. Unplanned urbanization along with the hastily growth of population as well as vehicles has turned the Capital City into one of the badly traffic-prone place. According to a survey conducted with the help of World Bank, it has been estimated that during the last 20 years an accumulated loss of more than BDT 1,632 crore has accrued due to traffic jam in the Jatrabari-Gulistan road. The study revealed that 2,500 vehicles pass through the Jatrabari-Gulistan road per hour. If the proposed Flyover would have been implemented, 10,000 vehicles could have passed through this road per hour. The study undertaken by the World Bank prompted the government to build a Flyover from Jatrabari to Gulistan area. Accordingly, a flyover having initial

distance of 8.4 km from Jatrabari to Gulistanis decided to be built on PPP basis. To implement the Jatrabari-Gulistan Flyover, the Concession Agreement (CA) was signed on June 21, 2005 between Dhaka City Corporation (the Employer) and Belhasa Accom and Associate Limited (the Concessionaire), a member company of Orion Group. The project was awarded to the concessionaire for period of 24 years (concession period) excluding the construction period of 3 years. Dhaka City Corporation on behalf of the government has provided 66 percent guarantee of the traffic volume in favor of the concessionaire.

As per the concession contract, Belhasa Accom and Associate Ltd. was responsible to design, build, maintenance and finance the project on BOOT basis. The total cost of the project has been estimated to be BDT 1,530.44 crore including preferred dividend during construction period of BDT 198.60 crore. The total cost of the project has been estimated to be around BDT 1,331.84 crore (excluding preferred dividend during construction period). The project was supposed to be financed by sponsors' equity, fully convertible cumulative preference shares and public equity (IPO). Initially, the amount of sponsors' equity has been estimated to be BDT 300 crore, fully convertible 10 percent dividend cumulative preference shares to be BDT 600 crore (which will be converted to ordinary shares after 3 years of construction period) and public equity to be BDT 400 crore. The project is expected to yield a positive NPV of BDT 4.01 crore and IRR 37.62 percent.

Due to difficulties in land acquisition and arranging required fund for the project, construction was delayed. Finally, the construction of the project started in 2010 after redesigning and expansion of the project scope and refixing the length to 11.8 km from the existing 8.4 km. In the meantime, the project company was changed from Belhasa Accom and Associate Ltd. to Orion Infrastructure Limited in 2011. The project

name was also changed from Jatrabari-Gulistan Flyover to the Mayor Mohammad Hanif Flyover.

Because of the expansion of the project length and delay in starting construction, the project cost was overrun by about BDT 1,255 crore and the total cost of the project stood at BDT 2,587 crore. The project sponsors faced difficulty in arranging the required fund including the additional project cost. After several rounds of negotiation and renegotiation with the banks, the Orion Infrastructure Limited (SPV of the project) was able to raise a total of BDT 2,250 crore fund from four state-owned commercial banks, one private commercial bank and one government-owned investment bank with the intervention by government. Sponsors collected the required fund through fully convertible cumulative preference shares (BDT 650 crore), fully redeemable cumulative preference shares (BDT 1,000 crore) and bridge finance (advance on equity) (BDT 600 crore). Four state-owned commercial banks provided BDT 550 crore¹, one private commercial bank Social Islami Bank Ltd. (SIBL) provided BDT 50 crore and Investment Corporation of Bangladesh (ICB) provided BDT 50 crore against fully convertible cumulative preference shares. Next, BDT 1000 crore was raised by issuing fully redeemable cumulative preference shares. Four state-owned commercial banks bought all of the redeemable cumulative preference shares². The remaining BDT 600 crore was raised through bridge finance (advance on equity) from three state-owned banks (except Rupali Bank Ltd.)³. Finally, sponsors provided BDT 337 crore as equity in the project. The project has been inaugurated by Honorable Prime Minister on October 11, 2013 upon

¹ Of the BDT 550 crore, Sonali Bank Ltd. provided BDT 150 crore, Janata Bank Ltd. BDT 200 crore, Agrani Bank BDT 150 crore and Rupali Bank BDT 50 crore, respectively.

² Sonali Bank bought fully redeemable cumulative preference shares of worth BDT 150 crore, Janata Bank BDT 200 crore, Agrani Bank BDT 150 crore and Rupali Bank BDT 500 crore, respectively.

³ Sonali Bank Ltd., Janata Bank Ltd., and Agrani Bank Ltd. each provided bridge finance of BDT 200.

partial completion of the project. Full construction work was finished on July 31, 2014 and since then the project is continuing its operation. Although the project was completed after facing many obstacles, the project does not earn the expected toll which is commonly happened at the initial stage of operation in this type of infrastructure project. Hence, banks' repayment is in jeopardy. So far, promised dividend payments on the preference shares as well as the repayments of the bridge finance are not as per expectation. Meanwhile, several negotiations have taken place between the project company and the banks regarding payments of dividends on preference shares and extension of the bridge loans tenure along with rescheduling of repayments. The financiers are not happy with the performance of the project.

Source: Loan Documents and Interview with Banks.

4.3 Failure in Launching Projects Due to Financial Closure

A number of projects either failed to start or launched after long delay because of failure in collecting finance. Three such cases that were not qualified for collection of funds from IPFF¹ are described below.

Summit Bibiyana-I Power Company Limited

IDLC Finance Limited had submitted a loan application to Investment Promotion and Financing Facility (IPFF), Bangladesh Bank for funding USD 57.50 million under IPFF Facility to a 341 MW power plant project at Bibiyana, Habiganj, Sylhet undertaken by Summit Bibiyana-I Power Company Limited. Summit Bibiyana-I Power Company Limited was formed as joint-venture concerns of Summit Industrial and Mercantile Corporation (Pvt.) Limited and GE Energy LLC, a wholly owned subsidiary of General Electric Company. Summit Bibiyana-I Power Company Limited was awarded the project

¹ IPFF has many successful Projects that have done financial closure on time. A few projects were in exception, which failed to do the financial closure.

in an International Competitive Bidding being the lowest bidder. Summit Group had signed a Power Purchase Agreement (PPA) with Bangladesh Power Development Board (BPDB) on May 12, 2011. Total estimated cost of the project is USD 294.00 million out of which sponsors would provide USD 88.00 million (29.93% of total project cost) as equity participation, ADB, IFC and IDCOL will provide all together USD 148.24 million as senior term loan (50.42% of total project cost) and proposed IPFF funding is USD 57.50 million (19.56% of total project cost). As the project was prospective considering the sectoral eligibility for IPFF financing IPFF reviewed the projects and sent to the World Bank for their No Objection.

However, at the time of reviewing World Bank unofficially informed that there were some gaps in the procurement process of the Project and it might not pass the scrutiny of the same. At the time of reviewing the project by the World Bank, IDLC informed IPFF dated October 11, 2011 that due to a very tight timeline for achieving Financial Closure, Summit Bibiyana-I Power Company Limited has withdrawn the loan application for IPFF Funding mentioned describing the situation and their fear of not getting the IPFF Fund timely. After withdrawal of the loan proposal from IPFF, Bibiyana-I could not avail funding facility from IFC, ADB or IDCOL and ultimately the project was not executed. Later the government in August 2013 cancelled the bids of Bibiyana-I power project for not completing the financial closure of the project along with other reasons.

Finally, BPDB signed a contract with two foreign companies from Spain and South Korea for the construction of the 400 MW gas based combined cycle Bibiyana South Plant in Habiganj in place of the cancelled Bibiyana-I Project of the Summit Group.

Cemcor Limited

Industrial and Infrastructure Development Finance Company Limited (IIDFC) had submitted a loan application to IPFF, Bangladesh Bank

for funding BDT 1,259.44 million under IPFF Facility to an inland river container terminal project at West Mukterpur, Munshigonj on the bank of Dholeshwari river undertaken by Cemcor limited, a subsidiary of Summit Alliance Port Limited. The terminal was expected to be capable of handling up to 1,20,000 TEUs (twenty-foot equivalent unit) annually. According to loan application total estimated cost of the project is BDT 2,249.00 million out of which sponsors will provide BDT 674.70 million (30% of total project cost) as equity participation, IIDFC with some other Participating Financial Institutions (PFIs) will provide all together BDT 314.86 million term loan (14% of total project cost) and proposed IPFF funding was BDT 1,259.44 million (56% of total project cost).

As the project was prospective considering the sectoral eligibility for IPFF financing, loan application of IIDFC with all documents (NOC from BIWTA and Setu Bivag, Procurement Strategy Paper, Information Memorandum and Memorandum of Association and Articles of Association of Summit Alliance Port Limited and Cemcor Limited) submitted by IIDFC was reviewed by IPFF. Later IPFF submitted the review report to the World Bank for their review. In the meantime, there were some disputes raised regarding land settlement between CEMCOR and another entrepreneur. As it was not settled during loan review period, IIDFC, the mandated financial arranger of the investment project (CEMCOR) and PFI of IPFF Project was no longer interested to continue with the project further due to some contingent situations arising out from the Borrower's end (CEMCOR). Therefore, IIDFC withdrew the loan application submitted to IPFF on 12 July, 2011 vide their letter dated May 14, 2012. Later the project was not implemented. The disputes were settled by purchasing the land by Summit Alliance Port Limited. The name of the company CEMCOR has been changed or CEMCOR, as a subsidiary of Summit Alliance Port Limited was abolished and the project is now going on

(2015) by Summit Alliance Port Limited at Munshiganj by arranging own financing not taking any donor fund for the Project.

First Dhaka Elevated Expressway Project

Regarding Dhaka Elevated expressway Project, the winner bidder Ital-Thai Development Public Company limited of Thailand, signed a Concession Agreement (CA) on 19 January 2011 with the Government of Bangladesh (GOB) as the grantor of the DEE Project. The Ital-Thai Company quoted the Viability Gap Funding (VGF) support from the government of BDT 22,588 million (USD 322.68 m at BDT 70/USD) and offered a concession fee of BDT 2,725 million (USD 38.9 million at BDT 70/USD) payable to GOB over the concession period in a structured manner starting from the 5th year.

The CA was signed between the Government of People's Republic of Bangladesh, represented by Bridges Division, Ministry of Communications, acted through Bangladesh Bridge Authority (together the "Grantor"), Bangladesh Bridge Authority ("Grantor's Representative") and First Dhaka Elevated Expressway (FDEE) Company Limited (the "Concessionaire") on January 2011. ITD established First Dhaka Elevated Expressway Company Limited ("FDEE" or the Concessionaire or the Company) as a 100%-owned Special Purpose Vehicle, registered in Bangladesh, to accede ITD as the Concessionaire in the Concession Agreement for implementation of the Project.

The winner company applied through IDLC Finance Ltd to IPFF on 8 February 2011 to get the partial financing support from IPFF (approx. BDT 80 m). Despite government's willingness to provide support for financing from IPFF vide their letter no 50.031.000.00.00.007.2010-492 dated 2nd June 2011, IPFF could not opt for showing interest for financing the Project considering the land acquisition issues as the critical impediment for getting NOC from the WB. Later, Ital-Thai

failed to do the financial closure within the stipulated time period in the concession contract.

In May 2012, the honorable Prime Minister of Bangladesh instructed the Grantor to change the alignment and some ramp areas starting from Kamalapur train station to the end of the alignment in the South at Kutubkhali on the Dhaka-Chittagong Highway, comprising a total length of approximately 4.0 kilometers in order to reduce the required land acquisition for the implementation of the DEE Project. FDEE redesigned the alignment as instructed and submitted the new design to the Grantor for approval in May 2013. The Cabinet Committee on Economic Affairs, in October 2013, approved the new alignment, together with required amendments to the CA to correspond with changes to the new alignment and construction methodology.

Later a revised and amended Concessionaire Agreement was signed on 15 December, 2013, which incorporated the necessary amendments/changes to the CA specially reducing the required land acquisition for the implementation of the DEE Project. As per the revised CA, the total Project Cost is estimated at BDT 92,661.9 million (USD 1,158.4 million). As per revised CA, ITD will provide either 40 percent or 51 percent of the Equity, depending on the voting-right requirements by the equity investors. Assuming ITD takes 51 percent in order to provide voting rights to equity investors, it is expected that the 49 percent equity will be raised from private or strategic investors. Any short-term loan during the construction period, if required, will be sourced from any offshore or onshore sources. Based on the new financing arrangement Ital-Thai could bring China Development Bank as equity contributor and China Development Bank has provided loan of USD 796 million at six-month LIBOR plus 450 basis point.

IPFF with informal discussion with the World Bank did not extend its effort for taking up the Project. However, by the request of Ital-Thai on 19 March 2014, Prime Bank Ltd. along with syndication partner,

Sonali Bank Ltd. and Modhumoti Bank Ltd., made the Syndication arrangement to do the financial closure of the Project.

5. Correlation and Regression Analysis

An endeavor has been undertaken in this section to do correlation and regression analysis.

5.1 Correlation Analysis

Table-23 shows that investments in PPP projects are highly correlated with debt financing (0.9753) whereas moderately correlated with equity financing (0.6593). Additionally, debt and equity finance are also moderately correlated with each other (0.6116).

Table 23: Correlation between Total Investment, Debt and Equity

Indicators	Total Investment (LNIVN)	Debt (LNDEBT)	Equity (LNEQUITY)
Total Investment (LNIVN)	1		
Debt (LNDEBT)	0.9753	1	
Equity (LNEQUITY)	0.6593	0.6116	1

Source: Researchers' Own Analysis

5.2 Regression Analysis

Under regression analysis, initiative is undertaken to find out the determinants of investment in PPP projects in Bangladesh. The cross-sectional data covering 38 projects have been used in empirical analysis.

Table 24: Regression Results (Dependent Variable: LNINV)

Variable	Coefficient	t-value	Sig.	Variance Inflation Factors (VIF)
LNDEBT	0.935898	19.51183	0.0000	1.597629
LNEQUITY	0.133228	2.141310	0.0402	1.597629
C	0.733537	3.979543	0.0004	N/A
Model Summary:				
N = 38		F-value = 348.6060		
Adjusted R ² = 0.954684		Sig. = 0.000000		

Source: Researchers' Own Analysis

In Table-24, adjusted R^2 at 0.954684 indicates that the explanatory variables can explain dependent variable by more than 95 percent. F-value at 348.6060 reveals the overall statistical significance of the estimated model. As per VIF (variance inflation factor) value, an indicator of multi-collinearity, it is observed that explanatory variables are not collinear.

The co-efficient of the variables shows that implementation of PPP projects are robustly as well as positively influenced by the debt and equity finance. It is indicated by associated t-values as coefficients of both variables are statistically significant. However, debt holds more influencing power than equity on investment of PPP projects in Bangladesh, as it is inferred from the estimated coefficients (LNDEBT=0.935898; LNEQUITY=0.133228) as well as level of significance of both explanatory variables as per t-value (LNDEBT = 19.51183; LNEQUITY= 2.141310).

However, as numbers of observations are only 38, the findings of this section should be weighed with due caution to draw any general conclusions. It is recognized that empirical results to a certain extent depend on number of observations, data transformation, econometric methodology applied and sample selection.

6. PPP Initiatives Across the World

6.1 Global Investment Scenario in PPP Projects

As there is a strong linkage between infrastructure development and poverty reduction, providing good quality infrastructure has emerged as a top priority of development policy worldwide during the past two decades. Fay and Yepes (2003) state that infrastructure requirements increased by 2.7 percent per year between 2005 and 2010 in emerging economies. Of the infrastructure demands, electricity demand alone is expected to increase by 4 percent per year for the next 20 years (Lamech and Saeed 2003). In this perspective, the private participation

in the infrastructure development has started picking up in various forms.

6.1.1 Global PPP Status: Region-Wise Distribution

According to World Bank PPI Projects Database, as many as 6,313 PPP projects with an aggregate amount of USD 2,259,862 million have achieved financial closure during 1990-2014 distributed in 139 low- and middle-income countries around the world. Table-25 shows that the Latin America and Caribbean region has dominance in PPP projects over other regions in terms of both number of projects (1894) and amount of investment (USD 882,426 million) followed by East Asia and Pacific region (1819 projects and USD 389,303 million investment) and South Asian Countries (1090 projects and USD 383,315 million investment). The least number of PPP projects are established in the Middle East and North Africa region (153 projects) with a total investment of USD 98,243 million.

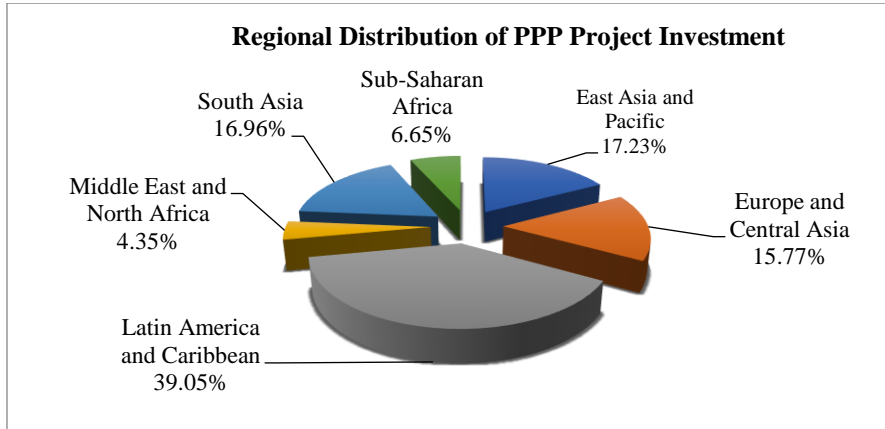
Table 25: Global Scenario of Investment in PPP Projects (1990-2014)

Region	Number of Projects	Amount of Investment (USD mil)
East Asia and Pacific	1,819	389,303
Europe and Central Asia	856	356,271
Latin America and Caribbean	1,894	882,426
Middle East and North Africa	153	98,243
South Asia	1,090	383,315
Sub-Saharan Africa	501	150,304
Total	6,313	2,259,862

Source: World Bank PPI Projects Database

In examining the regional distribution of PPP projects in terms of relative figure, it is also revealed that 39.05 percent of the total regional investment goes to Latin America and Caribbean region, 17.23 percent goes to East Asia and Pacific region, 16.96 percent goes to South Asia, 15.77 percent goes to Europe and Central Asia and a meager percentage goes to Middle East and North Africa (Figure-11).

Figure 11: Regional Distribution of PPP Projects Investment (1990-2014)



Source: World Bank PPI Projects Database

6.1.2 Global PPP Status: Top 10 Countries

Considering top ten recipients of PPP projects by number, it is seen that China captures the maximum number of projects (1186) with 28.70 percent share followed by India (834 projects with 20.18% share) and Brazil (718 projects and 17.38% share). Thailand holds tenth position having 134 projects and 3.24 percent share. Among the top ten countries, five countries belong to Latin America and Caribbean region, three belong to Asia and the rests belong to Europe (Table-26).

Table 26: Top 10 Countries by Number of PPP Projects and Amount of Investment (1990-2014)

Top 10 Countries by Number of Projects			Top 10 Countries by Amount of Investment (USD mil)		
Country	Number of PPP Projects	Percentage of PPP Projects	Country	Amount of Investment (USD mil)	Percentage of Investment
China	1,186	28.70	Brazil	468,157	29.43
India	834	20.18	India	330,421	20.77
Brazil	718	17.38	Russian Federation	145,290	9.13
Russian Federation	337	8.16	Mexico	130,898	8.23
Mexico	234	5.66	China	130,756	8.22
Argentina	217	5.25	Turkey	105,168	6.61
Chile	164	3.97	Argentina	93,908	5.90
Turkey	163	3.94	Indonesia	64,835	4.08
Colombia	145	3.51	Philippines	61,491	3.86
Thailand	134	3.24	Malaysia	60,086	3.78
Total	4,132	100	Total	1,591,010	100

Source: World Bank PPI Projects Database

In terms of amount of investment, Brazil holds the top position by amount of investment (USD 468,157 million) with 29.43 percent share (Table-26). Second position is captured by India with USD 330,421 million investment (20.77% share) followed by Russian Federation with USD 145,290 million investment (9.13% share). Malaysia secures the tenth position in terms of amount of investment (USD 60,086 million and 3.78% share). Five Asian countries are included in the top ten recipients of PPP projects in terms of amount of investment followed by three countries from Latin American region. Two European countries are included in the list of top ten by amount of investment (Table-26).

6.1.3 PPP Global Status: SAARC Countries

It is noticed that in the SAARC region, India has the largest number of projects as well as amount of investment in PPP projects. India has implemented 834 PPP projects with a total investment of USD 330,421 million which constitutes 1.71 percent of its GDP. The second position goes to Pakistan having 83 projects with USD 33,324 million. This amount of investment constitutes 1.32 percent of the country's GDP. In terms of number of projects, Sri Lanka dominates over Bangladesh but in terms of amount of investment the scenario is reversed. Although Bangladesh is ranked fourth in terms of number of projects (47 projects) but holds third position in terms of amount of investment (USD 5,742 million) among the SAARC countries. However, PPP investment as percentage of GDP, Bangladesh secures the bottom position. Interestingly, Maldives has the highest position among all SAARC countries in terms of amount of PPP investment as percentage of GDP (Table-27).

Table 27: PPP Projects in SAARC Countries

Country	No. of Projects	Amount (USD mil)	GDP (USD mil)	PPP Investment as % of GDP
India	834	330,421	19,305,487	1.71%
Pakistan	83	33,324	2,533,346	1.32%
Sri Lanka	73	5,182	614,115	0.84%
Bangladesh	47	5,742	1,553,680	0.37%
Nepal	25	1,133	199,855	0.57%
Afghanistan	6	1,684	136,937	1.23%
Maldives	2	552	24,614	2.24%
Bhutan	2	219	18,312	1.20%

Source: World Bank PPI Projects Database

6.1.4 Global PPP Status: Sectoral Distribution in SAARC Countries

In examining the sector-wise distribution of PPP projects, it is found that India has implemented more than half of the PPP projects in transport sector (52.15%) in terms of number of projects, but energy sector has the dominance over others (42.31%) in terms of amount of

investment. The picture of PPP investment in Pakistan shows that 78.31 percent of the total number of projects goes to energy sector followed by telecom and transport sectors with equal share. But in terms of amount of investment, telecom sectors has the highest share of investment (51.28%) followed by energy sector (41.05% of total investment). Sri Lanka has the maximum number of projects in energy sector (87.67% of total projects) but highest amount of investment in telecom sector. In Bangladesh, both in terms of number of projects and amount of investment, energy sector captures more than 70 percent share. In terms of amount of investment, transport (road and bridge) sector has the second position in Bangladesh. Telecom, transport and water and sewage sectors have equal number of projects. Nepal and Bhutan have the largest number of projects and amount of investment in energy and telecom sectors. Afghanistan has high concentration in telecom sector both in terms of number of projects (83.33%) and amount of investment (99.88%). Maldives has equal number of projects in telecom (50%) and transport (50%) sectors but highest amount of investment in transport sector (85.05%). Notably, India and Bangladesh have implemented PPP projects in all sectors as per the classification World Bank PPI database (Table-28).

Table 28: Sectoral Distribution of PPP Projects in SAARC Countries

Country		Sectors				
		Energy	Telecom	Transport	Water and Sewage	Total
India	Number of Projects	41.77%	4.42%	52.15%	1.67%	100.00%
	Investment (USD mil)	42.31%	29.18%	28.33%	0.18%	100.00%
Pakistan	Number of Projects	78.31%	10.84%	10.84%	0.00%	100.00%
	Investment (USD mil)	41.05%	51.28%	7.67%	0.00%	100.00%
Sri Lanka	Number of Projects	87.67%	9.59%	2.74%	0.00%	100.00%
	Investment (USD mil)	27.76%	57.96%	14.28%	0.00%	100.00%

Country		Sectors				
		Energy	Telecom	Transport	Water and Sewage	Total
Bangladesh	Number of Projects	75.51%	8.16%	8.16%	8.16%	100.00%
	Investment (USD mil)	70.44%	1.94%	27.40%	0.23%	100.00%
Nepal	Number of Projects	76.00%	20.00%	0.00%	4.00%	100.00%
	Investment (USD mil)	88.07%	11.93%	0.00%	0.00%	100.00%
Afghanistan	Number of Projects	16.67%	83.33%	0.00%	0.00%	100.00%
	Investment (USD mil)	0.12%	99.88%	0.00%	0.00%	100.00%
Maldives	Number of Projects	0.00%	50.00%	50.00%	0.00%	100.00%
	Investment (USD mil)	0.00%	14.95%	85.05%	0.00%	100.00%
Bhutan	Number of Projects	50.00%	50.00%	0.00%	0.00%	100.00%
	Investment (USD mil)	91.78%	8.22%	0.00%	0.00%	100.00%

Source: World Bank PPI Projects Database

6.2 Case Study on PPP Project Financing

Financial Structure and Techniques of Taiwan High Speed Rail (THSR) PPP Project

The Taiwan High Speed Rail (THSR) project is the country's first high speed rail system connecting major cities from north to south by running at upto 300 km/hour along the 345 km route. This project is the largest transportation infrastructure in Taiwan and also one of the largest projects in the world delivered through PPPs. This project was developed using BOT scheme with 35 years of concession period. The project was officially awarded in 1997 to the Taiwan High Speed Rail Corporation which is the SPV of the project. After 10 months of negotiation with the government, concession agreement was finally signed in 1998. Construction of the project began in 2000 and completed in 2007 with a 14-months delay.

The total cost of the project was USD 18.4 billion, including USD 3.4 billion committed by the government and USD 15 billion invested by private parties, with USD 2 billion of cost overrun. The capital structure of the THSRC was originally targeted at 30 percent equity and 70 percent debt which were later revised to 25:75 percent, respectively. While the total equity to be raised was about USD 4 billion, 9 months after the contract was signed the THSRC had only USD 0.6 billion of equity. The THSRC had substantial difficulty raising the rest of the equity according to the contracted schedule and was forced to renegotiate total equity down to USD 3.3 billion. In fact, the THSR project encountered many major difficulties before its completion and most of these were related to financing.

The THSRC faced three severe crises in raising fund for the project. The first crisis faced by the THSRC was the inability to obtain debt financing of USD 10 billion after signing the concession agreement. The developer did not utilize the international debt market for financing partly because the Taiwan government was expected to subsidize the loan at an interest rate far below the market. However, since the THSR was the first PPP mega project in Taiwan, the banks had no faith in financing the project at a rate below fair market without full debt guarantees from the government. Since the full debt guarantee was a significant liability to the government and was neither anticipated by the government nor specified during the procurement process, the provision of debt guarantees became a controversial issue and the government hesitated to offer the debt guarantee. In fact, the doubt from the public was that the project might have been financially unviable if a fair market interest rate had been imposed. After several rounds of fruitless negotiation with the government, the THSRC gave ultimatum to the government either to give the debt guarantees or they would abandon the project. Being a state issue, the government finally offered debt guarantees and the government signed the agreement with the syndicated banks and the THSRC. Among the USD 10 billion of

debt financing, USD 8.6 billion came from government-owned banking system and remaining USD 1.4 billion belonged to private commercial banks.

The second crisis faced by the THSRC was difficulty in raising the promised equity. According to the concession agreement, the total amount of equity to be raised was USD 4 billion and the timetable for equity raising was specified in the debt financing contract. The fulfillment of the timetable was a prerequisite for withdrawing funds from the local credit facility. The THSRC could only raise USD 0.6 billion against the predetermined USD 4 billion. Their inability to raise sufficient not only delayed the starting of construction of the project but also caused the breach of contract by the THSRC. Two major reasons contributed to this equity raising crisis. Firstly, at the time of initial equity raising, Taiwan's economy was still in the aftershock of the 1997 East Asian financial crisis and the climate for taking a risk and investing in the unfamiliar high-speed rail was very conservative. Secondly, the market had substantial doubts about the profitability of the projects, suspecting that the THSRC's financial proposal was too optimistic. The doubt about the project profitability was also seen from the initial shareholders' reluctance to invest more equity later although they had the capacity to do so. As a result, a couple of rounds of renegotiation between the THSRC and banks took place and finally the banks had to accept THSRC's proposal to reduce the total equity amount from USD 4 billion to USD 3.3 billion.

The Taiwan government played a crucial role in bailing out THSRC in this crisis by injecting equity capital through the Government-owned/ Controlled Enterprises (GOE) and non-profit-organizations amidst soaring public criticism and political pressure. Finally, the total equity investment of the THSRC was closed to USD 3.3 billion, with common stocks at about 51 percent and preferred stock at about 49 percent. Total passive equity investment by GOEs and government-owned

banks is about 23 percent of total equity, or 35 percent of total equity considering equity investments from government-controlled non-profit organizations. The promoters' equity was only about 28.5 percent of total shares in the SPV.

The third crisis faced by the THSR project was cost overrun by USD 2 billion due to the estimated 1-year schedule delay and other causes. Again, THSRC was unable to raise the required capital from equity sources and tried to supplement the capital gap through debt financing or equity support from the government. As the debt ratio had already passed over the revised 75% ceiling and government refused to provide any capital support further. Even government had formally announced to take over the project if the THSRC could not raise the capital either from debt or equity. THSRC finally obtained USD 1.4 billion debt financing by arranging a 'second mortgage financing' type loans, in which the THSRC used the concession rights on project-associated real estate development as collateral for the loan.

Source: Ping (2009).

7. Policy Initiatives and Institutional Supports for Financing PPPs in Bangladesh

7.1 Policy Initiatives

PPP programs have transcended almost two decades in Bangladesh after its initiation. The Government of Bangladesh (GOB) has taken a series of measures to promote PPP. The government adopted a private sector power generation policy for the first time in 1996 to shore up private sector participation in PPP projects. Almost at the same time, Infrastructure Development Company Limited (IDCOL) was established in 1997 under the administrative control of the Economic Relations Division with a view to bringing momentum in private sector investment. Subsequently, a number of improvements like creation of

Infrastructure Investment Facilitation Company (IIFC)¹, issuing Private Sector Infrastructure Guideline (PSIG), formation of Private Infrastructure Committee (PICOM) under Board of Investment (BOI) have been happened. To push the PPP initiative one more step ahead, government has created the IPFF project in 2006 in collaboration with the World Bank to make available partial debt financing to eligible and government-endorsed infrastructure projects implemented under PPP. To add further government introduced the concept of PPP Budget which is considered as a very strong commitment of the government for the development of PPP projects in the country.

Alongside these initiatives, formulation and issuance of the Policy and Strategy for Public-Private Partnership² (2010) is considered as a landmark for PPP initiatives in Bangladesh. In addition, PPP Office³ is now working as one stop service provider for government approvals, information, and coordination among the stakeholders. Moreover, to provide a complete policy and legal framework for PPP initiative in Bangladesh, government has already finalized a draft PPP law which has got in-principle approval by cabinet and waiting for enactment by the parliament. Currently, PPP projects in Bangladesh are implemented through following a standard process. Under the PPP implementation process relevant line ministries identify the potentials projects and send the projects to PPP Office for screening. PPP Office

¹ In early 2000, the government established Infrastructure Investment Facilitation Company (IIFC) as an advisory body of the government under the Economic Relations Division (ERD) of the Ministry of Finance to promote and facilitate infrastructure projects in the country through PPP. IIFC is responsible to assist relevant ministries, divisions or agencies in formulating and screening project proposals as well as providing technical assistance.

² The objectives of this Policy and Strategy are to spell out the principles of partnership with private sector for undertaking various projects related to infrastructure as well as public service delivery; to define an institutional framework, which is efficient in handling the PPP projects as well as effective to protect public interest; and to ensure balance between risk and reward for both the government and private partners while aiming to keep the undertaking attractive for the private sector.

³ In order to strengthen PPP efforts, implement the PPP budget, and coordinate the project's stakeholders, a dedicated and fully operational PPP Office has been established as a separate office under the Prime Minister's Office as specified in the current PPP Policy and Strategy.

analyzes these projects in light with set criteria and gives feedback to the respective line ministries whether the projects are eligible for implementation under PPP model. After getting feedback from the PPP Office, relevant line ministries perform pre-feasibility study and then submit the projects to the Cabinet Committee for Economic Affairs (CCEA). After approval from the CCEA, respective line ministries perform the feasibility study of the projects and develop the projects for tendering to the private bidders. In the meantime, PPP Office assesses the PPP projects for VGF grants from the government and accordingly PPP Office proposes for the grants to the PPP Unit of Ministry of Finance (MOF) if the projects seem to be qualified for VGF. The PPP Unit of the MOF again assesses the potentiality of VGF grants of the projects and if the projects qualify, PPP Unit endorses for CCEA approval. After CCEA approval a PPP project becomes eligible for VGF facility. Then private sector bidders are selected under competitive bidding process in line with international standard criteria.

7.2 Institutional Support for PPP Financing in Bangladesh

7.2.1 Infrastructure Development Company Limited (IDCOL)

IDCOL is playing a major role in bridging the financing gap in developing medium to large-scale infrastructure and renewable energy projects in Bangladesh both in PPP mode and without PPP mode. IDCOL's financing sectors include power, telecommunication, ICT, ports, toll roads and bridges, waste management, water treatment, renewable energy, solar energy and social infrastructure, etc.

IDCOL has extended financing of USD 232.70 million to around twenty infrastructure projects implemented under PPP model. IDCOL provides long-term debt financing on syndicated basis along with other banks and financial institutions. Table-29 shows that IDCOL has provided around 90 percent of its total financing to power and energy sectors. Next major sector IDCOL made financing is the telecommunication sector in which USD 21.16 million has been

extended during the period 2001-2015. IDCOL has also financed USD 2.09 million to a water treatment plant in 2013 and a land port project of USD 0.94 million in 2005. The CAGR for power and energy sector projects is 2.02 percent, for telecom sector -7.92 percent and for total investment 1.30 percent, respectively.

Table 29: PPP Projects Financed by IDCOL

Year	USD Million											
	Power & Energy		Water Treatment		Telecom		Port		Road & Bridge		Total	
	Amount	GR*	Amount	GR	Amount	GR	Amount	GR	Amount	GR	Amount	GR
1997-2000	0.00	-	0	-	0	-	0	-	0	-	0.00	-
2001-2005	80	-	0	-	12.82	-	0.94	-	0	-	93.76	-
2006-2010	20.51	-74.36%	0	-	4.62	-63.97%	0	-	0	-	25.13	-73.20%
2011-2015	108.00	426.50%	2.09	-	3.72	-19.47%	0	-	0	-	113.81	352.85%
Total	208.51 (89.60)*		2.09 (0.90)	-	21.16 (9.09)		0.94 (0.41)	-	0.00	-	232.70	-
CAGR	2.02%		-		-7.92%		-		-		1.30%	

Source: Researchers' Own Calculation

*GR = Growth Rate and *Figures in Parentheses indicate percentage of total investment (Total investment USD 232.70 million)

7.2.2 Investment Promotion and Financing Facility (IPFF)

7.2.2.1 Brief Overview of IPFF Project

Initially, World Bank extended a credit of USD 50 million including USD 2.5 million as technical assistance and the government provided USD 10 million as a co-financing facility to the IPFF. The IPFF has successfully utilized the entire fund of first phase (2007-2012) of USD 60 million by financing seven small power projects under PPP which have added 178 MW power to the national grid. Upon successful completion of the first phase of IPFF, World Bank extended additional

USD 257 million including USD 12.5 million of technical assistance fund and GOB provided USD 49.4 million for second phase. As of today, IPFF has financed a total of USD 173.87 million (in two phases) to ten power plants having capacity of 338 MW, one inland container depot, one IT infrastructure project and three water treatment plants. More projects including a power plant of capacity 200 MW and a dry dock project are waiting to be financed under IPFF facility (IPFF Project Cell 2015).

IPFF Lending Criteria and Financing Structure in PPP Projects

IPFF follows distinctive operational process, financing techniques and specific lending criteria to disburse fund to PPP based projects (Appendix-4). IPFF requires the eligible project to maintain a minimum debt-equity ratio of 75:25. Out of this 75 percent debt, respective PFI is supposed to provide minimum 20 percent from its own source and the rest 80 percent is provided by IPFF. Maximum period of loan tenure is 20 years including 3 to 10 year of grace period. Applicable interest rate under IPFF is perceived to be low by the prospective entrepreneur. IPFF extends long term loan both in BDT and USD. For financing in BDT, the interest rate is set at 0.30 percent above the interest rate of the 364-day Treasury bill or Weighted Average Interest Rate on Deposit (WARID), whichever is lower. The interest rate will be 0.30 percent above the 6 months LIBOR in case of loan in USD. This is to mention here that the PFIs are exposed to the entire commercial risks associated with the respective project.

7.2.2.2 IPFF Financing to PPP Projects

Majority of IPFF fund has been disbursed to power sector constituting 83.88 percent (USD 131.84 million). Apart from this, 9.44 percent of IPFF fund has gone to port sector, 4.50 percent to telecommunication and ICT, and the remaining 2.19 percent to water treatment projects (Table-30).

Table 30: Financing by IPFF in PPP Projects (USD Million)

Year	Power & Energy		Water Treatment		Telecom		Port		Road & Bridge	
	Amount	Growth Rate	Amount	Growth Rate	Amount	Growth Rate	Amount	Growth Rate	Amount	Growth Rate
1997-2000	0	-	0	-	0	-	0	-	0	-
2001-2005	0	-	0	-	0.00	-	0.00	-	0	-
2006-2010	63.81	-	1.22	-	0	-	0	-	0	-
2011-2015	68.03	6.61%	2.21	81.15%	7.08	-	14.82	-	0	-
Total	131.84 (83.88%)*	-	3.43 (2.18%)	-	7.08 (4.50%)	-	14.82 (9.44%)	-	0	-
CAGR	0.64%		6.12%		-		-		-	

Source: Researchers' Own Calculation

*Note: Figures in parentheses are percentage to total amount of investment (Total investments USD157.17 million)

7.2.2.3 IPFF Financing in PPP Projects: First Phase (2007-2012)

In the first phase, IPFF successfully financed 100 percent of its on-lending credit fund to seven power plants which are now in operation. During this phase, IPFF has brought USD 41.2 million as equity and USD 18.03 million as PFIs fund apart from its funds of USD 63.81million. As a result, IPFF virtually has brought a total of USD 123.09 million to PPP projects in its first phase.

Table 31: IPFF First Phase Project-Wise Financing: (2007-2012)

(USD million)

Name of PPP Based Projects	Total Project Cost	Equity Capital	Debt Capital			Equity as % of Total Cost	Debt as % of Total Cost
			IPFF	PFIs	Total		
Doreen Power Generation & Systems Ltd. (three plants each capacity of 22MW)	48.65	17.53	24.6	6.52	31.12	36.03%	63.97%
Doreen Power House & Technologies Ltd. (11MW)	8.19	3.41	2.61	2.17	4.78	41.64%	58.36%

Name of PPP Based Projects	Total Project Cost	Equity Capital	Debt Capital			Equity as % of Total Cost	Debt as % of Total Cost
			IPFF	PFI	Total		
Regent Power Ltd. (22MW)	15.01	4.82	7.96	2.23	10.19	32.11%	67.89%
United Power Generation & Distribution Ltd. at CEPZ (44MW)	27.59	8.28	15.45	3.86	19.31	30.01%	69.99%
United Power Generation & Distribution Ltd. at DEPZ (35MW)	23.65	7.16	13.19	3.3	16.49	30.27%	69.73%
Total (178MW)	123.09	41.2	63.81	18.08	81.89	33.47%	66.53%

Source: Researchers' Own Calculation

7.2.2.4 IPFF Financing in PPP Projects: Second Phase (2012-2015)

In the second phase, IPFF has already disbursed a total of USD 93.36 million constituting 31.12 percent of the total available fund. It injected USD 70.23 million as equity and USD 40.4 million as PFIs' debt to PPP projects (Table-32). In addition, two power plants, two sea port jetties, two kidney dialysis hospitals and one dry dock project and one RADAR projects are under active consideration for financing. Till date, World Bank has disbursed 77 percent of its committed fund to IPFF project for on-lending to different projects.

Table 32: IPFF Second Phase Project-Wise Financing: (2012-2015)

(USD million)

Name of PPP Based Projects	Total Project Cost	Equity Capital	Debt Capital			Equity as % of Total Cost	Debt as % of Total Cost
			IPFF	PFI	Total		
D-Water Tech CEPZ	2.69	0.8	1.22	0.67	1.89	29.74%	70.26%
Baraka Patenga Power Ltd.	41.88	12.56	21.98	7.34	29.32	29.99%	70.01%

Name of PPP Based Projects	Total Project Cost	Equity Capital	Debt Capital			Equity as % of Total Cost	Debt as % of Total Cost
			IPFF	PFI	Total		
Dhaka Southern Power Generations Ltd. (55 MW)	46.32	11.58	26.9	7.84	34.74	25.00%	75.00%
Central Water Treatment Plant at Comilla EPZ	2.38	0.98	1.05	0.35	1.4	41.18%	58.82%
Central Water Treatment Plant at Adamzee EPZ	2.70	1.16	1.16	0.38	1.54	42.96%	57.04%
KDS Logistic Limited an inland container Depot at Sitakundu, Chittgong	38.99	18.02	14.82	6.15	20.97	46.22%	53.78%
Fibre@home Ltd. (a Nationwide Telco Network)	30.67	11.80	7.08	11.79	18.87	38.47%	61.53%
Midland Power Limited	38.36	13.33	19.15	5.88	25.03	34.75%	65.25%
Total	203.99	70.23	93.36	40.4	133.76	34.43%	65.57%

Source: Researchers' Own Calculation

7.2.2.5 IPFF Financing in PPP Projects: Phase-Wise Debt-Equity Comparison

Equity participation in IPFF supported PPP projects has been increased by 70.46 percent in second phase over the first phase (Table-33). PFIs debt and IPFF debt have also been increased by 123.45 percent and 46.31 percent, respectively. Total amount of investment has been increased by 65.72 percent in the second phase compared to first phase.

Table 33: Comparison of Phase-Wise Financing by IPFF in PPP Projects

Sources of Fund	IPFF Phase-1		IPFF Phase-2		Amount Increase/Decrease from Phase-1 to Phase-2
	Amount (USD mil)	% of Project Costs	Amount (USD mil)	% of Project Costs	
Equity	41.2	33.47%	70.23	34.43%	70.46%
Debt					
IPFF	63.81		93.36		46.31%
PFI	18.08		40.4		123.45%
Total Debt	81.89	66.53%	133.76	65.57%	63.34%
Total Capital	123.09	100%	203.99	100%	65.72%

Source: Researchers' Own Calculation

It is heartening that projects under IPFF scheme have no irregular payments. IPFF has deposited a total of BDT 318.38 crore (Principal BDT 165.31 crore and Interest BDT 153.07 crore) equivalent to USD 41.14 million, received as repayment from the projects financed earlier, to the government exchequer through designated account. Moreover, under TA component, IPFF provides operating and logistic support to the PPP Office and facilitates capacity building of PPP stakeholders.

7.2.3 Bangladesh Infrastructure Finance Fund Limited (BIFFL) in PPPs

The Bangladesh Infrastructure Finance Fund Limited (BIFFL) was incorporated as a NBFIL in 2011 with 100 percent government ownership. Although it is now owned by the government, private sector can also participate in ownership of this NBFIL through buying its equity. The main objective of BIFFL is to provide predominantly long-term financing for PPP projects through issuance of bonds and debt instruments and equity offerings targeting local and foreign investors. As of today, BIFFL has financed USD 16.67 million in two PPP projects in the power sector.

7.2.4 PPP Office in PPP Development in Bangladesh

The office for Public-Private Partnership (PPP Office) was established in September 2010 to act as a catalyst to realize PPP projects. The PPP office supports line ministries to identify, develop, tender and finance PPP projects. For interested investors and lenders, PPP office provides a professional, transparent, centralized portal to high quality PPP Projects. As of today, PPP Office has identified and developed 34 PPP projects in 13 sectors¹ with a consolidated estimated cost of USD 12,573 million. Of the total estimated investment, USD 7 million is estimated to be made in small size projects (3 projects), USD110 million in medium size projects (6 projects) and USD 12,455 million in large projects (25 projects)². Of the 34 pilot projects identified and developed by PPP Office, 4 projects are in award stage, 7 projects are in procurement stage and 24 projects are in project development stage. PPP Office has identified 7 more projects which have already got CCEA approval for further initiatives (PPP Office 2015).

8. Suggestions and Concluding Remarks for Future Strategy

Success of any PPP program largely depends on how projects are financed. Financial capability of private partners, ability to collect debt from local market, finance from multinational donors like ADB, World Bank, IFC and more importantly potent support of the government are essential for successful financial closure of any PPP project. A number of options for finance are suggested as below.

¹ Of the 34 projects, 7 projects are in health sector, 10 in road and bridge sector, 4 in ports, 3 in hospitality sector, 2 in each of housing and tourism sectors and 1 project in each of economic zone, airport, railway, social care, energy and fisheries sectors.

² According to the Policy and Strategy for PPP, 2010 of Bangladesh, a PPP project will be deemed as small project if its estimated total investment is below BDT 500 million (<USD 6.25 million); a project will be deemed as medium if its estimated total investment is between BDT 500 million and 2.5 billion (USD 6.25-31.25 million); and a project will be deemed as large if its estimated investment is above BDT 2.5 billion (>USD 31.25 million). USD1=BDT80 has been assumed.

8.1 Equity Financing

The amount of equity in PPP initiative varies largely from project to project. It is typically ranging from 20 percent to 30 percent of the total cost worldwide depending on overall creditworthiness and debt capacity of the projects. This equity portion may increase to 40% where subordinated debt provided by shareholders is considered as equity. In Bangladesh, however, equity in PPP projects ranges between 29% and 46%.

8.1.1 Equity from Sponsors

Sponsors' solvency is important in providing equity in PPP projects, as the bulk of the equity is made available by the sponsors. Of course, sponsors' reputation matters in collecting equity from other probable equity suppliers. Sometimes multilateral institutions like IFC, DEG, FMO, IDB, Swedfund, contractors and off takers may also give lesser amount of equity in this type of project. Government can also participate in equity through providing a certain percentage of equity directly or in the form of viability gap financing. Insurance companies and mutual funds may also be probable equity suppliers in unlisted PPP projects in Bangladesh like other developing countries.

8.1.2 Equity from Markets

PPP projects can utilize ordinary equity and preferred equity by floating IPOs in the stock market through listing as Greenfield projects. For example, 'Transurban City Link Project' at Melbourne of Australia was commissioned in 2001 and the project was listed in the ASX in the same year prior to commencement of construction and 'The East link Project' was listed as Connect East Group in November 2004 prior to construction commencement. It is expected that listing in stock exchanges of two power projects which are developed under PPP will encourage other PPP projects to use equity market for sourcing funds.

8.2 Sources of Debt Financing

Depending on the nature of projects, PPP projects in Bangladesh sources 54 percent to 71 percent of cost from the debt holders whereas this range is usually 70-80 percent in the international arena. It is common for financing large project in the developing world through mixing both public and private sector debt sources. Apart from Govt. finance, sources for debt financing can be commercial banks, various multilateral development banks, export credit agencies, bilateral government development agencies and the capital markets.

8.2.1 Public Sector Source

As there is a public component to any PPP initiative, Government can participate in financial structure through giving direct funding, offering contingent facility, creating schemes, rendering financial support from organizations formed by Government. Under *direct funding support*, government may provide debt to procure land, to defray construction cost, to collect assets, to compensate for bid cost or to support major maintenance cost. Additionally, waiving fees, costs and other payments, authorizing tax holidays or waiving tax liability, giving subsidy are examples of various support of the Government. Funding shadow tariffs for roads or topping up tariffs to be paid by some customers are also feasible alternatives of the Government support. In case of providing *contingent support*, government may extend guarantees for repaying debt, covering risk resulting from exchange rates fluctuation, minimum amount of tariff collection, off taker obligations, etc. In this perspective, it is suggested to create a fund with a view to servicing debt if contingent liability becomes actual liability. A special team to manage fiscal risk arising from contingent liabilities associated with PPP can also be formed. *Creation of schemes* like Investment Promotion and Financing Facility (IPFF) is essential for bringing private equity and providing long-term debt financing facility at low costs to PPP projects as well as enhancing capacity required for

dealing with this model in the country. In this perspective, it is expected that IPPF projects will be continued for more years. *Government financial institutions* like IDCOL, BIFFL by arranging concessional windows with multilateral donors are required to get more support from government for continuation of direct lending to PPP projects as well as refinancing to banks and FIs for loans with longer tenor. It is noted that Government has already set up a PPPTAF (Public Private Partnership Technical Assistance Fund) in Ministry of Finance to provide transaction advisory support for developing large infrastructure projects with initial budgetary allocation of 4,000 million BDT. It is required to convert this fund into an ongoing entity like IPDF (India Project Development Fund) of India or PDF (Project Development Facility) of South Africa.

8.2.2 Private Sector Sources

8.2.2.1 Banks and NBFIs

Ideally, commercial banks and NBFIs can be considered as principal financiers in PPP projects. These institutions can extend both balance sheet and off-balance sheet finances on a large scale as financial sector of Bangladesh is mostly bank based. Commercial banks and NBFIs are the most advantageous source of funding in PPP projects because of current excess liquidity position in most of the banks, scope for forming diversified loan portfolio, experienced banks' staff in evaluating project, ability to structure loans in a flexible way to meet the needs of the individual project, relatively quick internal decision making and loan approval processes, optional requirement for credit rating, etc. Bank and NBFIs can, therefore, move for lending to both construction and operating stage of the project in the form of term loans or revolving credit either in the local or foreign currency. It is noted that Banerjee et al. (2014) show that government can borrow from the banking sector upto 3 percent of GDP without any hesitation.

However, if the long-term lending of banks and financial institutions to infrastructure sector increases progressively with the high density of short-term deposits remain unchanged, banks may face asset liability mismatch. In this viewpoint, banks may consider to go for financing through bridge loans and mini perm loans in construction period of PPP projects. Afterwards, when the operations begin, then banks can ideally finance infrastructure projects through generating funds by issuing long-term infrastructure bonds. BB may allow banks to issue long-term bonds to raise fund to lend long-term infrastructure projects as risks is lower at this stage. In these initiatives, banks may go for financing individually or through formation of syndication based on credit ratings close or equal to sovereign investment grades as well as public sector guarantee.

8.2.2.2 Capital Markets

The capital market is theoretically the potential source of debt finance for infrastructure project financings. With the current market structure of capital market of Bangladesh, there may be three possible ways of financing infrastructure.

8.2.2.2.1 Mutual Funds

An infrastructure mutual funds can be structured which will be partly financed by the banking sector and the rest of the fund will be collected from public through issuance of close-ended mutual funds. This infrastructure funds can possibly invest in three areas; firstly, about 50% of the funds can be invested in the infrastructure related listed companies which will enhance market liquidity. Secondly, 25 percent of the fund can be invested in government fixed securities and other fixed income instruments for ensuring some stable return and reducing overall portfolio volatility. The final 25 percent of the fund can be invested into infrastructure projects directly. The eligibility of investing 25 percent in infrastructure projects could be restricted to projects which have completed at least one year from their entry into

commercial service without any material default in the performance of their obligations. These infrastructure funds are required to be managed by professional portfolio managers of the concerned asset management companies with close supervision of trustee and other regulators.

8.2.2.2.2 Bonds

After launching commercial operation when risk of default diminishes considerably, bonds are a natural choice for debt financing in PPP projects. Project companies can issue Senior, Subordinate, Diaspora and Sub sovereign Bond in the form of coupon, zero coupons, sukuk, deep discount, perpetual, etc. The holders of such long-term debt would be insurance, pension and sovereign funds. The bonds should carry standardized covenants including guarantee so as to simplify the credit evaluation process and enhance the potential of secondary trading. With a view to making bond as a potential source of finance, an active secondary market is required to be created through removing problems like illiquidity, insufficient investors, dominance of debt finance from banks, absence of yield curve, nonexistence of funded pension funds, dearth of professional fund managers, etc. A viable private placement market can also be worked as an intermediary platform for secondary trading before having an active secondary platform.

8.2.2.2.3 Mezzanine Fund

Mezzanine pool fund may also be constituted to finance infrastructure with major contribution from institutional investors i.e. commercial banks, insurance companies, NBFIs. Such Mezzanine instruments may be made available for trading in the bourse as well as could be issued through private placement.

8.2.2.2.4 Securitization

Asset backed securitization through pooling corresponding cash flows often refer to the fares, fees, tolls related to the use of the infrastructure asset can be a way to channelize funds to the infrastructure sector. In Latin American countries, securitization is popularly used in PPP projects as a source of debt finance.

8.3 International Source of Debt Finance

Multilateral development banks, international development finance agencies, multilateral infrastructure funds, sovereign wealth funds are commonly financing Infrastructure projects initiated under PPP concept. Foreign Direct Investment (FDI) would also be a viable option to finance prospective projects in a country like Bangladesh where domestic capital markets is underdeveloped as well as access to international debt market is limited.

An appropriate mix of finance ensuring the availability of funds on time at rational costs for PPP projects in one hand and confirming the required return, safe guard of the funds, liquidity of the instruments, and exit opportunities for the investors and lenders on the other is critical for the financial success of any PPP project. Of course, technical and legal aspect, participation of multinational banks and agencies, tenure of the projects, strength of the local financial system and most importantly financial and social viability of the projects also matter for arranging an appropriate financial deal. In this respect, Government needs to play leading role. Apart from providing finance directly, Govt., may contribute to financial deal of PPP projects through enhancement of credit quality, purchasing loans from lenders, motivating institutional investors such as banks, insurance companies and pension funds to invest, creating funded pension in the public sector, allowing a certain percentage of pension and provident funds to invest and offering fiscal incentives. Bangladesh Bank may also relax in classification and provisioning rules in case of lending in PPP

projects like IPFF. It is noted that Govt. and Bangladesh Bank are always very positive in addressing issues associated with PPP projects. However, success in making PPP projects profitable as well as ensuring regularity in debt service of the projects which are already in operation will attract more investors and lenders in the financial deal of PPP projects to be undertaken in future, as morning shows the day.

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Appendices

Appendix 1: List of PPP Projects Selected for the Study

Projects for which Detail Financial Information has been Collected	
1	Doreen Power Generation & Systems Ltd. At Tangail(22MW)
2	Doreen Power Generation & Systems Ltd. At Feni(22MW)
3	Doreen Power Generation & Systems Ltd. At Narshingdi(22MW)
4	Doreen Power House & Technologies Limited at Mohipal, Feni (11MW)
5	Regent Power Limited at Barapkunda, Chittagong (22MW)
6	United Power Generation & Distribution Limited at CEPZ (44MW)
7	United Power Generation & Distribution Limited at DEPZ (35MW)
8	Baraka Patenga Power Limited at Patenga, Chittagong
9	Dhaka Southern Power Generations Limited 55 MW Power Plant at Nababganj
10	Midland Power Limited
11	BanglaTrac Communications Ltd
12	450 MW Combined Cycle Power Plant of Meghnaghat Power Limited
13	33.75 MW Summit Power Limited Expansion Project
14	Four Small Power Plants with combined capacity of 110 MW of Summit Uttaranchol Power Company Limited and Summit Purbanchol Power Company Limited
15	110 MW HSD based and 105 MW HFO Fired Power Plant of Quantum Power Systems Limited
16	108 MW HFO Fired Power Plant of Energypac Confidence Power Ventures Chittagong Limited
17	305~335 MW Dual Fuel Power Plant of Summit Meghnaghat Power Company Ltd.
18	52.2 MW Power Plant of Lakdhanavi Bangla Power Ltd.
19	108 MW Gas Fired Power Plant of Regent Energy and Power Limited
20	52.5 MW Sinha Peoples Energy Ltd.
21	40 MW Westmont Baghabari Power Barge
22	102 MW Digital Power & Associates Limited
23	630 MW Orion Power Unit-2 Dhaka Ltd.
24	110 MW Khulna Power Company Limited
25	241.8 MW United Summit Power Co.
26	450 MW Meghnaghat II Power Plant
27	D-Water Tech Limited, a Water Treatment Plant at Chittagong EPZ

28	Central Water Treatment Plant at Comilla EPZ
29	Central Water Treatment Plant at Adamzee EPZ
30	Chittagong Waste Treatment Plant Limited
31	Fibre@home Limited (a Nationwide Telecommunication Transmission Network Project)
32	Ranks Telecom Limited
33	Banglalion WiMax Communication Limited
34	Fiber@Home Limited Expansion project
35	Land port of Panama Hili Port Link Ltd. and Panama Sonamasjid Port Link Limited
36	KDS Logistic Limited an inland container Depot at Sitakundu, Chittgong
37	Mayor Mohammad Hanif (Jatrabari-Gulistan) Flyover
38	Dhaka Elevated Expressway
Other Projects	
39	60 MW Meghnaghat Gas-Fired Power Plant
40	115 MW Haripur El Paso Barge Mounted Power Plant
41	WorldTel Bangladesh Limited
42	360 MW CDC Horipur Ltd.
43	WWR Dhaka Biomass Plant
44	10 MW Energypac Confidence Power Venture IPP
45	50 MW Comilla Union Consultants power plant
46	360 MW Haripur Marubeni combined cycle plan
47	50 MW Fujian Keraniganj HFO Power Plant

Appendix 2: PPP Financing Models

Lease-Build-Operate (LBO): In this model, a private firm is given a long-term lease to develop and operate an expanded facility using its own funds. It recovers its investment, plus a reasonable return over the term of lease and pays a rental fee. The facility remains publicly owned. Example includes Stewart Airport of USA which was leased by the state to a British Company for a period of ninety-nine years.

Design-Build-Operate (DBO): Here the public authority entrusts the private sector with the design, construction and operation of new facilities, for a fixed period of time, however, they remain the property of the public authority. The private operator takes responsibility for the risks linked to the design and management of

the facility. It is paid a fee by the public authority and commits to an overall cost for the facility's construction and operation.

Build-Transfer-Operate (BTO): A private developer designs, finances, and builds the infrastructure. Once completed, legal ownership is transferred to the sponsoring government agency. The agency then leases the facility back to the developer under a long-term lease. During this time the developer operates the facility and recovers his investment, and earns a reasonable return from user charges and commercial activities.

Build-Operate-Transfer (BOT): A private developer is awarded the concession to finance, build, own, and operate a facility. The developer collects the user fees for a specified period, after which ownership of the facility reverts back to the public sector. This is perhaps the most common form of PPP for building new infrastructure.

Build-Own-Operate-Transfer (BOOT): Same as BOT except that asset ownership is with the operator and sold to the Government for either a nominal/ pre-agreed fixed sum/ market value with a cap.

Built-Own-Operate (BOO): A private developer finances, builds, owns, and operates a facility in perpetuity under a franchise, but is subject to regulatory constraints on pricing and operations. The long-term property rights provide a significant financial incentive for capital investment in the facility. Some examples of this model are the private toll roads in Virginia and California; the toll road in China connecting Hong Kong and Macao with Guangzhou; and the 'Chunnel' under the English Channel. Numerous power projects and ports in the Philippines and Indonesia are also made through this model.

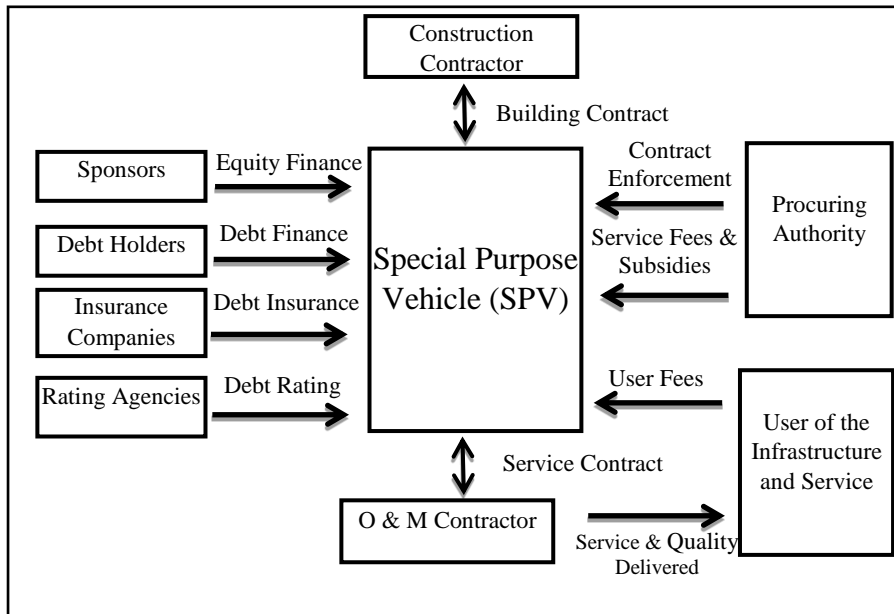
Buy-Build-Operate (BBO): An existing public facility is sold to a private partner who renovates or expands it and operates it in perpetuity under a franchise. This is equivalent to divesting a company, which then operates under a franchise.

Wraparound Addition (WA): A private developer finances and constructs an addition to an existing public facility and then operates the combined facility either for a fixed period, or until costs are recovered and a reasonable return on the invested capital is realized. The developer may own the addition. The objective of this arrangement is to expand the facility, despite the government's lack of resources or expertise.

Build-Rehabilitate Operate Transfer (BROT): A private sector developer builds, finances, rehabilitates, maintains and operates a facility for a given period of time, before transferring the facility back to the public entity at no cost.

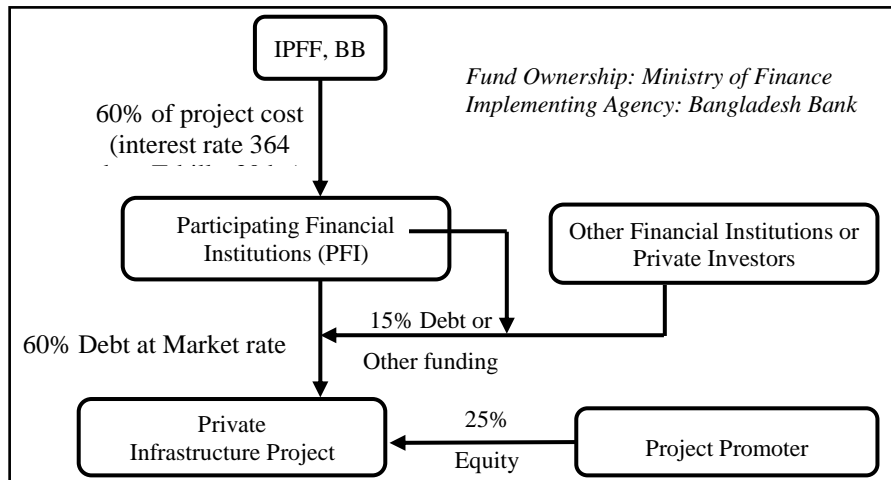
Source: Based on Nyagwachi (2008)

Appendix-3: Special Purpose Vehicle (SPV) in PPP Project



Source: Engel et al. (2010)

Appendix 4: Financing Pattern of IPFF to PPP Projects



Source: IPFF Project Cell, BB

Appendix 5: Discussion Summary of National Seminar on “Financing Public-Private Partnership (PPP) Projects in Bangladesh: An Assessment for Future Strategy”

Bangladesh Institute of Bank Management (BIBM) arranged a national seminar on “Financing Public-Private Partnership (PPP) Projects in Bangladesh: An Assessment for Future Strategy” on June 11, 2015. Mr. Md. Abul Quasem, Chairman, Executive Committee of BIBM and Deputy Governor, Bangladesh Bank was present in the seminar as the chief guest. Mr. Golam Hafiz Ahmed, Managing Director & CEO, NCC Bank Limited; Mr. M. Shah Alam Sarwar, Managing Director & CEO, IFIC Bank Limited; and Mr. A.K.M. Abdullah, Senior Financial Sector Specialist, South Asia Finance and Private Sector, World Bank were present in the seminar as designated discussants. Dr. Toufic Ahmad Choudhury, Director General, BIBM chaired the occasion. A total number of 155 participants including executives, high officials of different banks, government officials of relevant ministries and departments, academicians, media representatives and faculty members & students of BIBM participated in the seminar. The summary of seminar discussion on the paper is as follows:

Comments of the Chief Guest

Mr. Md. Abul Quasem, Former Chairman, Executive Committee of BIBM, and Former Deputy Governor of Bangladesh Bank has accentuated the importance of PPP in infrastructure development in Bangladesh as government has the resource limitation. He has emphasized on utilizing pension fund of government organizations to finance PPP projects as this fund is long-term which matches with financing tenure of PPP projects. He has also pointed out some important issues such as socio-economic and environmental issues along with financing to implement PPP projects. He opined that public sector representatives including bureaucrats of line ministries and Bangladesh Bank have to change the mindset for initiating and utilizing PPP as an alternative model of infrastructure development of the country. He also emphasized on transparency, good governance, effective monitoring and good sponsor selection for successfully implementing PPPs.

Comments of the Chairman

Dr. Toufic Ahmad Choudhury, Director General of BIBM has underscored the importance of PPP in infrastructure development of the country.

Comments of the Discussants

Mr. M. Shah Alam Sarwar, Managing Director & CEO of IFIC Bank limited told that for successfully implementing PPPs in Bangladesh, Government has to play the proactive role. He also pointed out that transparency in project awarding, good governance and management capability are necessary to implement large projects under PPP. He also added that although we have surplus funds sourcing from remittance, pension funds etc., but we do not have the capacity to utilize those funds to large projects like PPPs. Government has to take the responsibility to gather this large spectrum of scattered funds by

designing equity, quasi-equity and debt instruments for utilizing in long term PPP projects. In this regard, a separate and independent organization may be created by government to manage the whole process of implementation of PPP projects. He also cited limitations of banks to provide long term funds in PPP projects as most of the banks' funds are short term in nature.

Mr. Golam Hafiz Ahmed, Former Managing Director & CEO, NCC Bank limited told that PPP projects are highly leveraged and selection of sponsors as well as their capacity to attract bank funds is important. He underscored the importance of cooperation of development partners like World Bank, ADB, DEG, etc. in capacity building of commercial banks as well as financial support in subsequent lending to PPP projects at competitive rate. He cited a few bad experiences of financing PPP projects in Bangladesh. He also pointed out the huge potentiality of PPPs in the country as the country will require about USD 450 billion to boost up the infrastructure for supporting the desired economic growth in this region including Bangladesh in the next decade.

The World Bank Financial Sector Specialist Mr. A.K.M. Abdullah has appreciated the researchers for doing research on such a deserving area. He advised the research team to incorporate the discussion in the paper of those PPP projects which have failed to get finance although the projects were awarded to private sponsors. He added that many PPP projects failed to get finance from World Bank, commercial banks and other sources due to lack of transparency, lack of submitting bankable feasibility reports, opaque process of bidding and awarding of projects, etc. He suggested identifying the new and alternative modes of financing from commercial banks and development partners to future PPP projects in Bangladesh as local financial institutions and development partners look for helping infrastructure development of the country. He also told that selection of sponsors in awarding projects

should be transparent and governance situations as well as project management capability need to be improved to deal with such type of big projects. He added that transparency in project awarding as well as governance situation are prerequisites for sponsor's quality and rational pricing of loan to PPP projects. Regarding financing the PPP projects, he pointed out that PPP project can start its construction by banks finance but other long-term finance like bonds, capital market equity, etc. would be required to continue the project. It is good news that international lenders are coming to Bangladesh with their fund, he added. He underscored the importance of credit rating for reducing interest rate on debt. He also emphasizes on bond market development for supporting PPP financing in Bangladesh. He reiterated that not only transparency in bidding process but also governance situation need to improve for bringing quality sponsors and commercial banks and development partners to PPP projects in Bangladesh.

Some Key Points Highlighted by the Participants

- BIBM can take initiative to identify an appropriate mechanism apart from IPO to collect the scattered fund of individual person for channelizing the same to productive sector like PPP projects.
- Bangladesh bank can relax the limit of borrowing rate from foreign sources such as FMO, DEG etc. by private sponsors/commercial banks especially for financing in infrastructure projects implemented under PPP.
- New capital market instruments/ long term instruments have to introduce to bring pension fund or other funds to channelize them to finance PPP projects.
- To attract and retain the entrepreneurs to PPP projects as well as to expedite the implementation of projects, complexity in bidding and awarding of projects, land acquisition, bureaucracy, etc. should be removed. It will limit time and cost escalation of the projects.

- Neighboring country (India, Sri Lanka, etc.) experiences of utilizing pension fund/municipal bond/securitization to PPP projects can be used to develop and implement PPP projects in Bangladesh.
- Proper project monitoring and project implementation management are precondition for success in PPP initiative in Bangladesh.

**Infrastructure Investment under Public-Private
Partnership (PPP) in Bangladesh: Status, Issues and
Challenges***

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Abbreviations

ADB	Asian Development Bank
BBO	Buy-Build-Operate
BIFF	Bangladesh Infrastructure Finance Fund
BLPA	Bangladesh Land Port Authority
BOI	Board of Investment
BOLT	Build-Own-Lease and Transfer
BOO	Built-Own-Operate
BOOST	Build-Own-Operate-Share-Transfer
BOOT	Build-Own-Operate-Transfer
BOT	Build-Operate-Transfer
BTO	Build-Transfer-Operate
DBO	Design-Build-Operate
DFS	Detailed Feasibility Study
FI	Financial Institutions
GoB	Government of Bangladesh
GDP	Gross Domestic Products
IDA	International Development Agency
IDCOL	Infrastructure Development Company Limited
IFC	International Finance Corporation
IIFC	Infrastructure Investment Facilitation Centre
IPFF	Investment Promotion and Financing Facility
LBO	Lease-Build-Operate
NBFI	Non-Bank Financial Institutions
NOC	No Objection Certificate
OD	Operational Directives
PFI	Participatory Financial Institutions
PICOM	Private Infrastructure Committee
PSIG	Private Sector Infrastructure Guidelines
PPP	Public Private Partnership
REP	Request for Proposal
RFQ	Request for Qualification
ROT	Rehabilitate Operate Transfer
SPV	Special Purpose Vehicle
TA	Technical Assistance
VGF	Viability Gap Funding
WA	Wraparound Addition

Infrastructure Investment under Public-Private Partnership (PPP) in Bangladesh: Status, Issues and Challenges

Abstract

Infrastructure bottleneck has always been a serious concern in Bangladesh on its way to desired economic growth. Although many advanced economies and developing countries have developed their physical infrastructure successfully either through private participation or through Public-Private Partnership (PPP) model, private participation in the process of infrastructure development has received lackluster response in Bangladesh. The study focuses on current status as well as relevant issues and future challenges such as regulatory environment and its independence, transparency, expertise of project feasibility study, fair tariff settlement, risk identification and mitigation, government guarantee and support, incentives to private sectors, active bond market for long-term fund raising, corporate governance, high level political commitment and support, etc. These issues and challenges need sincere attention to attract private investors to participate in infrastructure development of the country. The study also explores the private participations in different infrastructure sectors both at the global and South Asian contexts and finds that emerging economies including India are moving faster towards PPP approaches for their infrastructure development in the last two decades. The paper concludes that the success of PPP initiatives mainly depends on a healthy investment climate which not only attracts private investment but also ensures the interest of mass people.

Keywords: Infrastructure, PPP, Economic Development, Issues and Challenges

JEL Classification: E20, H11, O10

1. Introduction

Physical infrastructure is an essential part of development of an economy and it provides basic services that people need in their everyday life. The contribution of infrastructure to economic growth and development is well recognized both in academic and policy discourses. Well-developed physical infrastructure provides key economic services efficiently, improves the competitiveness, extends vital support to productive sectors, generates high productivity and supports strong economic growth. Physical infrastructure such as transportation, power, telecommunication, etc. facilitates growth and social infrastructure viz., water supply, sanitation, sewerage disposal, education and health care have a direct impact on the quality of life. The general perception is that government is the only institution for the allocation of resources to highly capital-intensive activities, especially for infrastructure development. For many years, the public sector has traditionally financed and operated infrastructure projects using resources from taxes and various levies (e.g. fuel taxes, road user charges). However, there has been a growing public interest in finding alternative solutions to infrastructure development and service delivery through partnerships with the private sector. The recent gap between the capacity to generate funds and the demand for new facilities has forced governments to look for new funding methods and sources. Many countries are now contemplating Public-Private Partnerships (PPP) as an arrangement to finance, design, build, operate and maintain public infrastructure, community facilities and related services. The use of PPP approach has become very popular and effective to solve infrastructure problems in many developed and developing countries. In the 1980s and 1990s, infrastructure development through PPP had been widely used for upgrading the level of existing infrastructure or developing new infrastructure in both developing and developed countries. Public-Private partnering principles provide a major opportunity to improve project performance

(Gerard and Robert 2005). However, the success of adopting PPP for accelerating infrastructure development depends on a number of critical issues and challenges, as the experiences of many developed and developing economies indicate.

Infrastructure bottleneck has become a serious concern in Bangladesh to keep pace with economic progress. The economic growth of Bangladesh is inhibited by inadequate provision of infrastructure facilities such as roads, railways, telecom and most importantly power and ports. To become a middle-income country by 2021, we need to ensure a more rapid and inclusive growth path. According to the budget document for FY 2009-10, the country's target is to achieve 6%-8% GDP growth in the next five years starting from FY 2010¹. For achieving the expected GDP growth during the stipulated period, the cumulative amount of required investment would be US\$ 185.91 billion². But the cumulative shortfall for the required investment will stand at US\$28.06 billion³. The Government alone cannot meet these huge investment deficits without taking help from external sources. But it may not be possible to get required financing from external sources at affordable terms and conditions. One might easily guess that the prospect of getting large foreign investments appears uncertain at the moment and, moreover, huge involvement of foreign investors in long term projects may create pressure on balance of payments because of repatriation of foreign currency in future, as happened during the East Asian financial crisis in the last decade. It was estimated that the country's stock market would supply BDT 200 billion in the next five years, but past experiences in raising funds for Greenfield projects

¹ The target GDP growth rates are 6% in FY2010, 6.8% in FY2011, 7.5% in FY2012, and 8% in both FY2013 and FY2014, respectively.

² The country will need investments amounting to US\$24.59 billion, US\$30.63 billion, US\$37.18 billion, US\$43.82 billion, and US\$49.69 billion in the respective fiscal years.

³ The investment shortfalls will be US\$1.04 billion in FY2009-10, US\$3.53 billion in FY2010-11, US\$5.82 billion in FY2011-12, US\$8.27 billion in FY2012-13, and US\$9.40 billion in FY2013-14.

from the stock market had not been much encouraging (Bhuyan 2009). Finally, the recent debacle in the country's stock market has darkened the residual hope of raising fund for infrastructure projects. In such a situation, Government may seek participation of multilateral and international development financial institutions (viz., World Bank, Asian Development Bank, etc.). Although these development financial institutions offer concessional loans for longer maturities, but their finance is not sufficient. Further, their conditional involvement may put pressures on government from multiple sources. Hence, Public-Private Partnership (PPP) model can be a logical, viable, and effective alternative for investment in infrastructure sector to cater to the current infrastructure needs of Bangladesh.

Objective of the Study

The main objective of this paper is to investigate the major issues of concern for adopting PPP in infrastructure development in Bangladesh and explore the future challenges of such type of project delivery scheme. It also shows the status of infrastructure investment with private participation in Bangladesh considering the global context.

Methodology of the Study

The paper is primarily based on secondary data. For collecting data about infrastructure investment under PPP both in global, Asian, South Asian and in Bangladesh contexts, World Bank Private Participation in Infrastructure (PPI) Projects Data Base has been used. Documents of GoB and IPFF Projects of Bangladesh Bank have been consulted for gathering information about the status of PPP financing in infrastructure in Bangladesh. Other secondary sources such as research papers, ADB website, newspaper reports, etc. have been reviewed for the study purpose. A small-scale primary survey has been conducted

through a questionnaire on twenty commercial banks¹ operating in Bangladesh in order to know their exposures in PPP projects and also underpinning their future planning and strategies towards infrastructure financing under PPPs. For collecting primary data, banks have been chosen on the basis of ‘purposive sampling method’. In selecting banks for the survey, primary emphasis has been given to select those banks that have experiences of syndicated lending, as large projects financing are usually done through syndication mechanism. For the selection of local commercial banks, the norm followed was to select all the banks which are already enlisted with Investment Promotion and Financing Facility (IPFF) to avail of refinancing facility for lending in PPP projects. The remaining local commercial banks have been chosen on the basis of their experiences and magnitude of syndicated lending over the years. Other samples are selected based on their experiences and volume of large projects financing which represent their respective category of banks. Various tabular and graphical methods have been used for presenting infrastructure investment statistics.

Organization of the Paper

The paper is organized into seven sections. Section-1 states the introduction incorporating background, objectives and methodological aspects. Section-2 addresses the conceptual issues of infrastructure investments under PPPs. Section-3 reviews the private sector participations in infrastructure development in the global context. Infrastructure investment under PPP in Bangladesh perspective is captured in Section-4. Section-5 examines the banks’ financing to

¹**Twenty selected commercial banks** include: *two* state-owned banks (Agrani Bank Ltd. and Janata Bank Ltd.), *fourteen* local private commercial banks (Mutual Trust Bank Ltd., Mercantile Bank Ltd., Trust Bank Ltd., Prime Bank Ltd., Dhaka Bank Ltd., NCC Bank Ltd., BRAC Bank Ltd., Eastern Bank Ltd., Dutch-Bangla Bank Ltd., IFIC Bank Ltd., Bank Asia Ltd., United Commercial Bank Ltd., AB Bank Ltd. and The City Bank Ltd.), *two* foreign commercial banks (Citi Bank, N.A. and Standard Chartered Bank) and *two* Islamic banks (Islami Bank Bangladesh Ltd. and Exim Bank Ltd.).

infrastructure projects under PPP in Bangladesh. The critical issues related to the implementation of infrastructure projects under PPP in the country and challenges thereof are analyzed in Section-6. Finally, Section-7 provides conclusion.

2. Conceptual Issues of Infrastructure Investment under PPPs

The term public-private partnership is a widely used concept all over the world. PPP is viewed as a contract between a public-sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risks in the project. In most PPP projects, capital investment is made by the private sector on the strength of a contract with government to provide agreed services and the cost of providing the service is borne wholly or in part by the government.

Private participation in infrastructure¹ is not a new phenomenon (Box-1). PPP is considered as a favorite tool for providing public services by developing physical and social infrastructures in both developed and developing countries. But the term was often not clearly defined until recently. There is no single accepted international definition of what a PPP is. The PPP is defined as “the transfer to the private sector of investment projects that traditionally have been executed or financed by the public sector” (IMF 2004). Any arrangement made between a state authority and a private partner to perform functions within the mandate of the state authority, and involving different combinations of design, construction, operations and finance is termed as Ireland’s PPP model. In UK, Private Finance Initiative (PFI) in which the public sector purchases services from the private sector

¹ Infrastructure is the physical framework of facilities that enables the people of a country to reach the public goods and services. It is broadly categorized as ‘Public utilities’, ‘Public works’ and ‘Other transport’. Facilities like power, telecommunication, piped water supply, sanitation and drainage fall under the category of ‘Public utilities’ whereas the roads, major irrigation projects and canal works come under ‘Public works’. Items such as urban and intercity rail system, urban transport, ports and waterways; and roads are categorized as ‘other transport’ infrastructure.

under long-term contracts is called a PPP program. However, there are other forms of PPP used in the UK, including cases where the private sector is introduced as a strategic partner into a state-owned business that provides a public service.

Box 1: Private Participation in Infrastructure is not a New Phenomenon

The history of private sector participation in infrastructure development is quite old. Private sector participation in the transport sector, for example, dates back to seventeenth century canal and road concessions in Europe and the United States of America. Private companies built the American railways in the nineteenth century. Many early public transport systems in European and American cities were also developed by the private sector under various municipal charter or franchise arrangements with revenues coming from fares and land development.

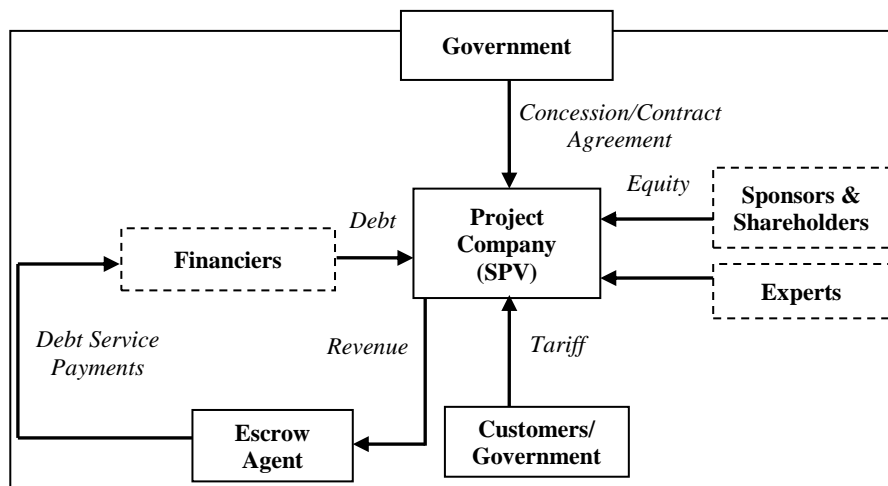
The situation in many countries in Asia was not very different either. For example, railways in the Indian subcontinent were first introduced in 1853 through private initiatives. The Great Indian Peninsula Railway Company introduced the first railways in India near Mumbai with British capital and organization. Subsequently, other companies built railways in other parts mainly radiating inward from the three major port cities of Mumbai (Bombay), Chennai (Madras) and Kolkata (Calcutta). The then Government in India encouraged the setting up of railways by private investors under a scheme that guaranteed an annual return of 5 per cent. The Government also authorized the companies to acquire necessary land with compensation for the construction of the railway lines and railway establishments. Once completed, the company was passed under government ownership, but the operation remained under the control of the company that built them. This was essentially the build-transfer-operate PPP model of the present times. Most of the early municipal water and power supply systems in the Indian subcontinent were also built and operated by private operators under various agreements with the government.

Source: UNESCAP (2007)

PPP is sometimes referred to as a joint venture in which a government service or private business venture is funded and operated through a partnership of government and one or more private sector companies. Typically, a private sector consortium forms a special company called

a Special Purpose Vehicle (SPV)¹ to build and maintain the asset. The consortium is usually set up with a contractor, a maintenance company and a lender. It is the SPV that signs the contract with the government and with subcontractors to build the facility and then maintain it. A typical structure of a PPP project which shows the contractual relationship with SPV and other project parties is demonstrated in Figure-1.

Figure 1: Typical Structure of a PPP Project²



Source: Quium (2008)

PPP combines the development of private sector capital and sometimes, public sector capital to improve public services or the management of public sector assets (Gerrard 2001). PPP may

¹An SPV is a commercial company established under the relevant Act of a country through an agreement (also known as memorandum of association) between the shareholders or sponsors. The shareholders agreement sets out the basis on which a company is established, giving such details as its name, ownership structure, management control and corporate matters, authorized share capital and the extent of the liabilities of its members.

²The box on the right side labelled “expert” represents various participating groups in a PPP project including engineers (designer), contractor (builder), operator and insurer. Similarly, the box on the left side labelled “financiers” includes various parties investing in a project comprising equity and debt financiers which may include domestic and foreign banks and financial institutions, bi-lateral and multi-lateral donor agencies, development banks, and similar other agencies.

encompass the whole spectrum of approaches from private participation through the contracting out of services and revenue sharing partnership arrangement to pure non-recourse project finance, while sometimes it may include only a narrow range of project type. PPP has two important characteristics. First, there is an emphasis on service provision as well as investment by the private sector. Second, significant risk is transferred from the Government to the private sector. PPP model is very flexible and discernible in a variety of forms. The various models/ schemes and modalities to implement the PPP are set out in Table-1.

Table 1: Schemes and Modalities of PPP

PPP Schemes	PPP Modalities
Build-own-operate (BOO) Build-develop-operate (BDO) Design-construct-manage-finance (DCMF)	The private sector designs, builds, owns, develops, operates and manages an asset with no obligation to transfer ownership to the government. These are variants of Design-Build-Finance-Operate (DBFO) schemes.
Buy-build-operate (BBO) Lease-develop-operate (LDO) Wrap-around-addition (WAA)	The private sector buys or leases an existing asset from the Government, renovates, modernizes, and/or expands it, and then operates the asset, again with no obligation to transfer ownership back to the Government.
Build-operate-transfer (BOT) Build-own-operate-transfer (BOOT) Build-rent-own-transfer (BROT) Build-lease-operate-transfer (BLOT) Build-transfer-operate (BTO)	The private sector designs and builds an asset, operates it, and then transfers it to the Government when the operating contract ends, or at some other pre-specified time. The private partner may subsequently rent or lease the asset from the Government.

Source: IMF (2004)

Privatization and Public-Private Partnership: Typically, PPP is not privatization. At the same time, it cannot be described as partial privatization also. Privatization has generally been defined as a process of shifting the ownership or management of a service or activity, in whole or part, from the government to the private sector. Privatization

may be of many forms, which include outsourcing, management contracts, franchise, service shedding, corporatization, disinvestment, asset sales, long-term lease, etc. The key difference between PPP and privatization is that the responsibility for delivery and funding a particular service rests with the private sector in privatization. PPP, on the other hand, involves full retention of responsibility by the government for providing the services. In case of ownership, while ownership rights under privatization are sold to the private sector along with associated benefits and costs, PPP may continue to retain the legal ownership of assets by the public sector. The nature and scope of the services under privatization is determined by the private provider, while it is contractually determined between the parties in PPP. Under privatization, all the risks inherent in the business rest with the private sector while, under the PPP, risks and rewards are shared between the government and the private sector.

Therefore, PPP operates at the boundary of the public and private sectors, being neither nationalized nor privatized. Politically, PPP represents a third way in which governments deliver some public services in conjunction with private sector. Moreover, in a practical sense, PPP represents a form of collaboration under a contract by which public and private sectors, acting together, can achieve what each acting alone cannot (Gerrard 2001).

PPP in the Context of Bangladesh

In the Bangladesh context, the term PPP is used very loosely while in the international arena PPP is adopted for developing public assets in various forms (Table-1). According to the Strategy and Policy for PPP, 2010 of Government of Bangladesh (GoB) (2010), PPP is explained as follows: “Public-Private Partnership (PPP) projects normally cover public good provisions characterized by indivisibility and non-excludability, natural monopoly characterized by declining marginal cost (and associated average cost), and lumpy investment characterized

by long gestation period”. In most of the cases, PPP allows private sector into areas of business, where the government holds control over infrastructure or service before such partnership. The public sector retains a significant role in the partnership, either as the sole purchaser of the services provided or as the main enabler of the project. The private party commonly provides the detailed design, construct, operation and financing for the PPP project, and is paid according to the performance. In Bangladesh, PPP projects may be developed by both solicited and unsolicited process¹.

3. Infrastructure Investment with Private Participations: Global Context

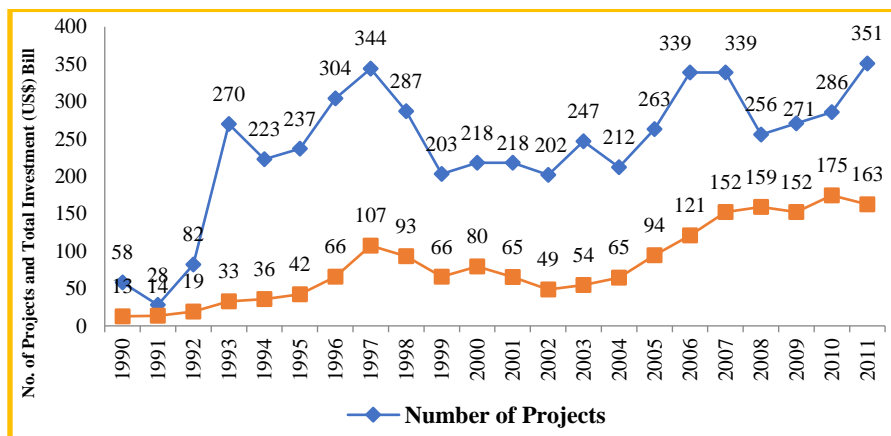
There is a strong linkage between infrastructure, development and poverty reduction. Hence, providing good quality infrastructure has emerged as a top priority of development policy worldwide in the past two decades. The need for infrastructure is urgent and enormous in developing countries. For instance, Fay and Yepes (2003) predict that producer and consumer demand for infrastructure in emerging markets will grow exponentially, based on a growth projection of 2.7% per year between 2005 and 2010. At this growth rate, \$465 billion worth of infrastructure investment will be required to meet demand, with almost 90% of it going towards telecommunications, power and roads. Electricity demand alone is expected to increase by 4% per year for the next 20 years (Lamech and Saeed 2003). Accordingly, the private participation in the infrastructure development has started picking up in various forms. Moreover, the globalization and opening up of the markets by Emerging Market Economies (EMEs) have provided investment opportunities for the private investors to develop the public infrastructure projects with or without collaboration with the public

¹*Solicited Projects* are those Projects which are identified by the public sector and then executed by the private sectors selected by competitive bidding process. *Unsolicited Projects* are those projects which are identified by the private sector and approved by the public sector following some selection processes.

sector. Multilateral Institutions have also focused their attention towards the progress in the infrastructure development with private participation, as the basic infrastructure would accelerate the pace of overall economic development of a country.

According to World Bank PPI Projects Database, about 5,238 infrastructure projects amounting to about US\$ 1,817 billion have reached financial closure from 1990 to 2011 distributed in 139 low and middle-income countries around the world. Figure-2 shows trend in infrastructure investment with private participation in developing countries from 1990 to 2011. A close observation indicates that after a sharp growth starting from 1991, infrastructure investment reached momentum in year 1997 followed by a downturn up to 2004. Again, 2004-2007 experienced a significant growth and a flat trend is observed from 2008 till now as represented in Figure-2.

Figure 2: Trends in Infrastructure Investments with Private Participation in Developing Countries, 1990-2011.

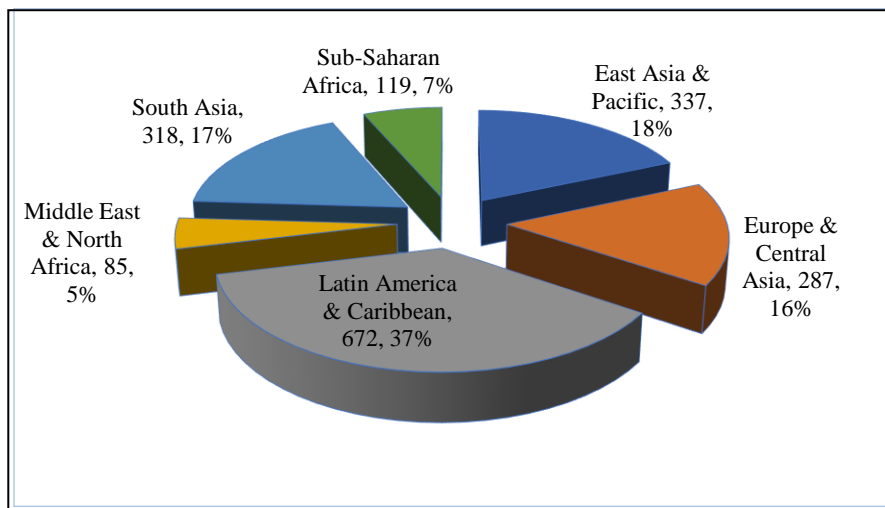


Source: World Bank PPI Projects Database (2012)

Major share of infrastructure investments with private participation among developing countries is captured by Latin America and the Caribbean (37%) followed by East Asia and the Pacific (18%) and the South Asia (17%) (Figure-3). Middle East and North African region

attracted a meager share of private investment (5%). Though the Latin American and Caribbean countries have attracted more private projects during the mid-1990s, the pattern has changed during the recent period towards East Asia and South Asia due to growing investment opportunities in these countries in tandem with their macroeconomic developments.

Figure 3: Regional Status of Infrastructure Investment with Private Participation (in US\$ Billion and in %), 1990-2011



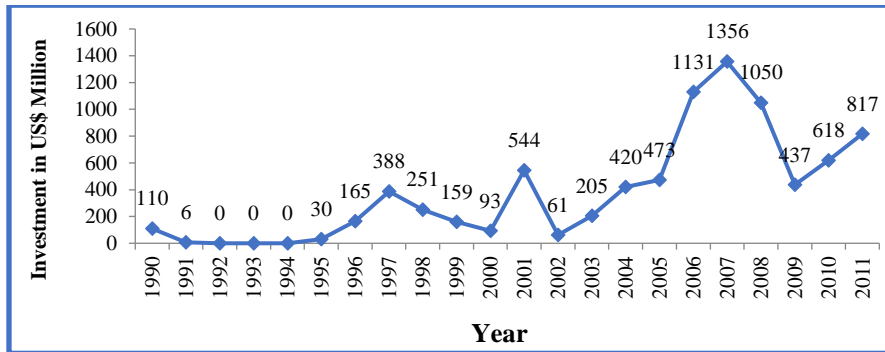
Source: World Bank PPI Projects Database (2012)

4. Infrastructure Investment under PPPs: Bangladesh Perspective

Infrastructure investment with private participations started more than a decade ago in the country. In 1990, US\$ 110 million was invested in infrastructure projects under private participation and over the years investment in infrastructure has increased except the period of 1992-1994. During the period of 1995-2001 US\$ 1,630 million was invested in different infrastructure projects with private participations. Infrastructure investment has experienced a sharp growth from 2003-2007 with highest amount in 2007 (US\$ 1,356 million).

Figure-4 shows the trends in infrastructure investment of the country during 1990-2011.

Figure 4: Trends in Infrastructure Investment with Private Participation in Bangladesh, 1990-2011



Source: World Bank PPI Projects Database (2012)

For accelerating infrastructure development, Government established three organizations¹ for implementing infrastructure projects with private sector participation under the PPP initiatives. Two out of three government sponsored organizations (viz., IDCOL and IPFF) provide direct financial support to PPP projects and the other (i.e., Infrastructure Investment Facilitation Company, IIFC) provides expert assistance to relevant ministries, divisions or agencies regarding project development, project formulation, project design, technical, engineering, implementation and monitoring related issues for projects sanctioned by PPP initiative. So far, under the direct assistance of these organizations 27 infrastructure projects have been implemented in the country (MOF 2009). According to PPI Project Data Base of the World Bank, a total number of 46 infrastructure projects in different sectors (such as energy, telecom, etc.) have got financial closure and most of

¹The government sponsored three organizations are: i) Infrastructure Development Company Limited (IDCOL) established in 1997, ii) Infrastructure Investment Facilitation Company (IIFC) established in 2000, and iii) Investment Promotion and Financing Facility (IPFF) found in 2006.

them are in operation. Of the 46 projects under PPP, 29 projects belong to the energy sector requiring US\$ 1,719 million investment, 12 projects are in telecom sector with US\$ 6,593 million investment and 5 projects are in transport sector. Although energy sector has the largest concentration in terms of number of projects, the largest amount of investment (US\$ 1,719 million) went to telecom sector (Table-2). According to World Bank PPI Project Data Base, five infrastructure projects with private participation in Bangladesh has been cancelled or distressed having 2% of the total infrastructure investment with private participation.

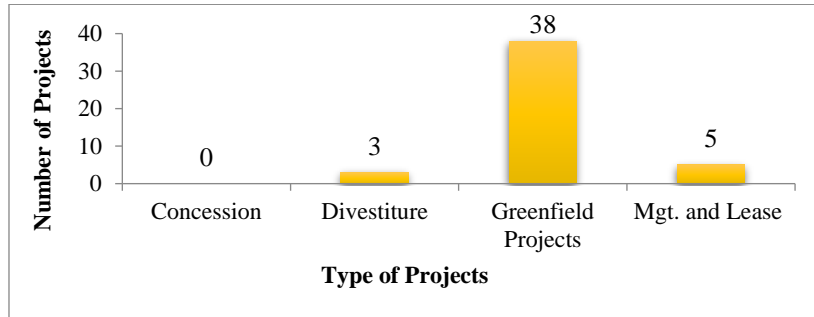
Table 2: Total Number of Infrastructure Projects and Amount of Investment with Private Participation in Bangladesh, 1990-2011

Sector	Sub-sector	No. of Projects	Total Investment (in US\$ Million)
Energy	Electricity	28	1,688
	Natural Gas	1	31
	Total	29	1,719
Telecom	Telecom	12	6,593
Transport	Airports	1	0
	Roads	2	0
	Seaports	2	0
	Total	5	0
Total		46	8,312

Source: World Bank PPI Projects Database (2012)

Till date, majority of the infrastructure projects in Bangladesh that have achieved financial closure fall under Greenfield projects (38 projects), 5 projects fall under the management and lease contract and 3 projects are divestiture in nature. The following figure (Figure-5) shows the type of infrastructure projects obtaining financial closure in Bangladesh.

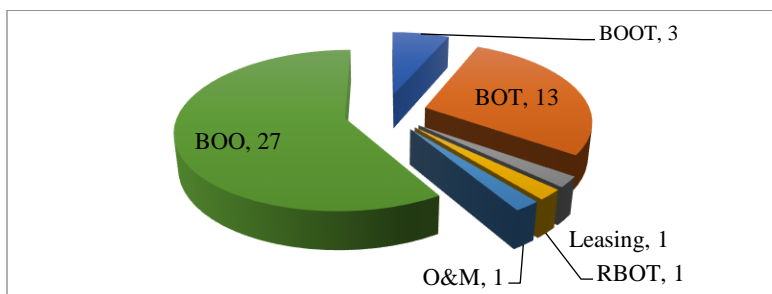
Figure 5: Type of Infrastructure Projects that Obtained Financial Closure under PPP in Bangladesh (1990-2011)



Source: World Bank PPI Projects Database (2012)

Currently, one third of the country's power requirements are fulfilled by private sector. Telecommunication sector has achieved a significant progress by PPP approach. Private mobile telecom operators have made more than a billion dollar investment in the country. There are also some PPP projects under Bangladesh Land Port Authority (BLPA). In Bangladesh, infrastructure projects are implemented by following BOO, BOT, BOOT, etc. models. But majority of the projects are implemented by BOO scheme. Among the projects implemented under PPPs, 27 projects follow BOO model, 13 projects follow BOT model, 3 projects follow BOOT and a few projects follow lease/RBOT/O&M models (Figure-6).

Figure 6: Number of Infrastructure Projects Implemented under Different PPP Models in Bangladesh



Source: MOF (2009), IIFC (2012) and Bangladesh Bank (2012).

Among the three Government sponsored companies, IDCOL has implemented 22 infrastructure projects under PPPs with a total investment of BDT13 billion (Amin 2011). Moreover, from FY2009-10 onward, the Government has taken decision to implement six projects under PPP, which, in total, would cost some US\$13.85 billion or BDT 951 billion. The projects are Dhaka-Chittagong Access Control Highway at an estimated cost of US\$3.02 billion on BOOT basis, Sky-Train encompassing the Dhaka Metropolis (estimated cost: US\$2.80 billion on BOOT basis), Dhaka City Subway (estimated cost: US\$3.1 billion on BOOT/BOT basis), Dhaka City Elevated Expressway (estimated cost: US\$1.23 billion on BOOT/BOT basis), Dhaka-Narayanganj-Gazipur-Dhaka Elevated Expressway (estimated cost: US\$1.90 billion on BOOT/BOT basis), and four 450 megawatt gas- or coal-fired power stations at an estimated cost of US\$1.80 billion on BOOT/BOT basis. Besides, the Government has planned to construct smaller link and approach roads, bridges, flyovers, underpasses and tunnels, university residential halls and hospitals under the PPP. Moreover, government had earlier decided to construct the Sonadia Deep Sea Port (DSP) under PPP outside the budget. The DSP project would cost approximately US\$3 billion. In addition, government has decided to build three small scale transportation projects viz., Bus Rapid Transit (BRT) at an estimated cost of BDT 150 million, Articulated Bus Service at the cost of BDT 50 million and Bus Route Franchise (BRF) at the cost of BDT 50 million on BOO model.

As the government is committed to accelerate infrastructure development, it (government) has enlisted at least 36 infrastructure projects (28 power projects and 8 cross section projects) for implementing under PPP (IPFF Bangladesh Bank 2012). Of the 36 projects under consideration, some have already achieved financial closure as indicated in the World Bank PPI Projects data base for Bangladesh. Furthermore, IIFC, a technical consultant of GoB for

infrastructure projects appraisal and feasibility study, has entered into contract to design 30 projects, provided technical support to 8 projects and consultancy support to 16 projects under PPP till now.

To attract private investments through PPP, government has introduced “PPP Budget” since FY2009-10 and allocated a lump sum of BDT 25 billion in the national budget. The purpose of allocating fund in the budget is to ensure the Government’s financial participations in PPP projects along with the private sectors. The financial participation of the government in the PPP projects may be at least in 3 forms (viz., Technical Assistance Financing¹, Viability Gap Financing² and Infrastructure Financing³) depending on the nature of the projects and models of PPP adopted for a particular type of project. Of the total amount of BDT 25 billion, BDT 1 billion was earmarked for technical assistance, BDT 3 billion for Viability Gap Funding (VGF) and BDT 21 billion for setting up an Infrastructure Development Fund. Considering the importance of PPP, Government has created Bangladesh Infrastructure Finance Fund (BIFF) which will commence its investment functions in FY2011-12. BDT 1600 crore from the budget allocation of the previous years has been transferred

¹Technical Assistance Financing is designed for the purposes of pre-feasibility and feasibility study for projects; preparation of RFQ and REP documents; preparation of concession contracts; building up of the line Ministries/implementing agencies and other relevant agencies associated with PPP projects; creating awareness about PPP concepts and issues through road show, exhibition etc.

²Through Viability Gap Financing, govt. provides funds to projects where financial viability is not ensured but their economic and social viability is high. VGF could be in the form of capital grant or annuity payment or in both forms. VGF in the form of capital grant shall be disbursed only after the private sector company has subscribed and expended the equity contribution required for the project. The VGF is to be managed by the Finance Division and is for disbursement to the PPP Project Company, upon request by the line Ministry/implementing agency, as per the terms of the concession contract.

³Infrastructure Financing is an arrangement for extending financing facilities for the PPP projects in the form of debt or equity through specialized financial institutions such as Bangladesh Infrastructure Finance Fund (BIFF) and Infrastructure Development Company Limited (IDCOL). The government may participate in such financing arrangements through necessary budget provision.

to this fund and in FY2011-12 proposed allocation is BDT 2500 crore (Budget Speech for FY 2011-12, June 09, 2011).

Besides allocating funds from the fiscal budget for infrastructure investment under PPP, Government is trying to facilitate financing as well as technical support to PPP projects in collaboration with multilateral financial institutions such as World Bank, IFC, ADB, etc. As part of the joint effort, Government has created the IPFF¹ project in collaboration with World Bank to facilitate partial debt financing to privately initiated infrastructure projects based on some eligible criteria. The IPFF project seeks to assist the GoB in facilitating new infrastructure projects with potential for private sector participation and in developing the capacity of the financial sector for the ongoing provisions of infrastructure finance. So far, IPFF has successfully completed first phase of its operation by disbursing 100% of its credit line (on-lending) component amounting to US\$ 57.5 million (US\$47.5 m IDA+US\$10 million GoB fund) equivalent to BDT 422.33 crore to seven small power plants which are contributing 178MW electricity to the national grid. As the IPFF has successfully disbursed 100% funds of first phase well ahead of the stipulated time, IDA has sanctioned another US\$257 million (US\$7 for TA) and GoB has sanctioned US\$ 50 million for the implementation of PPP projects under the second phase. Under second phase of IPFF, a total of BDT 2100 crore (US\$ 300 million) is available for financing eligible PPP projects. Under second phase of the IPFF project, about 10 infrastructure projects in different sectors including water treatment plant, inland container terminal, express ways, etc., have already approached the IPFF for

¹IPFF (Investment Promotion and Financing Facility) is a project co-financed by GoB and the World Bank (WB) which is mandated to supplement the resources of the Bangladesh financial markets to provide term finance for infrastructure and other investment projects beyond the capacity of local financial institutions; and promoting the role of private sector entrepreneurs in the development of capital projects, especially infrastructure. The IPFF Project is operated by Bangladesh Bank.

funding PPP projects. Funding to some of these projects is under process and others are under evaluation (Bangladesh Bank 2012).

Infrastructure Investment under PPPs: Status of Bangladesh in Comparison to South Asian Countries

Table 3: Infrastructure Investment with Private Participation in South Asian Countries, 1990-2011

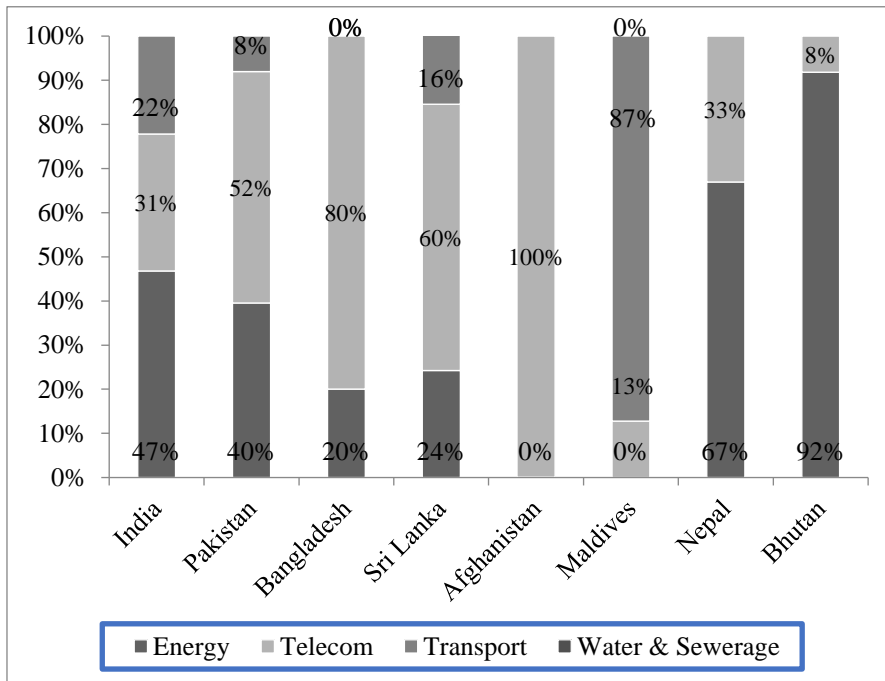
Country	No. of Projects	Total Investment (US\$ Million)
India	605	273,433
Pakistan	70	31,906
Bangladesh	46	8,312
Sri Lanka	32	4,787
Nepal	9	408
Afghanistan	6	1,584
Maldives	2	548
Bhutan	2	219

Source: World Bank PPI Projects Database (2012)

Infrastructure investment in South Asian countries has increased over the years. As shown in Table-3, India holds the top position among the South Asian countries for infrastructure investment with private participation in terms of both amount (US\$ 273,433 million) and number of projects (605) followed by Pakistan (US\$ 31,906 million and 70 projects) and Bangladesh (US\$ 8,312 million and 46 projects).

Although investment in infrastructure with private participation in South Asian countries is growing fast, bulk of the investment is concentrated on a few sectors. Telecom sector captures majority of the total investment in some countries (100% in Afghanistan, 80% in Bangladesh, 60% in Sri Lanka). Energy sector is more concentrated in Bhutan (92%), Nepal (67%) and India (47%). Maldives has maximum investment (87%) in transport sector (Figure-7).

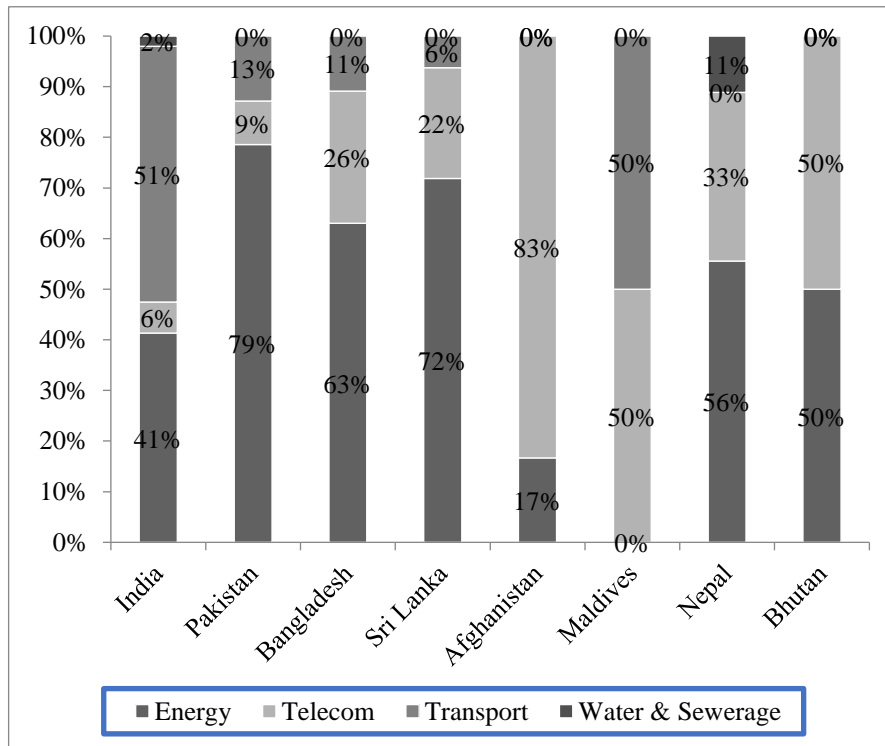
Figure 7: Infrastructure Investment with Private Participation in Bangladesh Compared to other South Asian Countries (Sector Concentration by Investment Amount), 1990-2011



Source: World Bank PPI Projects Database (2012)

Energy sector has the largest number of projects in five of the eight Asian countries. Pakistan has 79% of its total infrastructure projects in energy sector, Sri Lanka (72%), Bangladesh (63%), Nepal (56%) and Bhutan (50%). India has the largest number of projects (51%) in transport sector followed by energy sector (41%). Afghanistan has 83% projects in telecom and both Maldives and Bhutan have 50% projects in telecom sector. However, none of the countries except India (2%) have any project in water and sewerage system development (Figure-8).

Figure 8: Infrastructure Investments of Bangladesh Compared to Other South Asian Countries (Sector Concentration by Number of Projects), 1990-2011



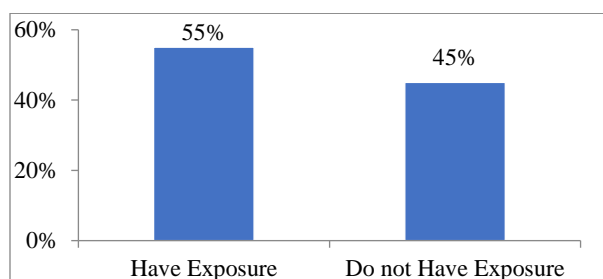
Source: World Bank PPI Projects Database (2012)

5. Banks Financing to Infrastructure Projects under PPP in Bangladesh

Infrastructure Investments by Banks under PPPs

Commercial banks have financed infrastructure projects under PPP. It is observed that 55% (11 out of 20 sample banks) of the banks have exposures in PPP projects. The following figure (Figure-9) shows the banks' exposures in infrastructure projects.

Figure 9: Percentage of Banks having Exposures in Infrastructure Projects under PPPs



Source: Survey

Commercial banks have financed a sum of BDT 47,094 million in infrastructure projects under PPP either taking refinancing facility of IPFF or independently. Table-4 shows the investment of different banks in infrastructure projects implemented under PPP.

Table 4: Financing Infrastructure Projects by Banks under PPPs

Name of the Banks	Amount of Loans (Tk. in Millions)
Janata Bank Ltd.	28,901
United Commercial Bank Ltd.	6300
Prime Bank Ltd.	3,900
NCC Bank Ltd.	2230
Islami Bank Bangladesh Ltd.	2230
Dutch-Bangla Bank Ltd.	1343
Dhaka Bank Ltd.	1075
Eastern Bank Ltd.	775
Mercantile Bank Ltd.	200
IFIC Bank Ltd.	110
BRAC Bank Ltd.	30
Total	47,094

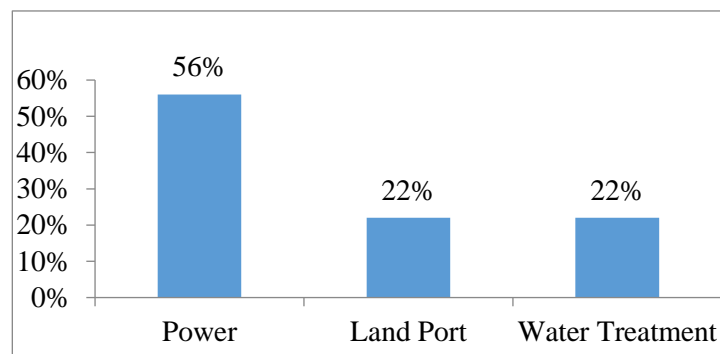
Source: Amin (2011)

Sector Concentration of Banks' Investment in Infrastructure under PPPs

Banks have preferences in financing power sector PPP projects. The reason behind their preferences in power sector is that their loan repayment is almost certain as the Government purchase the electricity and hence they feel secured at financing this sector. It is found that

56% of the banks' investment has been provided to power sector and land ports and water treatment plants each captured 22% of the banks' investment (Figure-10)

Figure 10: Sector Concentration of Banks in Infrastructure Financing under PPPs



Source: Survey

Refinancing Facility Availed by Banks from IPFF in Financing PPP Projects

Some of IPFF¹ enlisted banks have availed of refinancing facility from IPFF for on-lending in infrastructure projects implemented under PPPs. Among the IPFF-enlisted eleven commercial banks, four banks have already availed of refinancing facility in order to financing seven power projects which have been implemented under PPP model, four banks did not enjoy the facility and one bank is yet to get the refinancing facility (Table-5). The amount of refinancing facility availed of by four banks for subsequently lending in PPP power projects are shown in Table-5.

¹ As of January 2012 a total of 18 banks and financial institutions are listed with IPFF as Participating Financial Institutions (PFIs). Of them, 11 are commercial banks (Dutch-Bangla Bank Ltd., Dhaka Bank Ltd., Eastern Bank Ltd., NCC Bank Ltd., Prime Bank Ltd., BRAC Bank Ltd., Trust Bank Ltd., Mutual Trust Bank Ltd., The City Bank Ltd., AB Bank Ltd. and United Commercial Bank Ltd.) and remaining 7 are NBFIs (IDLC Finance Ltd., *International Leasing And Financial Services Ltd.*, Prime Finance and Investment Ltd., United Leasing Company Ltd., Uttara Finance and Investment, Industrial and Infrastructure Development Finance Company Ltd. and GSP Finance Company Ltd.).

Table 5: Amount of Refinancing Facility Enjoyed by Different Banks to Finance in PPP Projects

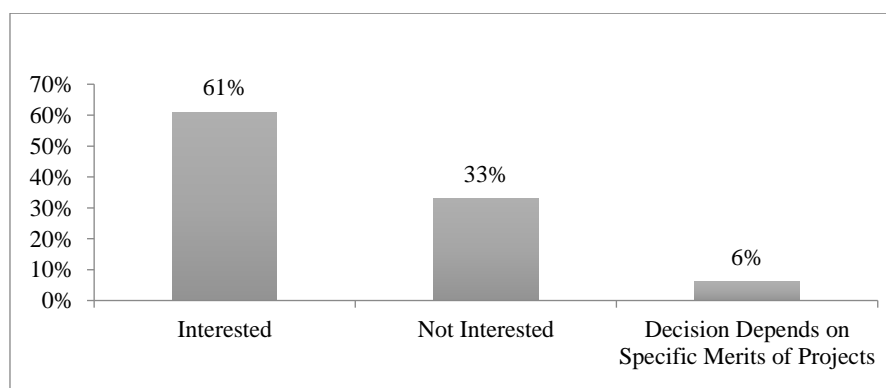
Name of Banks	Amount of Refinancing (Tk. in Millions)
Dutch-Bangla Bank Ltd.	1074
NCC Bank Ltd.	1780
Dhaka Bank Ltd.	670
Eastern Bank Ltd.	620
Total	4,144

Source: Survey

Banks' Willingness to Finance Infrastructure Projects without Taking Refinancing from IPFF

Commercial banks are interested to finance PPP projects without taking support from any external sources such as IPFF. According to the survey results, it is found that 60% of the banks are interested to finance infrastructure projects under PPPs without taking refinancing facility from IPFF, whereas 33% of the banks are not willing to finance PPP projects with their own fund and decision of 6% banks depends on specific merits of the projects (Figure-11). For financing infrastructure projects under PPPs, banks may face 'Asset-Liability Mismatch' and 'Single Borrower Exposure Limit' problems as pointed out by some respondents.

Figure 11: Banks' Interests in Financing Infrastructure Projects under PPPs without Availing of Refinancing from IPFF (% of Surveyed Banks)



Source: Survey

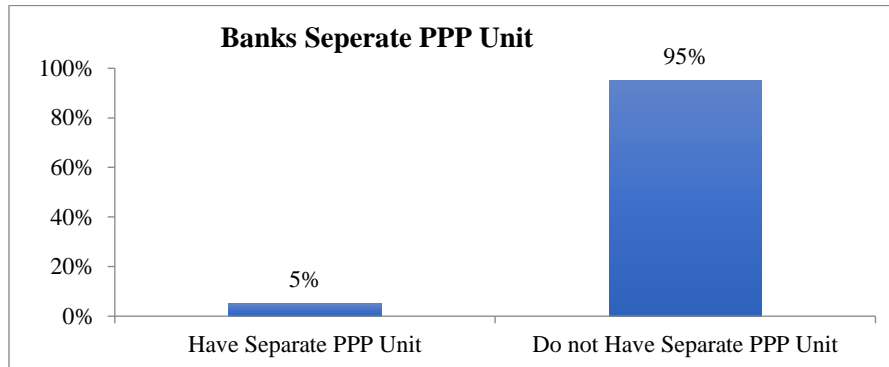
Preparedness of Banks to Finance Infrastructure Projects under PPPs

Infrastructure financing under PPPs involves complex contractual arrangements and requires appropriate risk management techniques and strategies. This requires particular knowledge in legal and contractual issues, skills in project feasibility study and financial modeling, risk mitigation techniques, etc. For handling PPP projects, banks need expert and dedicated manpower along with appropriate organizational set up. At this moment, majority of the banks have required but not sufficient manpower to handle PPP projects. According to the survey, 67% of the banks have preparation with required organizational set up to deal with infrastructure financing under PPPs whereas 33% of the banks are not prepared to undertake PPP projects. Although majority of the sample banks has stated that they are able to handle PPP projects with their existing organizational set up and manpower, 95% of the banks do not have separate unit/cell for handling PPP projects/infrastructure projects (Figure-12)¹ Although eleven banks have exposures in PPP projects (Table-4) but they did not formulate their own policy for PPP financing. They have disbursed loan to PPP projects according to their existing credit policy. As survey indicates, no bank has formulated any PPP financing policy within the bank yet. However, it is a positive sign that 39% of the banks have started policy level discussion/meeting internally to formulate separate policy/guidelines for financing PPP projects. This indicates that banks are thinking for financing infrastructure projects under PPPs in future. As PPP is relatively new in Bangladesh and it calls for special organizational set up and expert manpower to accomplish success; and bank executives require training on PPP policy issues, PPP theme, project evaluation process and feasibility study, financial structuring, legal aspects, project documentation, risk management strategies etc.

¹Till November 30, 2011, only one commercial bank (NCC Bank Ltd.) has separate unit/cell for dealing with infrastructure projects financing under PPPs.

According to survey observations, 40% of the banks have already arranged different training programs on PPP financings for their employees.

Figure 12: Percentage of Banks having Separate PPP Unit

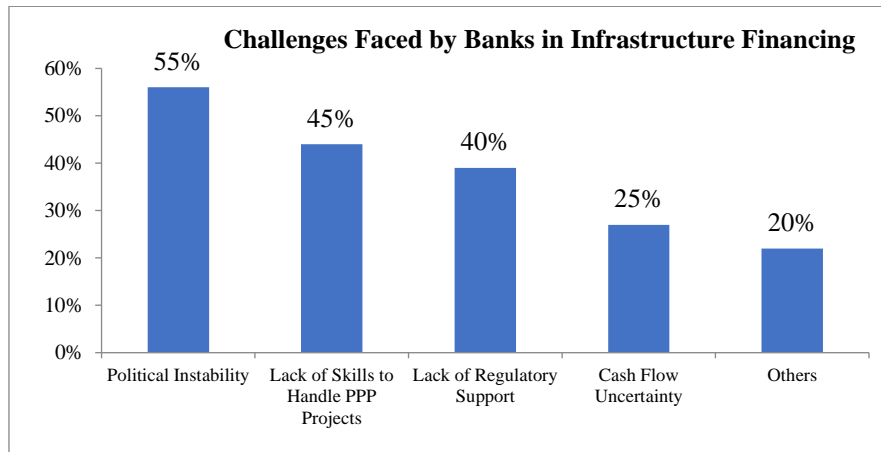


Source: Survey

Challenges faced by Banks in Financing Infrastructure Projects under PPPs

Banks that have already provided funds to infrastructure projects under PPPs have pointed out some challenges. The major challenges as encountered by banks are lack of proper policy direction to banks as to how banks will participate in PPP projects, specification of incentives and their extents, lack of political stability, lack of their expertise to ascertain cash flows from the projects, etc. The survey data indicates that 55% of the banks does not feel confident in financing infrastructure projects under PPPs due to political instability and policy discontinuity of the country, 45% of the bankers confess that they have lack of skills to handle PPP projects, 40% mentions that the current regulatory and institutional supports are insufficient, 25% says that they faced some sort of uncertainty about future cash flows generation by the projects and 20% pointed out some additional problems viz., fund constraints, delay in execution of PPP policy & guidelines, lack of cooperation of the implementing agencies/line ministries, etc. (Figure-13).

Figure 13: Major Challenges Encountered by Banks in Financing Infrastructure Projects under PPPs



Source: Survey

6. Issues and Challenges for Accelerating Infrastructure Development under PPP

Since independence, over the last 40 years Bangladesh has increased its real per capita income by more than 130 percent, cut poverty rate by sixty percent, and is well set to achieve most of the millennium development goals. Some of the underlying specific achievements include, reducing total fertility rate from 7.0 to 2.7; increasing life expectancy from 46.2 years to 66.6; increasing the rate of economic growth from an average rate of 4% in the 1970s to 6% in the 2000s and over 6% during the last three years; increasing the savings and investment rates from below 10 percent each in the 1970s to 24 percent (investment rate) and 30 percent (savings rate) in FY10 (MOF 2011). Although the country has achieved some progress in many sectors including mentioned above, still it is considered as a low-income country. In order to achieve the target of becoming middle-income country by 2021, it requires an inclusive growth trajectory. The most important step to achieve the goal is to ensure infrastructure facilities. For ensuring widespread infrastructure development in the country

large scale investments are required. Vibrant private sector participation through PPP can help reduce the fiscal constraints in this regard.

So far, PPP in the infrastructure development in the country is picking up during the recent years, particularly in the energy sector and to some extent in the transport sector. Telecom sector has achieved remarkable success with private sector investment¹. This may be due to sector-specific policies and other factors such as Government commitment, increased private interest in these sectors, move towards better competitive process, greater availability of information, size of the projects, acceptable price and encouraging developer return, fiscal concessions, etc. However, considering the size and magnitude of the proposed and ongoing projects in the infrastructure sector as a whole, the lackluster response by the private participants and slow progress in some of the projects need to be reversed through investor friendly policies, transparent procedures and other conducive measures. PPP model will not be feasible for all types of infrastructure but this model is possible in many areas, which are to be exploited fully. The key to making PPP model acceptable is to create an environment where PPPs are seen to be a way of attracting private money into public projects, not putting public resources into private projects. Towards this direction, the following issues and challenges are, therefore, required to be contemplated in order to make PPP initiative a success story in the infrastructure development as happened in many of the developed and developing economies.

Regulatory Framework: Appropriate legal and institutional framework is a prerequisite for the success of PPP in infrastructure development due to its size, investment requirements, structure and

¹The total number of Mobile Phone subscribers in Bangladesh has reached 90.636 million at the end of April, 2012 (BTRC 2012).

dimension. Foreign investment will freely flow into a country when there is sound, stable and predictable investment policy. The legal framework would lay down the obligations of the private sector partners, allow provisions for cost recovery, and address compensation and redress mechanisms. Global experiences suggest that the most successful PPP projects are those that are managed under a legal as well as regulatory framework, not under executive guidelines. The GoB has already enacted a complete PPP Policy and Strategy for governing the PPP mechanism. Government has also finalized a draft PPP law which is waiting for the enactment by the parliament.

Regulatory Independence: In the infrastructure sector, regulatory bodies like Bangladesh Telecommunication Regulatory Commission (BTRC), Roads & Highways Department, Bangladesh Power Development Board (BPDB), Rural Electrification Board (REB), Petrobangla, Seaport and Land Port Authorities of Bangladesh, Biman Bangladesh Airlines have been established as autonomous agencies to regulate the activities coming under their jurisdiction. Though regulatory independence is vital for speedy implementation of policies, there are instances of disagreements among the regulatory authorities. To reduce the risk of arbitrary and ad-hoc policy interventions due to disagreement between the authorities, principles on key issues need to be specified upfront in sufficient detail.

Transparency: There is a widespread consensus among economists that transparency is crucial in the case of PPP projects. As PPP projects are large in size and the implementation of those is very much challenging, the selection of private sector partners are necessary to be done strictly on the basis of their financial and technical capacity. Project awarding should be transparent and unbiased. In this regard, instead of direct negotiation, the choice of private sector partners shall need to be made through a transparent and competitive bidding process following international standard. This would ensure creditworthiness

of PPP projects. The selection criteria of private sponsors done by line ministry/ implementing agency should also coincide with the criteria desired by the financiers (lenders). This can be done by ensuring that the terms of concession agreements are transparent and protective of public interest. Unfortunately, there is allegation about the lack of transparency in procurement process of some of the already concession awarding PPP projects. Some PPP projects which were supposed to be implemented under IPFF fund failed to achieve World Bank finance. For example, World Bank has declined to extend funding under IPFF to a natural gas generated power plant named Desh Cambridge Kumargaon Power Company Limited (DCKPL) located at Sylhet for producing 10MW electricity. In addition, Summit Bibiana Power Projects (two units) have withdrawn their application for funding of US\$ 115 million from IPFF due to unavoidable reasons and Dhaka Elevated Expressway has not been financially closed due to unavailability of funds from external sources (such as IFC, World Bank, ADB, etc.). IPFF was supposed to invest US\$ 100 million in Dhaka Elevated Expressway PPP project. These two projects were supposed to consume about 86% of the IPFF second phase funds. Now it has become very difficult for the sponsors of such mega projects to raise funds from domestic sources. Moreover, Participating Financial Institutions (PFIs) may feel discouraged to get refinancing from IPFF for PPP projects at currently high interest rate of 12% (approximately)¹. For the above reasons, the second phase of IPFF fund of US\$ 257 million has remained unutilized.

Project Appraisal: Execution of infrastructure projects should have a clear choice about implementation whether it is done by the Government or private or both under PPP. Also, the technicality of the project should be clear regarding its soundness, viability and return.

¹PFIs borrow at the rate of 364 days T-bill +30 bp from the IPFF for subsequently lending to PPP projects. Currently, 364 days T-bill rate is approximately 11.5% which is a market competitive rate. This rate is not lucrative for the PFIs to invest in PPP projects now.

When we look at the PPP programme, while there are a number of successful projects, there have also been a number of poorly conceptualized PPPs brought to the market that stood little chance of reaching financial closure. Clear appraisal of the project before its execution would avoid many litigations. At the same time, it is important to avoid a possible bias in favour of the private sector.

Challenges of Non-Recourse Financing: As previously stated, PPP projects are implemented under project financing structure where financing extended on non-recourse or limited recourse basis. In the case of non-recourse financing, if the project fails, lenders face the greater risk of not recovering their invested funds as they cannot insist on the project sponsors to repay their loan from their own assets in addition to project's assets. In the country like Bangladesh, where default culture is high, lenders will face additional challenge of financing PPP projects on non-recourse basis.

Cost and Time Overruns: Cost and time overrun is a serious problem for the implementation of infrastructure projects. Many of the projects under the PPP are delayed due to litigations, which lead to cost and time overruns in their implementation. This problem should be reduced through completing the projects on schedule for attracting private sector for infrastructure investment.

Tariff: Tariff on all infrastructure projects is regulated and private sectors are not free to fix or adjust tariffs at their will. The tariff is fixed in advance and is adjustable over time, only in accordance with the predetermined contractual terms. Private investment can be attracted into a tariff-regulated sector, only if the investors are convinced that tariffs will be set and periodically adjusted in a manner that ensures an adequate rate of return. Equally important, the public utility character of infrastructure projects requires that the tariff be perceived as "fair" to the consumers. This balance is not always easy to strike, and disputes over tariffs can delay the project implementation.

Risks Involved in Infrastructure Financing: Risks associated with the projects pose another serious challenge in financing infrastructure projects. Risks such as market risk, operational risk, interest rate risk, payment risk, foreign exchange risk, performance risk, demand risk, residual value risk and construction risk are having a direct bearing on financing infrastructure. There are also political and regulatory risks in infrastructure projects. The risks should be allocated appropriately among the constituents. The risks should not be passed on to others as and when arise, which would affect the cost and progress of the project and create unnecessary litigations. Excessive risks assumed by Government will likely put unjustified pressures on taxpayers. On the other hand, too few will prevent potential private investors from participating in the venture.

Risk Mitigation and Private Financing: All investment projects involve risks, but infrastructure projects in developing and under developed countries are perceived as unusually vulnerable to risks, which constraints financing. Risks are perceived as high, partly because projects are undertaken not by established utility companies with strong fundamentals, but by Special Purpose Companies (SPV) executing individual projects on a build-operate-transfer, or build-own-operate etc. basis. Infrastructure projects under PPP are usually financed by ‘project financing’ structure which is done through non-recourse basis¹. The risks associated with the cash flow stream are therefore subject to scrutiny. Equity investors may be willing to accept higher levels of risk in return for higher expected returns on their equity, but lenders typically have a lower tolerance for risk and a greater need for risk mitigation mechanism. Sometimes it becomes very challenging for the sponsors to attract the lenders towards

¹Under *non-recourse* mode of financing, lenders do not have recourse to the Sponsor Company, but look solely to the cash flow streams of the project to meet debt service obligations.

infrastructure projects if proper risk mitigation mechanisms are not put forward.

PPP Project Development Support by Government: Since PPP project identification and structuring should be driven by the government, many of the Government agencies may not possess the business skills and resources to identify and structure a PPP project. Many PPP projects have linked projects that need to be carried out by public funds, i.e., gas pipeline for an Independent Power Plant (IPP), transmission line for the same, approach roads in a toll road, etc. In many cases, it has been experienced that large PPP projects are often stalled due to not completion of such linked projects on timely manner. Often Government also needs to prepare contract documents such as concession agreement, land lease agreement, etc. to be signed with winning bidder. A project development facility therefore needs to be set up by the Government for general structuring of the project, supporting transaction advisory and implementing the linked project. There is an allocation in the Government budget in the name of ‘PPP Transaction Advisory Fund’ which serve the purpose partially. A dedicated development support fund needs to be created in future to meet the Government obligation in PPP projects.

Government Guarantee: Generally, investors look for Government guarantee for security of their investments and their return before entering into a venture. The main types of guarantees may be equity guarantees, exchange rate guarantees, minimum revenue guarantees, grants and subordinate loans, concession extensions and revenue enhancements, etc. (Fishbein and Babbar 1996). Constant changes in the procedures for offering Government guarantees discourage the investment opportunities. Though Government guarantee for private investment is not a preferred option from the fiscal point of view, transparent policies and guidelines towards Government guarantee will provide clear perception and encouragement towards the PPP even

in the risky areas of investment. But at the same time, the guarantee should not put the Government into pecuniary losses due to lack of clarity.

Sources and Methods of Financing: Once suitable tariff fixing mechanisms and risk mitigation structures are in place, project implementation depends on the ability to develop a financing package with a suitable mix. The financing mix varies across sectors. Telecommunication projects, which face relatively high market risks, may require a relatively low debt component, with debt-equity ratios close to 1:1 whereas power projects with assured power purchase agreements may be financeable at debt-equity ratio of 2.5:1 or even 3:1. The maturity requirements of the debt would also vary across sectors. Power and roads, which have longer payoff periods, require long maturities while telecommunication projects can manage with shorter maturities. There are limitations and constraints associated with each source of financing, which should be kept in mind when devising financing packages for individual projects for meeting challenges.

Lack of Active Domestic Bond Market: Usually PPP projects are financed by 20%-30% by equity and 70%-80% by debt and also PPPs have a long lifecycle that on an average exceeds a period of 25 years. Therefore, active bond markets are essential for a sustainable supply of funds in the phases of operation and maintenance of the infrastructure facilities. Lenders, especially commercial banks and other financial institutions which supply bulk of the project's funds, would be allowed to issue long-term bonds to raise funds for subsequent lending funds to infrastructure projects. This will help banks avoid asset-liability mismatches problems as well as reduce other risks. Moreover, fewer risks (e.g., currency convertibility, multi-lateral guarantees) are involved in raising funds from domestic bond market than foreign ones. Therefore, domestic bond market should be the first option for infrastructure funding although foreign capital

should not be excluded. In this regard, a strong and active domestic bond market is required to provide infrastructure funds. But bond market is almost absent in Bangladesh.

Corporate Governance: Good corporate governance is a prerequisite in attracting a better deal of public interest because of its apparent importance for the economic health of corporates and society in general. The corporate governance framework should ensure that timely and accurate disclosure is made on all material matters. The corporate governance practices of the parties involving in PPP have to match with the benchmarking corporate governance practices with the best in the rest of the world.

Full Functioning PPP Unit: A PPP cell is necessary to work as a one stop service provider (i.e., it would take care of all necessary government approvals, information, coordination among stakeholders, etc.). An Office for PPP has already been established as a separate office under the Prime Minister's Office for the promotion and efficient handling of PPP projects. The Office for PPP has been formed as an autonomous unit having significant autonomy on administrative and financial matters in discharging its mandated functions. The PPP office is supposed to efficiently carry out the diverse tasks of choosing between alternative modes of project implementation, completion of projects on an expeditious basis, project supervision, and providing inducements to potential private sector entrepreneurs to participate in PPP projects. The PPP office, by the request of the relevant line ministry or implementing agencies, would also carry out the tasks of project identification, conducting feasibility studies, inviting bids, expediting the project approval process, issuing work orders, evaluating financial and economic viability of PPP projects, maintaining coordination among various committees, etc. The PPP Office will, therefore, need to be staffed with technically skilled and experienced personnel with specific knowledge on the technicality of

these implementation methods, and the design, financing and management of the projects. A competent and professional Chief Executive Officer (CEO) with very good international working background in PPPs has been hired for the new PPP office by the Prime Minister's Office. Under his leadership, the PPP office is now more operational. For accelerating the PPP initiatives from the Government's side, the PPP office should play its active role as soon as possible.

High Level Political Support and Commitment: For making PPP initiative successful a very high level of political support and commitment is required. Large infrastructure projects usually need a relatively longer period for their implementation. During the implementation phase of the PPP projects, changes of political regime/power should not affect the projects anyway. Government should make strong efforts to build consensus among, and obtain support of all political parties and representative of civil society groups to ensure the policy continuity over the life of the project. Only then PPP initiatives will ensure desired infrastructure development of the country. In this regard, a broad national consensus on the concept and benefit of PPP will also boost the confidence and trust of investors. It will also generate interest among entrepreneurs both from domestic and overseas to invest in the PPP projects and hence open up the opportunities for getting more foreign direct investment in the country.

Provision of Incentives to Private Sectors: To attract private sector investors to the PPP projects, the Government will need to offer a lucrative incentive package at least at the initial stage of the development of such initiatives. The reason is that private investors generally are interested to invest in only those projects from which they can earn a good return, but many infrastructure projects may not be commercially viable or may not give the best return in the short run. In fact, there are projects where economic benefits are more substantial

than direct financial gains. So, in order to attract the private sector to this type of projects, Government needs to provide financial subsidies and some other types of support, including guarantees against political risk as well as protection against certain events of ‘force majeure or act of God’. Although, in the PPP Policy there are provisions of some incentives such as fiscal incentives (e.g., tax exemption, reduced tax) and special incentives for the private sectors to participate in PPP projects but the incentives are not clearly detailed in the PPP policy. Further detailing of the extent and tenor of the proposed tax exemptions/reductions would provide more clarity to private sector investors in making their investment decisions.

Capacity Building and Creating Public Awareness towards PPPs: As PPP is a relatively new concept in Bangladesh, awareness building programs should be taken from government as well as private levels towards PPPs. PPP related training, workshop, seminar may be arranged for capacity building regarding PPP concepts, techniques, legal issue, etc. for line ministries/implementing agencies, private sponsors and other stakeholders. Prospective lenders such as banks/FIs should set up a separate and dedicated PPP unit for dealing with PPP projects. They should formulate separate PPP guideline. Moreover, adequate manpower with sufficient expertise would be required to handle such projects. Bank executives may require training on PPP policy and legal issues, PPP theme, feasibility study and project evaluation process, financial modeling, legal aspects, project documentation, risk management techniques, etc. so that they can handle PPP projects efficiently.

7. Conclusion

Demand for infrastructure remains at the top of the list for Bangladesh at present. Policy makers, civil society organizations, economists and industrialists in Bangladesh are putting much emphasis on the growth of infrastructure such as power, telecom, ports, roads, railways for accelerating economic growth of the country. In Bangladesh, infrastructure gaps exist almost in all the sectors, posing a serious threat to achieve desired economic growth. To augment the infrastructure facilities with private participation, the initiated policy measures have not met with significant success. Except the telecom sector, which has witnessed a revolution and has been able to attract massive private investments, other sectors have faced with lackluster response.

The status of PPP in the infrastructure development in Bangladesh is not encouraging. Stable macroeconomic framework, sound regulatory structure, investor friendly policies, sustainable project revenues, transparency and consistency of policies, effective regulation, good corporate governance, absence of debt market, cost and time overruns, etc. are the basic issues for successfully adopting PPP in infrastructure development. International experience suggests that the success of PPP projects requires a single objective of better services for the public at a reasonable cost. This is achievable through realistic and reasonable risk transfer while addressing the public concerns. In the context of Bangladesh also, the PPP initiative should adhere to such objectives and best practices to march forward on the success path. So, in order to make the PPP concept meaningful and effective, rules and regulations governing the PPP mechanism should be framed and executed in line with that same partnership spirit so that there is equitable sharing of risk and reward between public and private parties. Inevitably, Government may take such initiatives to build confidence of the private sector including financiers for sustainability of the initiative.

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**Financing PPP Projects in Bangladesh: Bank's
Initiatives***

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Acronyms

ADB	Asian Development Bank
BBO	Buy-Build-Operate
BIFF	Bangladesh Infrastructure Finance Fund
BLPA	Bangladesh Land Port Authority
BOI	Board of Investment
BOLT	Build-Own-Lease and Transfer
BOO	Built-Own-Operate
BOOST	Build-Own-Operate-Share -Transfer
BOOT	Build-Own-Operate-Transfer
BOT	Build- Operate-Transfer
BTO	Build-Transfer-Operate
DBO	Design-Build-Operate
DFS	Detailed Feasibility Study
FI	Financial Institutions
GoB	Government of Bangladesh
GDP	Gross Domestic Products
IDA	International Development Agency
IDCOL	Infrastructure Development Company Limited
IFC	International Finance Corporation
IIFC	Infrastructure Investment Facilitation Centre
IPFF	Investment Promotion and Financing Facility
LBO	Lease-Build-Operate
NBFI	Non-Bank Financial Institutions
NOC	No Objection Certificate
OD	Operational Directives
PFI	Participatory Financial Institutions
PICOM	Private Infrastructure Committee
PSIG	Private Sector Infrastructure Guidelines
PPP	Public Private Partnership
REP	Request for Proposal
RFQ	Request for Qualification
ROT	Rehabilitate Operate Transfer
SPV	Special Purpose Vehicle
TA	Technical Assistance
VGF	Viability Gap Funding
WA	Wraparound Addition

Financing PPP Projects in Bangladesh: Bank's Initiatives

I. Introduction

Physical infrastructures like power, telecom, ports, roads, railways etc. development is critical to accelerate economic growth as well as to achieve reduction of poverty. Infrastructure plays a pivotal role in facilitating new investment (both domestic and foreign), expanding production base, product diversification, increasing productivity and reducing costs and most importantly enhancing quality of life. But emerging market economies including Bangladesh, governments are increasingly constrained in mobilizing the required financial and technical resources and the executive capacity needed to cope with the rising demand for infrastructure and other utilities. Developing countries are experiencing increasing pressure from their citizens, civil society organizations, and the media to provide accessible and affordable infrastructure and basic services. Not only for Bangladesh, but also for countries in South Asia, bridging gaps in infrastructure is the key to achieve goals for growth and poverty reduction. Over the years, the successive governments have not invested adequately in infrastructure assets and especially in maintaining them. While the infrastructure gap is rising, government budgetary resources are increasingly found inadequate in financing this deficit. Since neither the public sector nor the private sector can meet the financial requirements for infrastructure in isolation, the Public-Private-Partnership (PPP) model can represent a logical, viable, and necessary option for them to work together (Islam 2009).

The economic growth of Bangladesh is inhibited by inadequate provision of roads, railways, telecom and most importantly power and ports. In order to achieve the target of becoming a middle-income country by 2021, it is needed to ensure a more rapid, inclusive growth trajectory. According to the budget document for FY 2009-10, the

country's target is to achieve 6%-8% GDP growth in the next five years starting from FY 2010¹. For achieving the targeted GDP growth during the stipulated period, the cumulative amount of required investment would be US\$ 185.91 billion² and the cumulative shortfall for the required investment will stand at US\$28.06 billion³. Seemingly, it will be impossible for the government to generate the required amount of funds from available domestic and foreign sources.

To meet the huge investment deficits, Government can seek help from external sources. But it may not be possible to get required financing from external sources at affordable terms and conditions. One might easily guess that the prospect of getting large foreign investments appears uncertain at the moment and, moreover, huge involvement of foreign investors in long term projects may create pressure on balance of payments because of repatriation of foreign currency, as happened during the East Asian financial crisis in the past decade. It was estimated that the country's stock market would supply BDT 200 billion in the next five years, but past experiences in raising funds for Greenfield projects from the stock market has not been much encouraging (Bhuyan, 2009). The recent debacle in the country's stock market has darkened the residual hope of raising fund for infrastructure projects. Moreover, a lot of formalities are required to be completed, particularly for new companies, for raising funds from the stock market. In such a situation, Government may seek participation of multilateral and regional development banks (viz., World Bank, Asian Development Bank etc.). Although these banks

¹ The target GDP growth rates are 6% in FY2010, 6.8% in FY2011, 7.5% in FY2012, and 8% in both FY2013 and FY2014 respectively.

² The country will need investments amounting to US\$24.59 billion, US\$30.63 billion, US\$37.18 billion, US\$43.82 billion, and US\$49.69 billion in the respective fiscal years.

³ The investment shortfalls will be US\$1.04 billion in FY2009-10, US\$3.53 billion in FY2010-11, US\$5.82 billion in FY2011-12, US\$8.27 billion in FY2012-13, and US\$9.40 billion in FY2013-14

offer concessional loans for longer maturities, but their involvement may put pressures on government from multiple sources. Hence, it might be an ideal strategy to attract investment from the private sector and utilize their expertise and experience through PPP. As mentioned earlier, Bangladesh needs huge amount of investments, especially for the development of power, energy and communication infrastructures, Government has embarked on the PPP initiatives in the consecutive last three years' budget to encourage the private sector in infrastructure development alongside the Government. According to the budget document for FY2009-10, the ratio of private and public sector investments in PPP projects is assumed to be 70:30, i.e., 70% of the project's funding will be arranged by private parties and remaining 30% will be arranged by the public party (Bhuyan, 2009). And, major portion of the private sector funds is provided by different financial institutions of which commercial banks assemble the lion share of funds. For example, as of December 2008, the banking sector of Bangladesh accounted for over 80% of the country's financial assets (Ahmed, 2010). So, financial institutions especially commercial banks have ample opportunities to enlarge their business by allocating funds in infrastructure projects through PPP and thus ensure some additional profits and diversifying credit portfolio risks as well.

Financial institutions especially banks facilitate funds mobilization from surplus economic units and deploy the same to deficit economic units through various deposit and loan products. Besides offering various types of traditional deposit and loan products, commercial banks are gradually expanding their businesses by offering more customized financial solutions through diverse products/services such as consumer and retail credits, SME credit, term lending i.e., project and infrastructure lending, corporate lending, investment banking, offshore banking, modern technology-based services, structured and syndicated financing, and many more. By doing so, they have gained

enough expertise and experiences which would help them to move towards new areas of businesses. Expansion of business in new areas particularly in the infrastructure sector may help them (banks) to explore new avenues of business. It is noticeable that commercial banks are increasingly getting involved in large projects financing including infrastructure projects through syndicated lending. The syndicated lending by banks started more than a decade ago and it (syndicate loan) is growing fast as more banks are coming forward to lend different sectors through such mechanism. The data from major market playing banks shows that whereas the total syndicated lending of the banks was BDT3844.53 million in 2001, it grew to BDT33219.05 million in 2005, BDT49258.38 million in 2007 and BDT37432.58 million in 2010. The average growth of the syndicated loan was about 55% during 2001-2010. Banks provide syndicated loan to diverse sectors including infrastructure sectors. Some examples of banks' syndicated lending include spinning sector⁴, health care sector⁵, aviation (such as Bangladesh Biman⁶) sector, SME sector⁷, ICT sector⁸, ceramic industry⁹, steel industry¹⁰, pharmaceutical sector¹¹, power sector¹² and so on.

⁴ Six commercial banks (Mercantile Bank as Lead Arranger, Uttara Bank, Exim Bank, EBL, BRAC Bank, and Trust Bank) provided Tk 48 crore to Spinning Mills Ltd., a sister concern of Rising Group. (Source: *The Daily Independent*, Nov 26, 2009, Dhaka.)

⁵ Five commercial banks led by Agrani Bank disbursed Tk. 420 million to Green Life Hospital Ltd. Dhaka, under syndicated loan facility. Other participating banks are Janata Bank, Pubali Bank, DBBL and NCCBL

⁶ (i) EBL along with other 9 banks arranges US\$114.49 million syndicated loan for Bangladesh Biman to purchase two B777-300ERs in 2010. (Other banks are AB Bank, BRAC, Dhaka Bank, IFIC, Mutual Trust, NBL, Prime Bank, The City Bank, and Premier Bank). Report: *The Daily Star*, May 6, 2010. (ii) EBL has also arranged a syndicated Term Loan facility of BDT 980 million for HG Aviation Limited to purchase two 50 seater DASH 8 Q300 Aircrafts in 2011. Other nine banks and NBFIs participated in the deal. (Source: *The Daily Financial Express*, February 2, 2011, Dhaka)

⁷ Citibank, NA, arranges Tk 100 crore under syndicated loan facility for BURO Bangladesh, an NGO to facilitate financing in SMEs especially in agriculture sector in 2009. (Other financing banks are Sonali Bank, Agrani Bank, Pubali Bank, MTBL, Southeast Bank, UCBL, National Bank, Dhaka Bank and EBL). Source: *The Daily Star*, April 5, 2009, Dhaka.

Obviously, by dealing with syndicated loan and other structured finance products, banks have got enough maturity and adequate expertise to deal with large infrastructure projects. As a result, banks can easily use their gained experiences and expertise of various structured finance deals in larger projects especially infrastructure sectors i.e., roads, power, port etc. which are usually done through PPP mechanism in different parts of the world and to contribute much to the economic development of the country. For their likely move towards large scale financing in infrastructure projects, the ideal strategy may be going through PPP mechanism. If the banks can fix up their appropriate strategy and devote their expertise to implement PPP projects, this will open up new windows for widening their investment portfolio, reduce intense competitions among banks for investing in few traditional businesses, provide sustainability, and minimize risks as well. But the preconditions for successful PPP initiatives are appropriate policy and regulatory environment, institutional framework, stimulatory incentives, etc. The Government of Bangladesh (GoB) is keen to implement the PPP initiatives for

⁸AB Bank arranges Tk. 191crore syndicated loan for BanglaLion Wimax in 2010. (Other co-financiers are Agrani Bank, Bangladesh Commerce Bank, Janata Bank, Mercantile Bank, Sonali Bank, Standard Bank and UCBL). Report: *The Daily Star*, January 20, 2010.

⁹ Together with five commercial bnks (Namely IBBL, Exim Bank of Bangladesh Limited, SIBL, Southeast Bank and Trust Bank Limited), Prime Bank Ltd. financed Tk. 350 mil through syndicated Hire Purchase under Shirkatul Melk (HPSM) investment facility to X-Ceramics Limited, a ceramic wall tiles manufacturing plant in 2009. Report: *The Daily Financial Express*, June 10, 2009.

¹⁰ EBL has arranged a syndicated facility of Tk 300 million medium term loans for Magnum Steel Industries Limited (MSIL). (Other participating banks are Bangladesh Commerce Bank, Bank Al-Falah, People's Leasing and Financial Services Limited, SIBL and The City Bank Limited). Source: <http://bangladesheconomy.wordpress.com/2008/07/20/eb1-arranges-tk-300m-syndicated-loan-facility-for-magnum-steel/>

¹¹ EBL also arranged Tk. 650 mil syndicated term loan to General Pharmaceuticals Limited (GPL) Other participating banks are AB Bank, Bangladesh Commerce Bank, DBBL, NBL, One Bank, Pubali Bank, Standard Bank and Trust Bank Ltd. (Source: <http://www.generalpharma.com/EBL%20Bank/eb1.php>)

¹² IIDFC raised Tk. Tk 395.5 crore through syndication of 18 banks and NBFIs to finance two power companies of Summit Group, to produce 110 megawatt (MW) of electricity in 2008. Report: *The Daily Star*, July 28, 2008.

infrastructure development of the country. And, as part of its (GoB) initiatives, government has already issued a complete PPP policy and strategy for ensuring legal framework for PPP projects, allocated some funds for PPP through budgetary provisions, declared some fiscal and special incentives for private sectors in the policy and strategy paper. The Government has allocated BDT 2500 crore in FY 2009-10, BDT 3000 crore for both FY2010-11 and FY2011-12. The Government has also established a number of organizations viz., Bangladesh Infrastructure Finance Fund (BIFF), Infrastructure Development Company Ltd. (IDCOL), Infrastructure Investment Facilitation Centre (IIFC), etc. to encourage private sector to implement infrastructure projects under PPPs. Bangladesh Bank has also taken initiatives to encourage private sector especially banks/financial institutions to participate in PPP projects. For this purpose, it (BB) has created a separate cell (called IPFF cell) for providing refinance facilities to banks/NBFIs for on-lending to PPP projects. Some banks and NBFIs have already lent to seven power projects (list of these projects is attached in Annexure, Table-3) through PPP mechanism by taking refinancing facility from IPFF cell of BB. These projects are contributing 178MW electricity to the national grid. Some new PPP projects are in pipeline to get finance from different banks and NBFIs under IPFF cell. But this fund is not sufficient to meet the current demand of infrastructure developments in the country. For ensuring widespread infrastructure development in the country large scale investments are required at this moment. In this regard, commercial banks' responses are crucial for positive outcomes of these initiatives.

The issues discussed above raise some research questions: Is the policy and regulatory framework good enough to promote PPP projects in Bangladesh? What is the status of financing PPP projects by banks? Are the commercial banks using refinance facilities of IPFF Project (BB)? What should be the appropriate role of banks in

PPP projects? What would be the PPP financing structure under banks initiatives? Is/are there any problem(s) from financier's side to involve in PPP projects? How can the potential challenges and issues related to PPP financing be handled? It is needless to say that favourable legal framework, commensurate incentives, effective coordination among stakeholders, adopting appropriate techniques and strategies to manage projects and project parties are crucial for achieving the desired goals in such a new area. In finding the answers of the research questions, the study identified the following specific objectives: *one*, to examine the policy initiatives and regulatory environment for PPP financing by banks in Bangladesh; *two*, to identify the status and techniques of financing PPP projects in Bangladesh as well as global perspectives; *three*, to examine the initiatives taken by banks in financing PPP projects in Bangladesh; and *four*, to find out the challenges and issues relevant for financing PPP projects by commercial banks in Bangladesh.

The paper is prepared based on both primary and secondary information. Secondary and published literature, research papers, published documents of GoB/BB, newspaper reports, websites etc. have been reviewed to understand conceptual issues and policy initiatives. Primary data, which have been utilized to accomplish the basic objectives of the paper, are collected from commercial banks. The researcher interviewed bank officials of relevant desks of 20 selected commercial banks (covering 2 state-owned banks¹³, 14 local private commercial banks,¹⁴ 2 foreign commercial banks¹⁵ and 2 Islami banks¹⁶). For collecting primary data, banks have been chosen

¹³ Agrani Bank Ltd. and Janata Bank Ltd.

¹⁴ Mutual Trust Bank Ltd., Mercantile Bank Ltd., Trust Bank Ltd., Prime Bank Ltd., Dhaka Bank Ltd., NCC Bank Ltd., BRAC Bank Ltd., Eastern Bank Ltd., Dutch-Bangla Bank Ltd., IFIC Bank Ltd., Bank Asia Ltd., United Commercial Bank Ltd., AB Bank Ltd. and The City Bank Ltd.

¹⁵ Citi Bank N.A. and Standard Chartered Bank

¹⁶ Islami Bank Bangladesh Ltd. and Exim Bank Ltd.

as per ‘purposive sampling method’. In selecting banks, primary emphasis has been given to include those banks that have experiences of syndicated lending, as large projects financing is usually done through syndication mechanism. Further, for selection of local commercial banks, the norm followed was to select banks which are already enlisted with IPFF¹⁷ and the remaining local commercial banks have been chosen on the basis of their experiences and magnitude of syndicated lending over the years. Other samples are selected based on their experiences and volume of financing in large projects. A questionnaire has been used to gather primary information from the selected banks.

The paper is organized into five sections. After stating the background, objectives and methodological aspects in Section-I, Section-II attempts to discuss some conceptual issues of PPP financing especially under bank’s initiatives. Policy initiatives and regulatory environment for PPP financing by banks in the context of Bangladesh are discussed in Section-III. Section-IV identifies the status and techniques of financing PPP projects in Bangladesh along with cross country experiences. The initiatives taken by banks in financing PPP projects in Bangladesh are assessed in Section-V. Finally, a set of critical issues along with some recommendations related to successful implementation of PPP initiatives in the country are presented in Section-VI.

II. PPP Financing: Brief Literature Review and Bank’s Initiatives

Concepts and Issues

PPP has become widely accepted and popular term in public sector involvement management. Now, PPP is considered as a favorite tool for providing public services and developing society in both

¹⁷ Currently eleven (11) local commercial banks are listed with IPFF Cell of Bangladesh Bank.

developed and developing countries. At the most general level, PPP describes a government service or private business venture which is funded and operated through a partnership of government and one or more private sector companies. PPP involves a contract between a public-sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risks in the project. In most PPP projects, capital investment is made by the private sector on the strength of a contract with government to provide agreed services and the cost of providing the service is borne wholly or in part by the government. Government's contribution to a PPP may also be in kind. In projects that are aimed at creating public goods like in the infrastructure sector, the government may provide a capital subsidy in the form of a one-time grant, so as to make it more attractive to the private investors. In some other cases, the government may support the project by providing revenue subsidies, including tax breaks or by providing guaranteed annual revenues for a fixed period.

There is a wide range of PPPs with diverse features and involved in different activities. However, very few people agree on what exactly a PPP mean and perhaps, there is no precise and widely accepted definition of PPP and hence the concept of PPP is still contested. According to Asian Development Bank Institute (ADB 2000), "Public Private Partnerships are collaborative activities among interested groups, based on a mutual recognition of respective strengths and weaknesses, working towards common agreed objectives developed through effective and timely communication". The World Bank's definition of PPPs is closely aligned to that of the ADBI. The World Bank (1999) defined Public Private Partnerships as "joint initiatives of the public sector in conjunction with the private, for profit and not-for-profit sectors", also referred to "as the government, business and civic sector". In these partnerships, each of the actors contributes resources (financial, human, technical and

intangibles viz., information or political support) and participates in the decision making process. World Bank (2007) has also defined PPP as “a win-win relationship between the government and various private sector players for the purpose of delivering a project or service by sharing the risks and rewards of the venture”. According to the Organization for Economic Cooperation and Development (OECD), PPPs refer to any form of agreement or partnership between public and private parties (OECD 2000). They should not be confused with privatization, where the management and the ownership of infrastructure are transferred to the private sector. In most cases, PPP allows private sector to venture into areas of business that have been historically controlled by the government with respect to either infrastructure or service delivery process or both.

In the Policy & Strategy for PPP (2010) of the GoB, the concept of PPP is explained as follows: “Public-Private Partnership (PPP) projects normally cover public good provisions characterized by indivisibility and non-excludability, natural monopoly characterized by declining marginal cost (and associated average cost), and lumpy investment characterized by long gestation period”. In most of the cases, PPP allows private sector into areas of business, where the government holds control over infrastructure or service before such partnership. The public sector retains a significant role in the partnership, either as the sole purchaser of the services provided or as the main enabler of the project. The private party commonly provides the detailed design, construct, operation and financing for the PPP project, and is paid according to the performance.

A PPP ideally integrates the public sector, the private sectors and all community stakeholders and by pooling their resources and sharing responsibilities it (PPP) accrues benefits to all stakeholders. This is done in order to develop and implement a project that is technically

sound, financially viable, environmentally acceptable and affordable to all users. However, risk allocation is ceded to the party, either government or private sector, which is best able to manage it. According to Thomson (2005) and Savas (2000) PPPs can take many forms, depending upon the exact allocation of risks and responsibilities. The most common PPP model includes Build-Operate-Transfer (BOT) (Box-1 highlights some other PPP models). In general, the financial arrangements of BOT are that the project is designed and financed by the private sector, and run and maintained by the private sector for the concession period. The private sector partner receives income from running the infrastructure (e.g. toll road, electricity generation). After the expiry of the concession period, the legal ownership of the project is transferred to the government. Campbell (2001) also emphasizes on financial arrangements of PPP and concluded that ‘a PPP project generally involves the design, construction, financing and maintenance and in some cases operation of public infrastructure or a public facility by the private sector under a long term contract’. Collin (1998), after surveying 117 different public private partnerships in Sweden, referred PPP as an arrangement between a municipality and one or more private firms where all parties were involved in sharing risks, profit, utilities and investments through joint ownership. The financial participation, based on the particular PPP model, may be zero for the government or for the private sector, or any combination of financial sharing. Financial participations by private parties in PPP reduces pressure on government budgets and because of private sectors’ finance and efficiency the projects provide better value for money to the stakeholders.

Box 1: PPP Financing Models

- **Lease-Build-Operate (LBO):** In this model, a private firm is given a long-term lease to develop and operate an expanded facility using its own funds.

It recovers its investment, plus a reasonable return over the term of lease and pays a rental fee. The facility remains publicly owned. Example includes Stewart Airport of USA which was leased by the state to a British Company for a period of ninety-nine years.

- **Design-Build-Operate (DBO):** Here the public authority entrusts the private sector with the design, construction and operation of new facilities, for a fixed period of time, however, they remain the property of the public authority. The private operator takes responsibility for the risks linked to the design and management of the facility. It is paid a fee by the public authority and commits to an overall cost for the facility's construction and operation.
- **Build-Transfer-Operate (BTO):** A private developer designs, finances, and builds the infrastructure. Once completed, legal ownership is transferred to the sponsoring government agency. The agency then leases the facility back to the developer under a long-term lease. During this time the developer operates the facility and recovers his investment, and earns a reasonable return from user charges and commercial activities.
- **Build-Operate-Transfer (BOT):** A private developer is awarded the concession to finance, build, own, and operate a facility. The developer collects the user fees for a specified period, after which ownership of the facility reverts back to the public sector. This is perhaps the most common form of PPP for building new infrastructure.
- **Build-Own-Operate-Transfer (BOOT):** Same as BOT except that asset ownership is with the operator and sold to the Government for either a nominal/ pre-agreed fixed sum/ market value with a cap.
- **Built-Own-Operate (BOO):** A private developer finances, builds, owns, and operates a facility in perpetuity under a franchise, but is subject to regulatory constraints on pricing and operations. The long-term property rights provide a significant financial incentive for capital investment in the facility. Some examples of this model are the private toll roads in Virginia and California; the toll road in China connecting Hong Kong and Macao with Guangzhou; and the 'Chunnel' under the English Channel. Numerous power projects and ports in the Philippines and Indonesia are also made through this model.
- **Buy-Build-Operate (BBO):** An existing public facility is sold to a private partner who renovates or expands it and operates it in perpetuity under a franchise. This is equivalent to divesting a company, which then operates

under a franchise.

- **Wraparound Addition (WA):** A private developer finances and constructs an addition to an existing public facility and then operates the combined facility either for a fixed period, or until costs are recovered and a reasonable return on the invested capital is realized. The developer may own the addition. The objective of this arrangement is to expand the facility, despite the government's lack of resources or expertise.
- **Rehabilitate Operate Transfer (ROT):** A private sector developer finances, rehabilitates, maintains and operates a facility for a given period of time, before transferring the facility back to the public entity at no cost.

Source: Based on Nyagwachi (2008)

Private sector involvement in the public services is not a new phenomenon now-a-days. PPPs have been using for over four decades, predating the contracting out initiatives of 1970s in the USA. Initially focusing on economic infrastructure, PPPs have evolved to include the procurement of social infrastructure assets and associated non-core sendees. Gradually, PPPs have extended to housing, health, corrective facilities, energy, water, and waste treatment, etc. PPP policy has also evolved globally as public sectors develop the necessary skill base to procure infrastructure by way of PPP, including the capacity to create and maintain a regulatory framework. The private sector has also become increasingly innovative in several experienced countries, thereby adding significant value to public procurement. The UK has been a modern instigator of this wave of private sector involvement. Almost all developed and developing countries are using PPPs for producing public services now-a-days. Among other countries India, Canada, Malaysia, Thailand, Cameroon and Chad are also practicing PPP concept for their development. In Bangladesh, PPP initiative started in the year 2004, after approving Private Sector Infrastructure Guidelines (PSIG) and till date several projects have been completed through PPP mechanism.

Financing Techniques/ Structure of PPP Projects

As PPP is a contract-driven relationship among the stakeholders, financial arrangements/structures vary depending on the PPP model. Usually, the sponsor of a project decides what proportion of equity (owned funds) and debt (borrowed funds) would be used to finance the entire cost of the project. Sometimes, it may be governed by the state policy or policy of the financier. Inevitably, the financing structure depends on the nature & size of the project, capital intensity, promoters' capacity, importance of the project to the national economy. There is no prescribed standard for financing pattern or debt / equity ratios under PPP. But one of the important factors considered for fixing D/E ratio is the debt servicing ability of the project. In the case of infrastructure projects, equity holders are primarily sponsors and minority investors. Investment is done in the form of equity or preference shares. In the case of availability of state subsidies, it is taken as capital. In some cases Government injects some funds to promote investment in particular sector(s) in order to ensure financial viability of the projects. State subsidies are usually taken as capital grants. Historically, it is observed that equity contribution in infrastructure projects is 15-30% and the remaining portion is supplied by lenders. The debt funds are generally term loans which are usually termed as senior debt. Debt for major PPP projects may be provided either by commercial banks (typically in the form of syndication/consortium), international financial institutions or directly from the capital markets¹⁸. Debt financing for PPP infrastructure projects is provided either before or after a project's construction is completed. Construction phase financing usually comes from local and international commercial banks. Except in Malaysia, the role of local commercial banks in developing

¹⁸ For raising debt capital directly from the capital markets, project companies issue bonds which are taken up by financial institutions such as pension or insurance companies which are looking for long term investments.

countries in financing Greenfield private infrastructure projects has been very limited due to weaknesses in credit appraisal and financing techniques. In addition, commercial banks in developing countries are usually unable to make long-term loans because the profile of their liabilities is mostly short-term. This short-term profile of bank liabilities (deposits) is largely the result of macroeconomic instability in many countries, especially during the 1980s (Ferreira & Khatami 1996). Table-1 shows sources of financing for PPP projects.

Table 1: Financing Sources for PPP Projects

Sources of Finance			Maturity
1. Domestic Sources	<i>a) Debt Financing</i>	<ul style="list-style-type: none"> • Domestic commercial banks • Domestic term lending institutions • Domestic bond markets • Specialized infrastructure financing Institutions 	<ul style="list-style-type: none"> • 3-5 years • 7-10 years • 7-10 years
	<i>b) Equity Financing</i>	<ul style="list-style-type: none"> • Sponsors fund 	
2. External Sources	<i>a) Debt Financing</i>	<ul style="list-style-type: none"> • International commercial banks • Export credit agencies • International bond markets 	<ul style="list-style-type: none"> • 7-10 years • 7-10 years • 10-30 years
	<i>b) Other External Financing</i>	<ul style="list-style-type: none"> • International developers (independently or in collaboration with domestic developers) • Equipment suppliers (in collaboration with domestic or international developers) • Dedicated infrastructure funds other international equity investors • Multilateral gencies (International Finance Corporation, Asian Development Bank) 	Usually these are long-term Financing

Source: Ahluwalia (2006)

The debt form of financing requires interest & principal servicing at monthly/ quarterly intervals, subject to restrictive covenants/ prudential norms. The financial structure may also include other forms of junior debt (such as *mezzanine* debt which ranks between

senior debt and pure equity). Before financing an infrastructure project, the lender must assess whether the proposed PPP contract is *bankable*¹⁹ and whether the proposed financing is *desirable*. Box-2 focuses on some financing tools in PPP/private infrastructure projects in some selected countries.

Box 2: Preliminary Financing Tools for Private Infrastructure (PPP) Projects in Pakistan, Sri Lanka, and Jamaica

Pakistan: Pakistan's Private Sector Energy Development Fund was created in 1988 to support institution building and to provide subordinated debt financing for limited recourse private power projects. The fund was initially capitalized with a World Bank loan of \$150 million co-financed with \$150 million from the Export-Import Bank of Japan (Jexim), as well as \$99 million in loans provided by France, Italy, and the United States for equipment to be sourced from these countries. The fund, administered by the National Development Financing Corporation, was replenished in January 1995 with a \$250 million loan from the World Bank and a \$110 million Jexim loan (raised to \$250 million in May 1996). France also provided an additional \$10 million loan toward purchases of French equipment. The fund provides subordinated debt financing (with up to twenty-three years' maturity with eight years of grace period) for up to 30 percent of the financing of private energy projects. Project sponsors are expected to mobilize 20-30 percent of project funds investments in infrastructure in equity and to raise the remaining funding as senior debt. Although private power projects were the fund's initial focus, it is now financing other private infrastructure, and was recently designated as Pakistan's Long-Term Infrastructure Credit Facility. In 1997 a newly created financial institution with a majority shareholding by the private sector will be assigned to administer this facility. By 1998 the private sector will control about a third of power generation capacity and supply nearly half of Pakistan's power.

Sri Lanka: The World Bank is helping the Sri Lankan government promote limited recourse project financing through a Private Sector Infrastructure Development Company. This company, modeled after Pakistan's Private Sector Energy Development Fund, has an all-debt capital structure that includes \$70 million from the International Development Association (IDA) and \$14 million from Germany's KfW. Operations began after the IDA credit was approved in June 1996. A pipeline of projects recommended for funding includes the 150

¹⁹ A PPP project is considered *bankable* if lenders are willing to finance it (generally on a *project finance* basis).

megawatt Kelanitissa power plant, a container terminal, a wharf, and a 30-kilometer expressway. Loans made in U.S. dollars to private sponsors will be at variable and fixed rates and will have maturities of up to twenty-two years, including up to eight years' grace. The company should give momentum to private financing of infrastructure in Sri Lanka. The country's strong export potential in textiles is held back by infrastructure bottlenecks, and 75 percent of industries and hotels produce their own power. Independent power producers could easily satisfy this demand at lower cost.

Jamaica: Jamaica's Private Sector Energy Fund was also designed to promote limited recourse private investments in infrastructure. The World Bank and the Inter-American Development Bank each provided \$40.5 million loans to help set up the fund. This money was used to provide a commitment to refinance the commercial construction debt of the Rockfort private power project. The project is slated to begin operations in August 1996. In 1998 the project can call a takeout loan from the fund that will have a twelve-year maturity with no grace period and a fixed rate equal to a thirty-year U.S. Treasury bond plus 300 basis points. This arrangement does not prevent the project from testing the market for more favorable takeout financing, however. The development of the Rockfort power project and the accompanying changes in the policy and regulatory environment for the private provision of power have had an important demonstration effect, thereby improving the prospects for future private power projects in Jamaica.

Source: Based on Ferreira & Khatami (1996)

Project Finance versus Corporate Finance

Usually, PPP projects are financed through *project finance* arrangements all over the world. Project financing is generally used to refer to a non-recourse or limited recourse financing stature in which debt, equity, and credit enhancement are combined for construction and operation, or the refinancing of a particular facility in a capital-intensive industry, in which lenders base credit appraisals on the projected revenues from the operation of the facility rather than the general assets or the credit of the sponsors of the facility, and rely on the assets of the facility, including any revenue-producing contracts and other cash flow generated by the facility, as collateral for the debt (Hoffman, 2001).

The concept of project finance is very simple, as it involves a capital investment on the merits of the asset's return. According to Finnerty (1996), project finance is "the raising of funds to finance an economically separable capital investment project in which the providers of the funds look primarily to the cash flow from the project as the source of funds to service their loans and provide the return on their equity invested in the project." According to Nevitt & Fabozzi (2000), "A financing of a particular economic unit in which a lender is satisfied to look initially to the cash flow and earnings of that economic unit as the source of funds from which a loan will be repaid and to the assets of the economic unit as collateral for the loan." According to Esty & Sesia (2005), "It involves the creation of a legally independent project company financed with equity and non-recourse debt for the purpose of financing a single purpose capital asset, usually with a limited life." According to Standard & Poor's Risk Solutions (2002), "A project company is a group of agreements and contracts between lenders, projects sponsors, and other interested parties that create a form of business organization that will issue a finite amount of debt on inception; will operate in a focused line of business; and will ask that lenders look only to a specific asset to generate cash flow as the sole source of principal and interest payments and collateral."

There are some basic characteristics of project finance technique which are highlighted below:

- (a) ***Creation of Separate Entity*** – Project financing involves a creation of a separate entity popularly known as *Special Purpose Vehicle (SPV)*. The SPV has a defined objective and definite life.
- (b) ***Equity Holding Pattern*** – The project financing structure or SPV is a highly concentrated ownership structure. It is normally an outcome of partnership or joint venture between

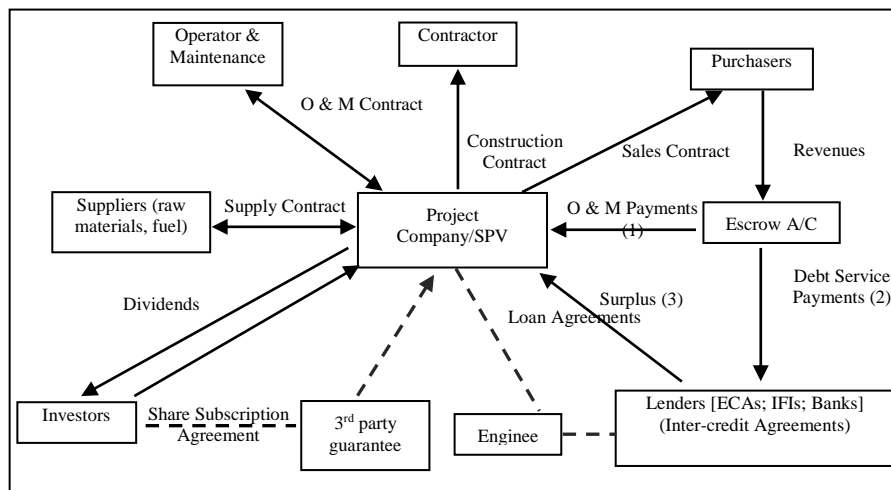
three or four equity sponsors. This format is similar to the venture-backed companies with the only exception that equity sponsors are not the managers.

(c) **Non-recourse Debt** – The debt component provided by lenders is on non-recourse nature and the lenders have no claim on the equity sponsors for the repayment of debt service but fully rely on the project cash flows for the debt service.

(d) **Leverage** – The project financing deals are highly leveraged deals typically involving a leverage of 70% and even extended up to 80% or more.

A typical project finance structure applicable for PPPs is shown in Figure-1:

Figure 1: Project Finance Structure

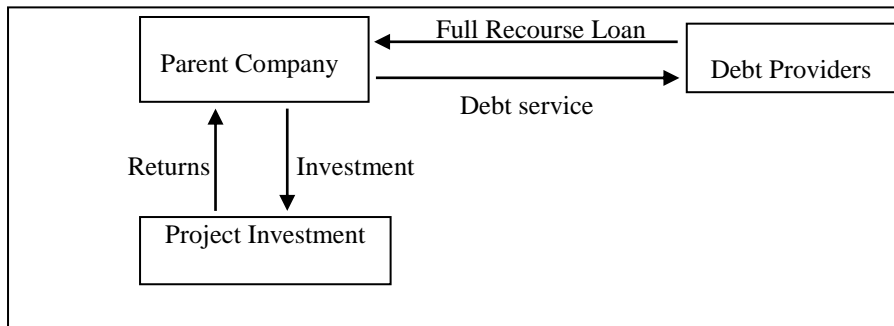


Source: Srivastava & Kumar (2010)

The project finance structure is opposite to corporate lending where lenders rely on the strength of the borrower's balance sheet for their loans. Under traditional corporate financing, the lenders provide the funds to the parent company (the investing firm) and then the parent

company is investing the funds in the project assets. Figure-2 shows a traditional corporate finance structure:

Figure 2: Traditional Corporate Financing Structure



Source: Srivastava & Kumar (2010)

In the form of corporate financing, although the financing is done for the project, but the lender looks at the cash flows and assets of the whole company in order to service the debt and provide security (Pandey 2005). In case of default, the lenders have full claim on the total assets of the parent company including the new project assets for which the new debt is being issued. In this way the lenders are having full recourse on the parent company for the payment of debt service. This kind of lending largely depends on the parent company and not on the project in which the amount will be invested and the financial credibility and standing of the parent company plays a major role in deciding the amount disbursed and the conditions and the characteristics of the loan. The parent company is exposed to risk of the full amount required for the investment. In other words, the existing shareholders are exposed to a new additional risk by this act and the claim of the shareholders is further reduced due to the additional financial risk.

The use of project finance is not a new phenomenon as considered by many. It has been using since long ago for funding the capital expenditure projects. One of the earliest recorded applications of project finance is in 1299, when the English Crown enlisted a leading Florentine merchant bank to aid in the development of the Devon

silver mines. In the seventeenth and eighteenth centuries, the trading expenditures were also financed by the project finance structures. In the 1970s, project finance began to develop into its modern form. Now-a-days, project financing has become a well established financing technique. Chen et al. (1989) documented more than US\$23 billion worth of project financing between 1987 and 1989 and identified 168 projects financed on this format including 102 projects for power generation. In the early 1990s, privatization, deregulation and globalization have spurred the use of project finance in both developed and developing countries. In developing countries, because of limited public funds, the governments decided to privatize the state-owned companies of infrastructure development. According to World Bank (2004) study on Public Policy for Private Sector, Private infrastructure, from 1990 to 2003, investment in infrastructure projects with private participation in developing countries was US\$890 billion. Project Finance loans are also practiced in the Asia Pacific region. For example, in 2005 project finance loans was US\$6.7 billion in this region (Vikas & Kumar 2010). The motivations for using project financing structure in large scale projects are appropriate risk sharing among project parties, reduced underinvestment problems, reduced costly agency conflicts, structured risk mitigation, reduced overall project costs, availability of free cash flow etc. which are absent in traditional corporate financing method.

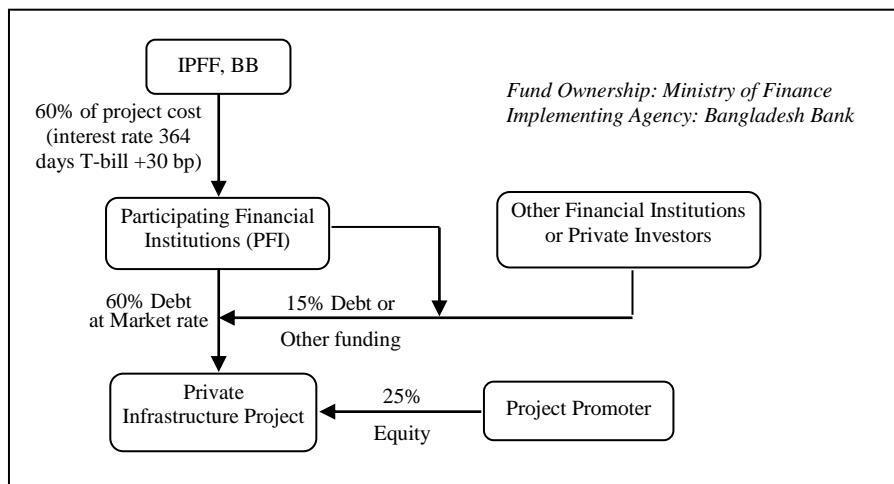
As most of the PPP project structures (such as BOT, BOOST, BOLT, etc.) are complex in nature and have limited duration, a PPP company (called SPV) is usually set up by the sponsors solely for the purpose of the implementation and operation of the project. The reasons for creating an SPV by the sponsors are to derisk own balance sheet from high project leverage, create an exit option for equity investors and perhaps tax structuring. For lenders, it provides a legal and structural separation (bankruptcy remoteness) of the project from the sponsors and the sponsor's cash flows are ring fenced from the cash flows of the project as the SPV is a focused entity with a limited purpose (cash

flow protection). It also restricts additional debt issuances. The SPV is formed under the Companies Act and is therefore, legally independent from the parent company. The SPV is different from a subsidiary as there may be two or three equity sponsors in the SPV and none of them will have more than 51% stake in the SPV. Project sponsors take an equity stake in the SPV, depending on project cost and sponsors' ability. Normally bankers insist on an equity contribution of 15-30% of the project cost and is caged "Sponsors Contribution". As some banks find it difficult to finance at such a high debt equity ratio, to increase the bankability of projects, the Government is sought to come out with a "Viability Gap Funding Mechanism". In the form of Viability Gap Funding, Government/Government Agency gives the SPV an upfront equity support in the form of grant. This grant can be either positive or negative depending on the importance and magnitude of the projects. In the form of positive grant, Government contributes some funds as equity to ensure economic viability of the project whereas SPV may require to pay upfront money to the Government before bidding for a highly lucrative project which is called negative grant.

Traditionally, project finance has been undertaken by the bankers using the corporate finance structure wherein bankers lend to the sponsors and the sponsors put money in the projects. Bankers are able to get the repayment from the sponsors who capture the cash flows of the project. Bankers are connected to the project through the sponsors and therefore, they have recourse on to the balance sheet of the sponsors, which implies that if anything goes wrong then the sponsors will ultimately bear a major chunk of the risk associated with the project. Now-a-days, this trend is changing as the importance and magnitude of infrastructure project finance by commercial banks are increasing. Banks are increasingly involving in infrastructure PPP projects through syndicated/consortium form all over the world.

However, in Bangladesh financial institutions/ banks still follow corporate finance structure to finance large/ infrastructure projects. Due to lack of commensurate collateral and uncertainty of futures benefit, commercial banks do not show much interest to extend fund in infrastructure projects. Moreover, banks carry short-term liabilities but the infrastructure loans are long-term in nature, usually 10-12 years. To avoid asset-liability mismatch, banks usually prefer short term finance e.g., working capital and trade finance rather than long-term loans which are preconditions of project finance. However, few banks/ non-banking financial institutions are financing PPP projects with the help of refinancing facility of IPFF. The financing structure of IPFF is very distinctive (Figure-3). The private sector promoter needs at least 25% equity contribution to access IPFF loan, whereas PFIs need to finance at least 15% of the project cost and the rest 60% may be financed by IPFF. The maximum term of the loan repayment is 20 years with 3-10 years grace period. The interest rate for PFI is weighted average yield of 1-year Treasury bill plus 30 basis points (if floating loan). Facility loan can also be made in dollar or other currency with 30 basis points above the relevant interbank rate.

Figure 3: Financing Structure/ Fund Flow Pattern of IPFF in PPP Projects



Source: IPFF Project Cell, BB

III. Review of Policy Initiatives and Regulatory Environment for PPP Financing by Banks in Bangladesh

Early Legislations and Policy Issues

The Government of Bangladesh (GoB) has taken a series of measures to promote PPP to develop infrastructure. In 1996, the government adopted a private sector power generation policy to shore up private sector participation. In 1997, under the administrative control of the Economic Relations Division, Infrastructure Development Company Ltd. (IDCOL) was established in order to facilitate private sector investments in infrastructure development. In early 2000, the government established Infrastructure Investment Facilitation Center (IIFC) as an advisory body of the government under the Economic Relations Division (ERD) of the Ministry of Finance to promote and facilitate infrastructure projects in the country through PPP. The objective of creating IIFC is to assist relevant ministries, divisions or agencies in formulating and screening project proposals as well as providing technical assistance. Later in 2004, “Bangladesh Private Sector Infrastructure Guidelines” (PSIG) were issued by the government for rapidly developing country’s infrastructure with private sector financing, management and operation. To oversee the implementation of PSIG, the Private Infrastructure Committee (PICOM) was formed under the Board of Investment (BOI). PICOM is entrusted with several responsibilities as promoting private sector participation in infrastructure projects. In fact, PSIG forms the basis of the current PPP in Bangladesh. After the introduction of PSIG, there have been some successes in private investments through PPP route in the power, gas and telecom sectors. The Government seeks more investment in these and other sectors such as ports, roads, railway, water supply, waste management, tourism, e-service delivery, etc.

Introduction of PPP within the Budgetary Framework

Allocation of funds by the government in the national budget has encouraged private sectors in many countries to participate in PPP projects. Over 30 countries around the world have such initiatives in place, including a number of emerging economies e.g., China, India, Brazil, South Africa, Chile etc. (Palmer, 2009). For the first time in Bangladesh, the Government through its national budget for FY 2009-10, introduced the concept of PPP budget. This is considered as a very strong statement and commitment for the development of PPP in the country. In the budget for FY2009-10, BDT2,500 crore (2.2% of the total budget) has been allocated for PPPs²⁰. In the next two budgets i.e., FY 2010-11 and FY 2011-12, GoB allocated BDT3000 crore for each year for the same purposes. The PPP budget aims to provide support for upfront development of PPP projects, create a mechanism for targeted subsidies and set long term financing of PPP projects. In addition, the Government issued a position paper on PPP, titled; “Invigorating Investment Initiative through Public-Private Partnership” in June 2009.

Formulation of Complete PPP Policy and Institutional Framework

As a part of the government’s commitment to flourish PPPs in a large scale, the Government has formulated the most essential ingredient to the PPP Endeavour, ‘The Policy and Strategy for Public-Private Partnership, 2010’ (on August 2, 2010). The objectives of this Policy and Strategy are to spell out the principles of partnership with private sector for undertaking various projects related to infrastructure as well as public service delivery; to define an institutional framework, which is conducive and efficient in handling the PPP projects as well as effective to protect public interest; and to ensure balance between

²⁰ Of the total amount of BDT 2,500 allocated in the budget, BDT100 crore was allocated for Technical Assistance (TA), BDT300 for Viability Gap Funding (VGF) as subsidy or speed money and the rest of the fund was allocated for an infrastructure investment fund as loan and equity participation.

risk and reward for both the government and private partners while aiming to keep the undertaking attractive for the private sector.

The Government has taken a two-pronged strategy for building PPPs: one is to attract investment for projects, where building new infrastructure and expanding existing infrastructure is the major component; the second is to attract innovation and sustainability of public service delivery to the citizens. While the government is committed to launch PPPs in a big scale, the essential ingredient to that Endeavour is to set up a forward-looking strategy and a framework for operationalisation of PPPs as well as clear-cut procedural guidelines for the sake of ensuring transparency and building confidence among the private sector players.

PPP policy of GoB includes a clear-cut definition of PPP, applicability of PPP, sectoral coverage of PPP²¹, eligibility criteria of private sector, classification of projects by investment size²², type of financial participations²³ of the government in PPP projects, incentive structure for private investors and institutional framework for PPP. And, for accelerating identification, formulation, appraisal, approval, monitoring and financing of PPP projects, a simplified and dedicated institutional framework has been created as per the provision of PPP

²¹ Priority sectors included in the PPP policy are (i) exploration of oil, gas and other mineral resources; (ii) power, (iii) ports & terminal (airports, sea, river & land ports including deep sea ports), (iv) water supply & waste management, (v) Highways & expressways, (vi) telecommunications and ICT, (vii) tourism industry, (viii) economic zone, industrial estates & parts development, (ix) social infrastructure e.g., health, education development, (x) e-service delivery, (xi) poverty reduction projects etc.

²² In the 'Policy and Strategy for PPP 2010', PPP projects are classified into three groups according to investment size viz., Large Project [having total investment above BDT 2.5 billion (as identified in the pre-feasibility report) excluding on-going capital for expansion]; Medium Project [having total investment between BDT 500 million and 2.5 billion (as identified in the pre-feasibility report), excluding on-going capital for expansion] and Small Project [having total investment below BDT 500 million (as identified in the feasibility report), excluding on-going capital for expansion].

²³ Depending on the nature and model of PPP projects, financial participations of the government may be in at least 3 forms, viz., Technical Assistance Financing, Viability Gap Financing and Infrastructure Financing.

policy. This institutional framework is designed to streamline the approval process, to ensure a smooth and linear process of approval of proposed projects.

Government has also created ‘a new window for infrastructure financing’ called Investment Promotion and Financing Facility (IPFF) as a separate cell of Bangladesh Bank (BB) in 2006 as part of its (GoB) policy initiatives to funding and capacity building facility for PPP projects. IPFF project is co-financed by GoB and the World Bank (WB). Bangladesh Bank (BB) is implementing IPFF project on behalf of Finance Division, Ministry of Finance with the objectives of supplementing the resources of the Bangladesh financial markets to provide term finance for infrastructure and other investment projects beyond the capacity of local financial institutions; and promoting the role of private sector entrepreneurs in the development of capital projects, especially infrastructure. Through IPFF, Bangladesh Bank is responding to supplement the effort of Government of Bangladesh (GoB) by encouraging the participation of the private sector through PPP to reduce the investment deficit especially in power and energy, roads and highways, water supply and port development. For implementing PPP initiatives, IPFF is mandated to work with two main components (i) *Credit or on-lending component* and (ii) *Technical Assistance component*. The IPFF project is also being implementing in two phases. The duration of the first phase is January 2006-December 2011 (5 years) and the duration of the second phase is January 2012-December 2014 (3 years). Under the first phase of operation, World Bank has provided US\$50 million and GoB provided US\$10 million.²⁴

²⁴ Of the total US\$60 million of IPFF fund, US\$57.5 was sanctioned as Credit/On-lending Component and remaining US\$2.5 million was allocated as Technical Assistance Component in the first phase.

IV. Status of Financing PPP Projects in Bangladesh and Global Experiences

A. PPP Initiatives in Bangladesh

PPP initiatives started more than a decade ago in the country. Three government organizations²⁵ are involved in the project implementation by the private sector under the PPP initiatives. Among the three government sponsored organizations, two (IDCOL and IPFF) provide direct financial support to PPP projects and the rest one (IIFC) is responsible for providing expert assistance to relevant ministries, divisions or agencies regarding project development, project formulation, project design, technical, engineering, implementation and monitoring related issues for projects sanctioned by PPP initiative. So far, the direct assistance of these organizations has enabled implementation of 27 projects (Position Paper on PPP 2009). Currently one third of the country's power requirements are fulfilled by private sector. Telecommunication sector has achieved a significant progress by PPP route. Private mobile telecom operators have made more than billion dollars of investment in the country. There are also some PPP projects under Bangladesh Land Port Authority (BLPA). Among thirteen land ports, twelve are considered to be operated by private operators on BOT basis. Some of them (Sona Masjid and Teknaf) are under operation on BOT basis and some are still waiting. As a Government sponsored company, IDCOL extends finance to PPP project finance in collaboration with other financial institutions including foreign financial institutions. Till date, IDCOL has financed BDT13 billion to 22 PPP projects (Annexure, Table-1). Under the auspices of the IPFF project, 7 small power plants are now contributing 178MW to the national grid (Annexure, Table-3). The

²⁵ The government sponsored three organizations are: Infrastructure Development Company Limited (IDCOL) established in 1997, Infrastructure Investment Facilitation Centre (IIFC) in 2000, and Investment Promotion and Financing Facility (IPFF) in 2006.

total expenditure in the 7 aforementioned projects is BDT 8.67 billion of which IPFF financed BDT 4.41 billion (51% of total expenditure), private investors financed BDT 2.51 billion (32% of total expenditure) and participating banks financed BDT 1.46 billion (17% of total expenditure). Till now, IIFC has been under contract to design 30 projects, provide technical support to 8 projects and consultancy support to 16 projects under PPP. Apart from these initiatives, some commercial banks have financed BDT 47,094.61 in PPP projects (Survey findings, table-2, and page-31).

In the FY2009-10 and onward, the Government has already placed six projects for implementation under PPP, which, in total, would cost some US\$13.85 billion or BDT 951 billion. The projects are Dhaka-Chittagong Access Control Highway at an estimated cost of US\$3.02 billion on BOOT basis, Sky-Train encompassing the Dhaka Metropolis (estimated cost: US\$2.80 billion on BOOT basis), Dhaka City Subway (estimated cost: US\$3.1 billion on BOOT/BOT basis), Dhaka City Elevated Expressway (estimated cost: US\$1.23 billion on BOOT/BOT basis), Dhaka-Narayanganj-Gazipur-Dhaka Elevated Expressway (estimated cost: US\$1.90 billion on BOOT/BOT basis), and four 450 megawatt gas- or coal-fired power stations at an estimated cost of US\$1.80 billion on BOOT/BOT basis. Besides, the Government has planned to construct smaller link and approach roads, bridges, flyovers, underpasses and tunnels, university residential halls and hospitals under the PPP. Moreover, government had earlier decided to construct the Sonadia Deep Sea Port (DSP) under PPP outside the budget. The DSP project would cost approximately US\$3 billion. In addition, government has decided to build three small scale transportation projects viz., Bus Rapid Transit (BRT) at an estimated cost of BDT 150 million, Articulated Bus Service at the cost of BDT 50 million and Bus Route Franchise (BRF) at the cost of BDT 50 million on BOO model. As the government is committed to accelerate infrastructure development of

the country, it (government) has enlisted some infrastructure projects to be implemented under PPP. At present, 36 infrastructure projects (28 power projects and 8 cross section projects) are either in implementation stage or under consideration for implementations through PPP approach (Annexure, Table-2).

As stated earlier, to attract private investments through PPP, government has introduced “PPP Budget” since FY2009-10 and allocated a lump sum of BDT 25 billion in the national budget (Budget Speech 2009-10). The purpose of allocating fund in the budget is to ensure some form of financial participations in PPP projects along with the private sectors. The financial participation of the government in the PPP projects may be in at least 3 forms (viz., *Technical Assistance Financing*²⁶, *Viability Gap Financing*²⁷ and *Infrastructure Financing*²⁸) depending on the nature of the projects and models of PPP adopted for a particular type of project. Of the total amount of BDT 25 billion, BDT 1 billion was earmarked for technical assistance, BDT 3 billion for Viability Gap Funding (VGF) and the remaining BDT 21 billion for setting up an Infrastructure Development Fund. Considering the importance of PPP, Government has created Bangladesh Infrastructure Finance Fund (BIFF) which

²⁶ **Technical Assistance Financing** is designed for the purposes of Pre-feasibility and Feasibility study for projects; Preparation of RFQ and REP documents; Preparation of concession contracts; PPP related capacity building in the line Ministries/implementing agencies and other relevant agencies; PPP related awareness building such as road show, exhibition etc.

²⁷ Through **Viability Gap Financing** govt. provides funds to projects where financial viability is not ensured but their economic and social viability is high. VGF could be in the form of capital grant or annuity payment or in both forms. VGF in the form of capital grant shall be disbursed only after the private sector company has subscribed and expended the equity contribution required for the project. The VGF is to be managed by the Finance Division and is for disbursement to the PPP Project Company, upon request by the line Ministry/implementing agency, as per the terms of the concession contract.

²⁸ **Infrastructure Financing** is an arrangement for extending financing facilities for the PPP projects in the form of debt or equity through specialized financial institutions such as Bangladesh Infrastructure Finance Fund (BIFF) and Infrastructure Development Company Limited (IDCOL). The government may participate in such financing arrangements through necessary budget provision.

will commence its investment functions in FY2011-12. In the meantime, BDT 1600 crore from previous year's budget has been transferred to the infrastructure development fund and an amount of BDT 2500 crore has also been proposed in FY2011-12 budget (Budget Speech FY 2011-12).

Apart from coming forward with financing facilities from own funds (from budgetary allocation), Government is trying to facilitate financing as well as technical support to PPP projects in collaboration with multilateral financial institutions such as World Bank, IFC, ADB, etc. As part of the joint effort, Government has created the IPFF project in collaboration with World Bank to make available partial debt financing through private sector financial intermediaries for eligible, government-endorsed infrastructure projects, to be developed by private sector. The IPFF project seeks to assist the GoB in facilitating new infrastructure projects with potential for private sector participation and in developing the capacity of the financial sector for the ongoing provisions of infrastructure finance. So far, IPFF has successfully completed first phase of its operation by disbursing 100% of its credit line (on-lending) component amounting US\$ 57.5 million (US\$47.5 m IDA+US\$10 m GoB fund) equivalent to BDT 422.33 crore to seven small power plants through different banks and financial institutions (Annexure, Table-3). Around 30% of the TA budget of the first phase of IPFF project has been utilized for capacity building of the PPP stakeholders by arranging a series of PPP trainings and workshops both at home and abroad²⁹. After being satisfied at the first phase operation, IDA has sanctioned another

²⁹ Till January 2011, 7 local workshops were arranged for awareness creation about PPP where 232 participants from different FIs, ministries and executing agencies attended; 9 intensive training courses were arranged to train 264 officials of both public and private sectors and 12 foreign training programs were arranged in different renowned PPP training institutions of USA, Canada, UK, Korea, Philippine and India where 49 officials from relevant ministries, planning commission, Bangladesh Bank and FIs took participation. (Source: *IPFF Project Cell*, Bangladesh Bank).

US\$257 million (US\$7 for TA) and GoB has sanctioned US\$ 50 million for the implementation of PPP projects under the second phase. Under second phase of IPFF, a total of BDT 2100 crore (US\$ 300 million) is available for financing eligible PPP projects. Under second phase of the IPFF project, several projects in different sectors i.e., water treatment plant, inland container terminal, express ways, etc., have already approached to IPFF for funding in PPP projects. Funding to some of these projects are under process and others are under evaluation (Annexure, Table-4).

B. Global Experience in PPP Initiatives

Many developed countries have adopted the PPP framework to facilitate and manage large infrastructure investments. PPP financing technique is being widely used in the UK, Australia, Canada, and countries across Continental Europe. For example, the Australian government has successfully used PPPs to deliver several social infrastructure projects (*Box-3*); Ireland has used them for transport and education infrastructure (*Box-4 highlights the financing of a bank in school PPP projects*); Netherlands have experienced considerable success in social housing and urban regeneration programs delivered through PPP; India is investing heavily in highways through PPPs; Japan has around 20 new PPPs in the pipeline; in Canada, 20% of new infrastructure is designed, built and operated by the private sector; USA is a pioneer with contracting out and have started experimenting with other forms of PPPs; emerging democracies from central Europe are also doing good. In this regard, the former Prime Minister of Czech Republic, Jiri Paroubek, rightly mentioned that "just like any other market economy, we are trying to multiply our economic potential and implement projects for which the public sector alone has neither the strength nor the resources". In recent years, the Czech Republic has achieved significant progress in PPPs.

**Box 3: Financing Structure and Technique of PPP Project in
Australia**

Hills M2 Motorway Australia

Hills M2 is a 21 km, four-lane motorway that links the lower north shore and the northwest regions of Sydney, Australia. This \$644m toll road opened to traffic in May 1997 and is now a key part of the Sydney motorway network.

In Hills M2 Motorway, the sponsors and institutional financiers have provided equity through a combination of shares in the Australian Stock Exchange, infrastructure bonds and a 15-year syndicated bank loan. Two economic entities were established for the development of the project: Hills Motorway Limited (HML) and Hills Motorway Trust (HMT). HML is a listed company, which was granted a concession (the project deed) and was responsible for the implementation of the project. HMT is a listed unit trust, which was the sole borrower for the construction and project loan facilities provided by the lenders, and the issuer of the CPI bonds. HMT issued CPI indexed bonds in two tranches of A\$100m each in December 1994 and June 1996, with terms of 27 and 25.5 years respectively and also borrowed a traditional bank debt facility of around A\$120m. Then the proceeds of bonds and debt facility were lent to HML for the construction of Hills M2 Motorway. Upon completion of the construction phase the project sponsors will jointly invest A\$30m in equity. HML entered into a turnkey contract with a contractor for the construction of the motorway and an operation contract with an operator for the operation of the motorway. This dual corporate structure was developed to meet the different needs of the debt and equity providers.

In this dual-corporate structure, there is a trap for unwary lenders. If the trust allows its funds to be linked to the project company without any security, debt security will suffer. In Hills M2 Motorway, the trust-and-company structure hid the investable inevitable losses by allowing the trust funds to be linked to the company without any security. While the company and trust are distinct legal entities, those entities must effectively be controlled by people at the board level.

Source: Based on Akintoye & Beck (2009)

Box 4: Bank of Ireland Finances School PPP Projects

The Irish Government is keen to promote the domestic PPP market for social infrastructure development in the country and it (the Government) encourages private sector including financial institutions to implement the agenda. The Government has made the country's PPP market very much 'open for business' for international bidders and funders. Bank of Ireland is fully committed to supporting current and future Irish infrastructure projects being promoted by Government Departments and State Agencies. As part of its continuing effort for PPPs, the bank has arranged a debt financing package of €100m for the construction and maintenance of six schools over a period of 25 years under the Department of Education and Skills' Schools Public Private Partnership (PPP) Programme. As the lead arranger, Bank of Ireland has raised the fund along with NIBC Financing NV and the European Investment Bank (EIB). The project will be developed by a consortium comprising Macquarie Partnerships for Ireland, Pierse Contracting and John Sisk & Son Ltd. Pierse and Sisk will construct the schools. The construction of the five secondary schools and one primary school will result in up to 1,000 jobs and, when complete, will create approximately 4,500 new school places. The schools are in counties Cork, Limerick, Wicklow, Kildare and Meath.

Bank of Ireland is also a lead funder of the recently opened M7/M8 Motorway PPP. The first Schools PPP project and the State's first Motorway Service Areas project, both of which were funded by Bank of Ireland, will be open 2010. The bank is also supporting bidders across a range of other sectors and projects including education, rail and road PPPs

Source: Based on Bank of Ireland's Press Room Report(2010) (<http://www.bankofireland.com/about-boi-group/press-room/press-releases/item/36/bank-of-ireland-finances-schools-ppp-projects/>)

In the developing world, PPP is being increasingly used in India, China, and a number of countries in Southeast Asia and the Middle East. In particular, PPP investments have witnessed spectacular progress in India, Bangladesh's closest neighbour, since that country took the initiative a decade ago. India has currently \$27 billion worth of PPP projects under implementation and has plans to implement another \$500 billion in the next five years. As far as current status of

projects is concerned, there have been 758 PPP projects in different sectors that are either operational, have reached construction stage, or at least construction/implementation is imminent. The total cost of these projects is estimated to be about Rs.383,332.1 crore (*PPP Database of India, 2011*)³⁰. Besides, more than 900 projects are in pipeline across the states which would be implemented by 2015 (*Box-5 shows an example of PPP Finance Project in India*). Sri Lanka is also moving forward to PPP initiatives for accelerating infrastructure development especially in electricity and port sectors. Since 1995, the Sri Lankan Government has actively sought private sector participation in the development of port infrastructure through partnerships in the form of either Build-Own-Operate (BOO) or BOT transactions. A major milestone was reached in 1999 when the Government took necessary steps to modernize and increase the facilities of the Colombo port through a PPP mechanism. The expansion and modernization of the port completed in 2003 and since then the port is meeting the increased demand of the regions with quality services. Today the Colombo port is rated as one of the top 35 ports in the world. By realizing the continuing role of PPPs, the Government established a separate PPP Unit within the Board of Investment (BOI) in 2006 to facilitate PPP projects in the country. The investment in PPP projects over the last fifteen years in Sri Lanka amounts to 15 projects with total investments of US \$1651.9 million³¹. Some African nations are also adopting PPP for infrastructure development. For example, in Africa, between 1990 and 2004, approximately 14% of public sector infrastructure was provided through a PPP, the most common sectors being water, energy and transport (Deloitte 2006). It is observed that increasing number of local authorities is engaging in PPP arrangements to

³⁰ Public-Private Partnerships in India, Ministry of Finance, Government of India, 2011 (<http://www.pppinindia.com/database.php>)

³¹ Source: Central Bank of Sri Lanka Annual Report-2005, (www.riunt.com)

produce much needed services. Instances of successful PPP efforts can be cited from other parts of the world as well, from which lessons can be drawn for Bangladesh.

Box 5: Financing PPP Project in Indian Transportation Sector

Delhi Gurgaon Expressway

The Delhi Gurgaon Expressway is one of the successful PPP projects in India which has converted the existing 4 lanes of the NH-8 into 8/6 lanes access controlled expressway for connecting Delhi and Gurgaon. The purpose of the expressway is to augmenting the capacity of the National Highways (NH) connecting the four metros (Delhi-Jaipur-Ahmedabad-Mumbai) under the prestigious Golden Quadrilateral project to ensure safe and efficient movement of vehicles by avoiding traffic congestion. The expressway consists of 9 flyovers, 4 underpasses and 2 foot-over bridges and 3 toll-plazas. The project has been implemented by forming an SPV called Delhi Gurgaon Super Connectivity Ltd. on Build-Operate-Transfer (BOT) basis. The total cost of the project was Rs. 1,175 crore and concession period are 20 years. The Financial Structure of the project includes debt of Rs. 383.3 crore and equity of Rs. 164.2 crore (including Rs. 61 crore of grants from National Highways Authority of India which acts as public body here). Of the debt, Rs. 200 crore was provided by Housing and Urban Development Corporation Limited (HUDCO), Rs. 100 crore was extended by four commercial banks and the rest of the amount was raised by the SPV by issuing convertible debentures. Equity was provided by the two sponsors at the ratio of 51% by Jaiprakash Industries and 49% by DS Constructions. Project cost overrun was arranged by the sponsors. The fund providers will get revenues from the tolls paid by the users of the expressway.

The expressway is fully operational and is handling a significant traffic volume of more than 180,000 PCUs (Passenger Car Units) per day (as compared to estimated 13,000 to 15,000 PCUs per day), growing at 9% year-on-year. The expressway has reduced the travel time from 65 minutes to 25 minutes between Delhi and Gurgaon by increasing average travel speed from 25.65Km/Hr to 66 Km/Hr.

Source: Based on PPP Toolkit (Case studies) (2010) (<http://toolkit.pppinindia.com/water-sanitation/module3-rocsdge1.php?links=dge1> <http://toolkit.pppinindia.com/water-sanitation/module3-rocs-intro.php?links=rocs1>)

V. Initiatives of Banks in Financing PPP Projects in Bangladesh: Survey Observations

Banks Response to PPP Policy

For encouraging PPPs to accelerate infrastructure development of the country, the Government has already enacted ‘The Policy and Strategy for PPP’ in 2010 for operationalisation of PPP and also has introduced clear-cut procedural guidelines for PPP projects for the sake of ensuring transparency and building confidence among the private sector players. Successful application of PPP concept through this “Policy and Strategy” document is likely to open up the doors for increased flow of investment from both local and foreign investors. The policy and guideline for PPP has already been circulated for mass awareness and concerns. As a vital organ of the country’s economic and financial system, banking industry is already familiar with the policy. It is evident from the survey that all banks are well aware of the ‘Policy and Strategy for PPP 2010’ circulated by Government. In response to the question of whether the ‘PPP policy is good enough to encourage PPP initiatives’, majority of the bankers (78%) think that the policy, as a whole, is sufficient to enhance infrastructure development through PPP model if proper steps are taken to materialize the objectives. But 39% of the respondents claimed that the policy did not elaborate on how banks would be involved in PPP projects. According to their opinion, the existence of gaps to address the financiers may fail to attract the banking sector to participate in financing PPP projects.

Some of the respondents said that the project selection, feasibility and approval process detailed in the PPP policy for each project and contract is extensive, requiring inputs and approvals from various authorities and external parties. As per the policy, the timeframe between project identification and negotiation and contract award requires approximately 26-52 weeks for large projects, 22-42 weeks for medium projects and 14-28 weeks for small projects, the timeline

of which may be relaxed under special circumstances. In order to be more attractive to private sector investors, the process should be shortened. Critical dependencies on approvals in the process may also be revisited to the extent possible to make the exercise more time-efficient.

To attract private sector investors to PPP projects, the Government will need to provide an incentive package at least in the early stage of development of such initiatives. This is because private investors generally are interested in investing in only those projects from which they can earn good return in the short run, but many infrastructure projects may not be commercially viable or may not offer the best return in the short run. There are, in fact, projects where economic benefits are more substantial than immediate financial gains. In order to attract the private sector to this type of projects, Government will need to provide financial subsidies and some other types of support, including guarantees against political risk and protection against certain events of *force majeure*.

In the PPP Policy, there are provisions of some incentives such as fiscal incentives (e.g., tax exemption, reduced tax) and special incentives for the private sectors to participate in PPP projects. But, on an average, 50% of the bankers feel that the incentives are not sufficient to attract the private sector initiating and financing PPP projects, whereas 44% of them believe that the incentives are sufficient. Some of the respondents pointed out the facts that fiscal and special incentives are not clearly detailed in the PPP policy. Under fiscal incentives, further detailing the extent and tenor of the proposed tax exemptions/reductions would provide more clarity to private sector investors in making their investment decisions. In addition, as further incentives to private sector investors, the policy may consider reductions or exemptions in tax on interest/returns received on investment.

According to the survey findings, 67% of the respondents claimed that there is a serious lack of coordination between Participating Financial Institutions (PFIs) and implementing agencies/line ministries regarding providing relevant information about PPP projects, bidding process, project feasibility study, etc. In this regard, some of the bankers believe that to minimize the potential gaps between PFIs and implementing agencies, the potential private investor input and opinions may be considered during the selection of consultants for the Detailed Feasibility Study (DFS) by the Office for PPP to ensure transparency and avoid information asymmetry. The policy may also consider a basic set of universal pre-qualifications to supplement the Request for Qualification (RFQ) process and eliminate the need to evaluate investors who do not meet the qualification criteria upfront.

It should be remembered that the major partner in the PPP framework is the private sector. The public sector's participation in PPP should mainly be as a facilitator. Hence, in order to make the PPP concept meaningful and effective, rules and regulations governing the PPP mechanism should be framed in line with that same partnership spirit so that there is an equitable sharing of profits/losses between the two partners. To attract the private sectors to participate in PPP projects and hence taking full advantages of the PPP initiatives for accelerating economic growth, the public sector has to play the dominant role without being biased. Majority of the respondents put their opinion by emphasizing that the Implementing Agencies, Line Ministries and Office for PPP should ensure complete information transparency with regard to the DFS, implementation/monitoring reports, utilization of funds and ongoing developments during the implementation process. The relevant parties should also minimize decision making time in case of unforeseen circumstances and delays to prioritize project completion in as timely a manner as possible. Some of the respondents believe that relaxation of single borrower

exposure limit, treating PPP investment as bank's CSR activities, role of public party as a facilitator and one stop service provider (who would take care of all necessary government approvals, information etc.) would stimulate the private financiers to engage in PPP projects.

PPP Financing by Banks

The banking and financial sectors have indeed come of age and are capable of affording huge financial arrangement through syndicated term loans³². Now, banks are planning to finance big infrastructure projects under PPP programs and already some of them have financed a few projects completed under PPP framework (some examples of PPP projects financed by banks are in Annexure, Table-3). The survey results show that 60% (12 banks out of 20 banks selected for the study) of the banks have exposure in PPP projects and some of the rest of the banks are yet to finance PPP projects. The following table (Table-2) shows the amount of loans extended to PPP projects by banks in different sectors.

Table 2: Amount of Loans to PPP Projects by Different Banks as on December, 2011

Name of Banks	Amount of Loans (Tk. in Millions)
Prime	3,900
DBBL	1343.3
NCC	2230
Dhaka	1075
BRAC	30
EBL	775
UCBL	6300
Mercantile	200
IFIC	110
Janata	28,901.31
IBBL	2230
Total	47,094.61

³² Bangladesh Bank Governor Dr. Atiur Rahman commented on the proven capacity of Banking and Financial sectors to arrange large amount of syndicated term loans at the closing ceremony of the deal of US\$114.49m syndicated loan for Biman's two B777-300ERs purchase. EBL has arranged the loan along with other 9 banks. Report: *The Daily Star*, May 6, 2010.

Source: Survey Findings

From the survey it is observed that majority of the banks prefer to finance the power sector. The reason behind their preferences in power sector is the certainty of revenue/cash flow as Government purchases the output and they feel secured financing here. According to the survey, 56% of the banks' investment goes to power sector and land ports and water treatment plants captured 22% each of the funds equally.

Refinancing Facility Availed by Banks from IPFF in Financing PPP Projects

Some of the banks involved in PPP financing have availed of refinancing facility from IPFF Cell of Bangladesh Bank for on-lending in PPP projects. IPFF provides fund to PPP projects through Participating Financial Institutions (PFIs) as refinancing scheme. For enjoying refinancing facilities from IPFF, a bank/FI needs to be enlisted with IPFF as a PFI³³. From the survey, it is found that 55% of the banks are listed with IPFF as PFI, 35% are not listed. Surprisingly, 10% of the surveyed banks are not interested to be enlisted with IPFF. The banks which are not interested to be enlisted with IPFF are Islami Shariah based banks. Being Islami Shariah based bank they, in principle, cannot take refinancing from any bank/FI/source at conventional mode of interest-bearing rate and condition. Among the 11 commercial banks enlisted as PFI with IPFF, 4 banks have already availed of refinancing facility to finance seven power projects being implemented under PPP model, four banks did not enjoy the facility and one bank is yet to get the refinancing facility. Table-3 shows the amount of refinancing facility availed of by four banks to lend PPP power projects.

³³ As on January 2012 a total of 18 banks and financial institutions are listed with IPFF as PFIs. Of them, 11 are commercial banks (DBBB, Dhaka Bank, EBL, NCCBL, Prime Bank, BRAC Bank, Trust bank, MTBL, The City Bank, AB Bank and UCBL) and remaining 7 are NBFIs (IDLC, ILFSL, Prime Finance & Investment, ULC, Uttara Finance & Investment, IIDFC and GSP Finance Company).

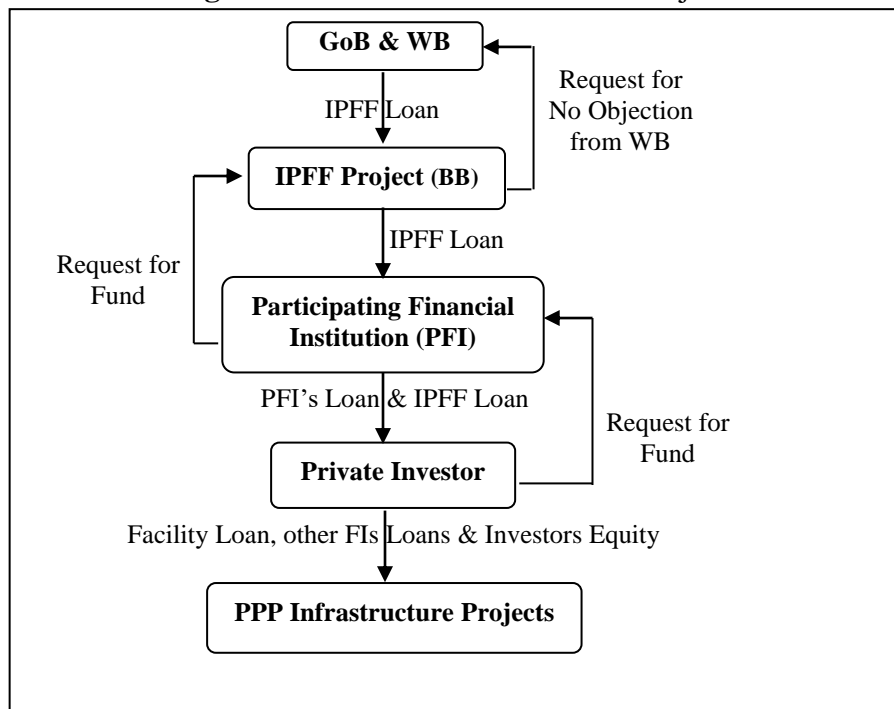
Table 3: Amount of Refinancing Facility Enjoyed by Different Banks to Finance in PPP Projects

Name of Banks	Amount of Refinancing (Tk. in Millions)
DBBL	1074
NCC	1780
Dhaka	670
EBL	620
Total	4,144

Source: Survey Findings

IPFF provides loans to PFIs for supporting PPP projects according to its Operational Directives (OD) and some terms and conditions. Specifically, IPFF cell provides loans to a PFI upon request of private investor to the PFI for such loan. PFI, upon receiving request from the private investor makes an application to IPFF cell for funding. IPFF cell considers the application based on the operational directives of the facility and disburses the fund to PFI, and PFI then extends the same to the private investor. Thus, the financing by IPFF cell often takes a lengthy process and more time to reach PFI and subsequently to the promoter. IPFF follows specific financial model/norms while providing loan to PPP projects. According to IPFF financial model, the private sector promoter needs at least 25% equity contribution to access IPFF loan, whereas PFIs need to finance at least 15% of the project cost and the remaining 60% may be financed by IPFF. The maximum term of the loan repayment is 20 years with 3-10 years grace period. The interest rate for PFI is weighted average yield of 1-year Treasury bill plus 30 basis points (if floating loan). Facility loan can also be made in dollar or other currency with 30 basis points above the relevant interbank rate.

Figure 4: IPFF Fund Flows to PPP Projects



Source: IPFF Project Cell, Bangladesh Bank

Although IPFF follows stringent terms and conditions in extending loan to PFIs for on-lending to PPP projects and the PFIs need to undergo a rigorous operational procedure, most of them feel comfortable to work with IPFF and see the refinancing scheme as stimulatory for enhancing PPP initiatives in the country. It is found from the survey that 72% of the PFIs feel comfortable at the operational procedures and 17% has claimed that operational procedure is lengthy and complex. In terms of assuming credit risk of PPP projects under such financing modalities, IPFF/WB is absolutely reluctant. Under the stipulated refinancing terms and conditions, PFIs have to bear 100% credit risk arising from the default by the project sponsors. The PFIs have to give repayment guarantee of the entire loan to IPFF if project sponsor fails to meet obligations. Because of absolute credit risk, many banks are not

interested to be enlisted as a PFI with IPFF for getting refinancing for subsequent lending in PPP projects.

“The commercial banks may invest in infrastructure sectors through syndication loans along with the Government”³⁴. PPP can be an ideal strategy to finance infrastructure projects side by side with the industrial lending. In an opinion survey on the top management executives of different banks, it was found that banks are willing to finance roads, railways, mega power plants, ports and bridges. Even banks are interested to finance PPP projects without taking support from any external sources. According to the survey results, it was found that 60% of the banks are interested to extend loans to PPP projects without taking refinancing facility from IPFF, but 33% of the banks are not willing to finance PPP projects with their own fund. ‘Asset-Liability Mismatch’ and ‘Single Borrower Exposure Limit’ have been pointed out as the two major limitations for banks to provide loans in PPP projects. As banking is the business of running short, i.e., banks do bulk of the borrowing for short-term and lend for medium and long-term and thus make profit. As a result, banks always face risk arising from asset-liability mismatch. And, as financing tenors in PPP projects are usually medium to long-term, asset-liability mismatch risk would be more severe in such cases. Moreover, banks have single borrower exposure limits which may be violated in case of financing PPP projects. Although single borrower exposure limit may be a potential problem for banks in financing PPP projects, they can solve this problem by way of lending in syndicated mechanism. According to survey observations, only 11% of the banks assume that ‘single borrower exposure limit’ may be a problem in financing PPP projects, whereas 78% of the banks feel that ‘asset-liability mismatch’ would be a major threat in financing PPP projects.

³⁴ Bangladesh Bank Governor Dr. Atiur Rahman emphasized on banks investment in infrastructure projects in partnership with government while speaking at a discussion meeting. Report: *The Financial Express*: vol. 18 no. 221 Dhaka, April 30, 2010.

As banks are eager to extend financing in infrastructure projects through PPP modalities, they can raise medium to long-term funds from different sources. According to the survey observations, it was found that banks are interested to borrow from NBFIs (such as IDCOL), insurance companies, pension funds that usually have the capacity to lend for long-term. They have also identified some other sources of long-term fund. For example, they want to issue different types of financial instruments such as bonds/debentures to raise funds for PPP projects if regulatory authorities allow them.

Preparedness of Banks to Finance PPP Projects

PPP financing involves complex contractual arrangements as well as risk management strategies and techniques. This requires special knowledge in legal and contractual aspects, expertise in project feasibility study and financial modeling, risk mitigation techniques, etc. For handling PPP projects, banks need expert and dedicated manpower along with appropriate organizational set up. At this moment, majority of the banks have required but not sufficient manpower to handle PPP projects. The survey shows that 67% of the banks have preparation with required organizational set up to deal with PPP project financing and remaining 33% of the banks are not prepared to undertake PPP projects. Although 67% of the sample banks has claimed that they are capable to handle PPP projects with their existing organizational set up and manpower, 95% of the banks do not have separate unit/cell for handling PPP projects/infrastructure projects.³⁵ As previously mentioned, 11 banks have investment in PPP projects (Table-2) but they did not follow/formulate any policy for PPP financing. They have disbursed loan to PPP projects according to their existing credit policy. According to survey information, no bank has formulated any PPP financing policy within

³⁵ As on November 30, 2011, only one commercial bank (NCCBL) has separate unit/cell for handling PPP and infrastructure projects financing.

the bank yet. But 39% of the banks have started policy level discussion/meeting internally to formulate separate policy/guidelines for financing PPP projects. This indicates that banks are planning to participate in PPP projects in future.

As PPP is relatively new in Bangladesh and it calls for special organizational set up and expert manpower to accomplish success, bank executives require training on PPP policy issues, PPP theme, project evaluation process and feasibility study, financial structuring, legal aspects, project documentation, risk management strategies etc. According to survey observations, 40% of the banks have already arranged different training programs on PPP financings for their employees.

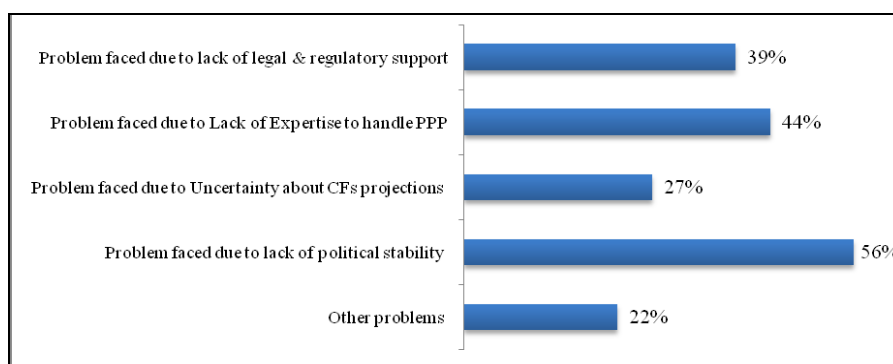
Problems Faced by Banks in Financing PPP Projects

In order to ensure policy continuity over time irrespective of any change in the political power regime, the Government should make strong efforts to build consensus among, and obtain support of, all political parties and representative civil society groups about the needs and imperatives for large PPP projects for the country's economic development. A broad national consensus on the concept of PPP will also boost the trust and confidence of investors. It will also generate interest among overseas entrepreneurs to invest in the PPP projects and enhance opportunities for getting more foreign direct investment in the country.

Banks that have already financed PPP projects have pointed out some problems. The major hindrances as identified by banks are lack of proper policy direction to banks, how banks will participate in PPP projects, specification of incentives and their extents, lack of political stability, lack of their expertise to ascertain cash flows from the projects, etc. According to survey information, it is found that 56% of the banks feel less confident in financing PPP projects due to their fear of political stability in the country, 39% of the respondents

claimed that the ‘PPP Policy & Strategy 2010’ has not clearly mentioned how the private sector will arrange the required financing for the PPP projects and what will be the financing role of banks, 44% mentioned that they have lack of expertise to handle PPP projects and 27% feel that they faced some sort of uncertainty of future cash flows generation. Of the respondents, 22% pointed out some additional problems viz., fund constraints, delay in execution of PPP policy & guidelines, lack of cooperation of the implementing agencies/line ministries, etc. (Figure-5)

Figure 5: Problems Faced by Banks in Financing PPP Projects

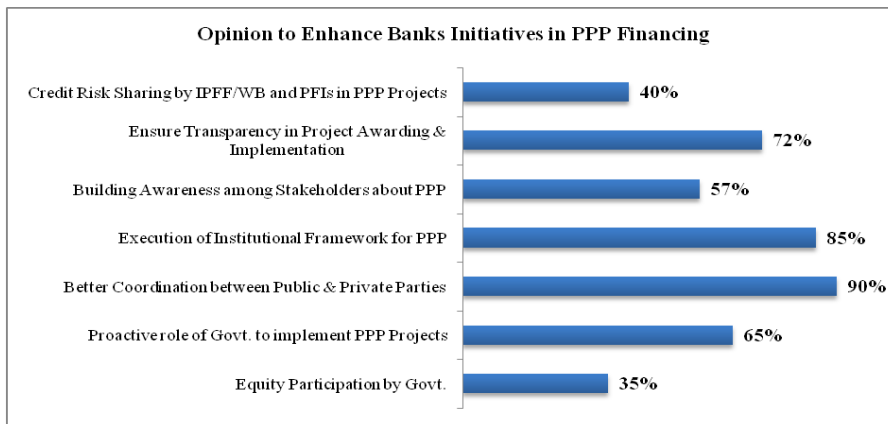


Opinions and Suggestions by Banks for Enhancing PPP Initiatives in Bangladesh

PPP is operationalized through a bilateral relationship between a public body and a private sector company and successful project implementation entails a win-win situation for all. So, for fruitfully implementing PPP initiatives for infrastructure development and hence accelerating desired economic and GDP growth, both public and private sectors have to work side by side. At the initial stage of adopting new financial avenues i.e., PPP for accelerating infrastructure development of the country, it is expected that the public sector has to play a proactive role. From the survey conducted on the banks, it is observed that they also demand proactive role from the public sector in PPP initiatives. The survey results show that 90%

of the banks expect better coordination between public and private parties which is currently lacking. Among the respondents, 85% emphasizes on the execution of institutional framework for PPP (main focus on starting operations of the ‘Office for PPP’), 72% expects that the concession granting authority will ensure transparency in project awarding and implementation, 65% of the respondents desire proactive role from the public body i.e., public party would explore new projects to be implemented through PPP and invite the private parties to implement the projects, 57% focuses on creating awareness among the stakeholders about PPP. Of the respondents, 40% wants the refinance granting authority (here IPFF/WB) to share part of the credit risk likely to arise from nonpayment of loan by the project sponsors which is absent in current refinancing terms and conditions. And, 35% of the bankers prefer equity participations of the Government in PPP projects (Figure-6).

Figure 6: Opinions and Suggestions by Banks to Enhance PPP Initiatives



VI. Observations and Recommendations

The PPP is a major policy initiative by Government and, if properly implemented, it would help mobilize required resources for financing large and costly but much demanded infrastructure projects. The success of the initiative would, however, depend on a number of factors, as the experiences of many developed and developing economies indicate. The following issues and recommendations are placed here for meeting the challenges of the PPP initiatives and adopting the new financing technique for accelerating infrastructure development of Bangladesh.

- (i) It is necessary to have an appropriate legal and institutional framework to govern the PPP mechanism. The legal framework would lay down the obligations of the private sector partners, allow provisions for cost recovery, and address compensation and redress mechanisms. Global experiences suggest that the most successful PPP projects are those that are managed under a legal and a regulatory framework, not under executive guidelines. The GoB has already enacted a complete PPP Policy and Strategy for governing the PPP mechanism. But the policy did not elaborate on how banks/FIs would be involved in PPP projects, what would be their appropriate role in PPPs, etc. The policy may be revisited or a separate manual under 'The Policy & Strategy for PPP 2010' may be issued by describing the specific role to be played by the financiers in PPP projects. In addition, various guidelines directing VGF and TA components of PPP projects, PPP screening manual etc. may be published as soon as possible for better understanding of the stakeholders. Moreover, as the regulator of commercial banks, Bangladesh Bank may formulate a uniform guideline for the scheduled banks regarding the participation modalities of the banks in PPP projects.

- (ii) The policy may consider standardizing a subset of Key Performance Indications (KPI) to effectively monitor project implementation and contractual obligations, as well as standardize processes and procedures in case of breaches, as opposed to case by case situations based on each signed contract. In addition, the policy may consider adding the requirement for the technical expertise of a third party to contribute to the implementation phase of the Periodic Progress Report prepared by the Office for PPP and/or the reports prepared by the respective line ministries. Project and legal documentations should also be standardized so that vetting from government agency can be avoided. This may ensure transparency and accountability of the public party as well as encourage the private parties towards the PPP deals.
- (iii) In order to strengthen PPP efforts, implement the PPP budget, and coordinate the project's stakeholders, a dedicated and fully operational PPP Cell is therefore necessary. The PPP cell would work as a *one stop service provider* (i.e., it would take care of all necessary government approvals, information, coordination among stakeholders etc.). Under the current PPP Policy and Strategy, an Office for PPP has been established as a separate office under the Prime Minister's Office for the promotion and efficient handling of PPP projects. The Office for PPP has been formed as an autonomous unit having significant autonomy on administrative and financial matters in discharging its mandated functions. The PPP office is supposed to efficiently carry out the diverse tasks of choosing between alternative modes of project implementation, completion of projects on an expeditious basis, project supervision, and providing inducements to potential private sector entrepreneurs to participate in PPP projects. The office would also carry out the tasks of project identification, conducting feasibility studies,

inviting bids, expediting the project approval process, issuing work orders, evaluating financial and economic viability of PPP projects, maintaining coordination among various committees etc. The PPP Office will therefore need to be staffed with technically skilled and experienced personnel with specific knowledge on the technicality of these implementation methods, and the design, financing and management of the projects. Unfortunately, still now the PPP Office is not fully equipped with necessary resources and manpower and has not started its function yet. For accelerating the PPP initiatives from the Government's side, the PPP Office should be fully operationalized as soon as possible.

- (iv) It has been observed from the field survey that there exists a coordination gap among private sponsors, participatory financing institutions (PFI) and implementing agencies/line ministries which are creating some sorts of barrier to flourish PPP financing in Bangladesh. In this regard, implementing agency/line ministry should be proactive with respect to providing adequate information to all the concerned parties about the status of the projects. If required, inputs and opinions of potential private investors may be considered during the selection of consultants for the Detailed Feasibility Study (DFS) by the Office for PPP for ensuring transparency and avoid information asymmetry. The policy may also consider a basic set of universal pre-qualifications to supplement the RFQ process and eliminate the need to evaluate investors who do not meet the qualification criteria upfront. In fact, elimination of gap regarding project screening, approval, implementation, management etc. may encourage the private parties including banks towards PPP projects and ensure transparency as well.

- (v) As PPP projects are large in size and the implementation of those is very much challenging, the selection of private sector partners will be done strictly on the basis of their financial and technical capacity. Project awarding should be transparent and unbiased. In this regard, instead of direct negotiation, the choice of private sector partners shall need to be made through a transparent and competitive bidding process following international standard. This would ensure creditworthiness of PPP projects. The selection criteria of private sponsors prepared by line ministry/implementing agency should also coincide the criteria desired by the financiers (lenders).
- (vi) One of the critical factors of the success of PPP initiatives will be the capacity of the private sector partners to raise resources for the project. As stated earlier, the ratio of private and public sector investments in PPP projects is assumed to be 70:30, i.e., 70% of the project's funding will be arranged by private parties and remaining 30% will be arranged by the public party. However, the capacity of the domestic private sector to raise long-term finance for large infrastructure projects is rather limited. It might not be possible to gather large foreign investments. Government may search for financial and technical participation of multilateral and regional developments banks (i.e., World Bank, and ADB) for PPP projects. However, there are uncertainties of getting funds from these organizations as we experienced the phenomenon from some recent events (like funding uncertainty for proposed Padma Bridge). In this context, it may be expected that domestic financial institutions especially commercial banks can afford a substantial portion of funds to PPP projects. But commercial banks that usually deal with short-term credits are unlikely to be willing to provide infrastructure loans for longer terms of 10-15 years or more. Because of asset-liability mismatch they will face liquidity risk.

Single borrower exposure limit will also be a problem for the banks. However, if banks are allowed to issue bonds for raising funds for PPP projects and they get some sort of guarantee either from Government or Bangladesh Bank, they would be able to mobilize funds for PPP projects.

- (vii) To attract private sector investors to the PPP projects, the Government will need to offer a lucrative incentive package at least at the initial stage of the development of such initiatives. The reason is that private investors are generally interested to invest in only those projects from which they can earn a good return, but many infrastructure projects may not be commercially viable or may not give the best return in the short run. In fact, there are projects where economic benefits are more substantial than direct financial gains. So, in order to attract the private sector to this type of projects, Government will need to provide financial subsidies and some other types of support, including guarantees against political risk as well as protection against certain events of ‘force majeure or act of God’. Although, in the PPP Policy there are provisions of some incentives such as fiscal incentives (e.g., tax exemption, reduced tax) and special incentives for the private sectors to participate in PPP projects but the incentives are not clearly mentioned in the PPP policy. Detailing of the extent and tenor of the proposed tax exemptions/reductions would provide more clarity to private sector investors in making their investment decisions.
- (viii) For making PPP initiative successful a very high level of political support and commitment is required. Large infrastructure projects usually need a relatively longer period for their implementation. During the implementation phase of the PPP projects, change of political regime/power should not

affect the projects anyway. Government should make strong efforts to build consensus among, and obtain support of all political parties and representative civil society groups to ensure the policy continuity over the life of the project. Only then PPP initiatives may ensure desired infrastructure development of the country. In this regard, a broad national consensus on the concept and benefit of PPP will also boost the confidence and trust of investors. It will also generate interest among entrepreneurs both from domestic and overseas to invest in the PPP projects and hence open up the opportunities for getting more foreign direct investment in the country.

- (ix) In the current refinancing facility of IPFF project of Bangladesh Bank for PPP projects, PFIs bear absolute credit risk that may arise by the default of the project sponsor. That is, if the project sponsor fails to pay the installment to PFIs, they (PFIs) are bound to repay the IPFF loan with full guarantee. Although, IPFF as an agent of WB and GoB provide loan to PPP projects through PFIs, they do not assume any credit risk under current terms and conditions. This may discourage the PFIs to avail of the refinancing facility for on-lending to the PPP projects. There should be a mechanism for sharing credit & other operational risks of the project by all parties/co-investors. In this regard, IPFF should take care of the implementation risk of the project along with the credit/liquidity risk of the project.
- (x) IPFF follows specific financial structure/norm and imposes stringent terms and conditions while providing loan to PPP projects through PFIs. The financing by IPFF cell often involves a lengthy process as it disburses funds to PPP projects after getting final approval and NOC from the World Bank which is the main sponsor of this fund. Whether a project will get IPFF fund or not absolutely depends on the decision of the

World Bank Authority. Therefore, there is a chance that all efforts given by private parties including PFIs to prepare and implement a project under PPP may go in vain if the project is finally rejected by the World Bank. It will not only waste time, energy and money but also will discourage the prospective private sponsors and PFIs to initiate such projects. There are a few instances of PPP projects in the country which were rejected by WB at the last stage of approval of fund from IPFF. So, the operational procedure of IPFF should be made simplified and WB approval should be made flexible.

- (xi) As PPP is a relatively new concept in Bangladesh, awareness building programs should be taken from government as well as private levels. PPP related training, workshop, seminar may be arranged for capacity building regarding PPP concepts, techniques, legal issue, etc. for line ministries/implementing agencies, private sponsors and other stakeholders. In this regard, there may be arrangement for knowledge and expertise transfer from developed economies.
- (xii) Every bank should set up a separate and dedicated PPP unit for dealing with PPP projects. Banks should formulate separate PPP guideline. Moreover, adequate manpower with sufficient expertise would be required to handle such projects. For increasing expertise and building up capacity, bank executives may require training on PPP policy and legal issues, PPP theme, feasibility study and project evaluation process, financial modeling, legal aspects, project documentation, risk management techniques etc.
- (xiii) It should be remembered that the major partner in the PPP route is the private sector. The public sector's participation in it should mainly be as a facilitator. Hence, in order to make the PPP concept meaningful and effective, rules and regulations

governing the PPP mechanism should be framed and executed in line with that same partnership spirit so that there is equitable sharing of risk and reward between public and private parties. Inevitably, Government should take such initiatives to build confidence of the private sector including financiers for sustainability of the initiative.

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Annexure

Table 1: List of PPP Projects Financed by IDCOL and Other Financial Institutions as on June, 2009

Sector	SL	Project Name	PPP Model	Investment (Tk. mil)
Power and Energy	1	Meghnaghat 45 MW Power Plant	BOO	21,000.0
	2	Summit Power 33 MW Power Plant	BOO	1250.0
	3	Summit Uttaranchal Power Company 44 MW Power Plant	BOO	1970.0
	4	Summit Purbanchal Power Company 66 MW Power Plant	BOO	3000.0
	5	VERL 34 MW Power Plant at Bhola	BOO	1200.0
	6	BEDL 51 MW Power Plant at Sylhet	BOO	1830.0
	7	34 MW Malancha Holdings Power Plant at Dhaka EPZ	BOO	1650.0
	8	Shah Cement 11.6 MW Power Plants	Captive Power Plant	590.0
	9	Thermax Trade Limited CNG Refueling Station	Under License from Petrobangla	55.0
Renewable Energy	10	IDCOL Solar Energy Program	Implemented by NGO and Private Sector	20060.0
	11	National Domestic Biogas and Manure Program		2150.0
	12	250KW Bimas gasification Based Power Plant	Under a License from BTRC	25.0
	13	50 KW Biogas Based Power Plant	Under a License from Government	5.0
Port and Communication	14	Panama Hilli Land Port	BOT	180.0
	15	Panama Sonamasjid Land Port		200.0
	16	Grameen Phone Network Expansion Project		45340.0

Telecommunication Technology	17	Pacific Telecom Network Expansion Project	Under a License from BTRC	21560.0
	18	Ranks Tel PSTN Project		2300.0
	19	DNS Satcomm Satellite Earth Station Project		160.0
	20	BanglaTrac International Communication Gateway Project		670.0
	21	M & H Telecom Interconnection Exchange Project		660.0
ICT	22	Shoanchalok ICT Program	Implemented by some Banks and Financial Institutions	500.0

Source: Invigorating Investment Initiative through Public Private Partnership, *A Position Paper Published in 2009 by Finance Division, Ministry of Finance. Government of the Peoples' Republic of Bangladesh*

Table 2: PPP Projects in Pipe line (As on December, 2011)

PPP Projects under IPPs						
Sl	Name of Projects	Project Term (yrs)	Executing Agency	Date of PQ Notice	PQ Statement Submission Date	Current Status
1	Bibiyana 300-450 MW (Phase-I)	22	Power Cell	3-May-10	30-Sep-10	In the month of October 2010 Summit Power Limited was awarded for the project.
2	Meghnaghat 300-450 MW		IPP Cell, BPDB	21-Jan-10	15-Apr-10	Summit Power Limited of Bangladesh has been awarded for the project.
3	Bibiyana 300-450 MW (Phase-II)	22	IPP Cell, BPDB	1-Mar-10	2-May-10	Summit Power Limited of Bangladesh has been awarded for the project.
4	Bhola 150-225 MW	22	IPP Cell, BPDB	1-Mar-10	2-May-10	Ranhill Berhad of Malaysia has been awarded for the project.
5	Keraniganganj 150-225 MW	22	IPP Cell, BPDB	5-Apr-10	6-Jun-10	Pre-bid meeting held on 19 September 2010

						and BPDB issued RFP to the PQ bidders.(deadline not found)
6	Madanganj 150-225 MW	22	IPP Cell, BPDB	5-Apr-10	6-Jun-10	Pre-bid meeting held on 19 September 2010 and BPDB issued RFP to the PQ bidders. (deadline not found)
7	Sayedpur, Nilphamary 100±10% MW	15	IPP Cell, BPDB	1-Mar-10	2-May-10	BPDB received PQ Statements from nine (9) bidders. Selection of Pre-qualified bidders is under process.
8	Katakhali, Rajshahi 50±10%	15	IPP Cell, BPDB	1-Mar-10	2-May-10	BPDB received PQ Statements from eleven (11) bidders. Selection of Pre-qualified bidders is under process.
9	Chapainabganj 100±10% MW	15	IPP Cell, BPDB	28-Mar-10	30-May-10	PQ evaluation under process
10	Khulna 100±10% MW	15	IPP Cell, BPDB	28-Mar-10	30-May-10	PQ evaluation under process
11	Jangalia, Comilla 50±10%	15	IPP Cell, BPDB	28-Mar-10	30-May-10	PQ evaluation under process
12	Jamalpur 100±10% MW	15	IPP Cell, BPDB	5-Apr-10	6-Jun-10	PQ evaluation under process
13	Chittagong 100-200 MW Wind Power Plant	25	BPDB	12-Apr-10	21-Jun-10	PQ evaluation under process
14	Sharishabari, Jamalpur 3 MW Solar	15	BPDB	7-Apr-10	23-May-10	PQ evaluation under process
15	Sirajganj 300-450 MW	22	Power Cell	7-Jul-10	30-Sep-10	Floated PQ notice on 7 July 2010
PPP projects under BPDB						
16	Dhaka 100 + 10% MW, BOO basis.	15	BPDB	7-Oct-10	15-Nov-10	Under Tendering Process

17	Dhaka 50 + 10% MW, BOO basis.	15	BPDB	7-Oct-10	15-Nov-10	Do
18	Chittagong 100 + 10% MW, BOO basis.	15	BPDB	7-Oct-10	15-Nov-10	Do
19	Chittagong 50 + 10% MW, BOO basis.	15	BPDB	7-Oct-10	15-Nov-10	Do
20	Rajshahi 100 + 10% MW, BOO basis.	15	BPDB	7-Oct-10	15-Nov-10	Do
21	Rajshahi 50 + 10% MW, BOO basis.	15	BPDB	7-Oct-10	15-Nov-10	Do
22	Khulna 100 + 10% MW, BOO basis.	15	BPDB	7-Oct-10	15-Nov-10	Do
23	Barisal 50 + 10% MW, BOO basis.	15	BPDB	7-Oct-10	15-Nov-10	Do
Recent PPP under BPDB						
24	Khulna 150-300 MW Coal Fired Power Plant	25	BPDB	3-Nov-10	31-Jan-11	Under Tendering Process
25	Chittagong 150-300 MW Coal Fired Power Plant	25	BPDB	3-Nov-10	31-Jan-11	Do
26	Maowa, Munshiganj 300-650 MW Coal Fired Power Plant	25	BPDB	3-Nov-10	31-Jan-11	Do
27	Chittagong 300-650 MW Coal Fired Power Plant	25	BPDB	3-Nov-10	31-Jan-11	Do
28	Kaliakoir Hitech Park, Gazipur 100-150 MW Plant	15	BPDB	28-Nov-10	27-Jan-11	Do
Cross Sector PPP Projects						
29	Ashulia Flyover on PPP		Bangladesh Bridge Authority			Feasibility is under process

30	Second round Land Ports on PPP		Bangladesh Land Port Authority			Under Tendering Process
31	New Mooring Container Terminal		Chittagong Port Authority			PQ completed
32	Metro Rail under PPP					Project is Identified
33	Appointment of Investor-cum-operator for Chittagong Dry dock Ltd		Chittagong Dry Dock Ltd			Engagement of Transaction Advisor is under process
34	New Airport through PPP		Ministry of Civil Aviation			Pre-Feasibility is under Process
35	Sattelite Cities through PPP		RAJUK			Project is not defined yet
36	Second Padma Bridge through PPP		Bangladesh Bridge Authority			Project is not defined yet

Source: IPFF Project Cell of Bangladesh Bank

Table 3: Successful PPP Projects financed under IPFF Project

Sl No.	Name of Projects	Nature & Capacity of the Projects	Project Duration	Costs (Tk. Mil)	Financing Structure	Name of Financiers
1	Doreen Power Generations and Systems ltd.at Feni	22 MW Gas fired power plant	15 years	1150.00	Debt-70% & Equity-30%	NCCBL & IPFF
2	Doreen Power Generations and Systems ltd. Tangail	22 MW Gas fired power plant	15 years	1150.00	Debt-70% & Equity-30%	NCCBL & IPFF
3	Doreen Power Generations and Systems ltd. At Narsingdi	22MW Gas fired power plant	15 years	1130.00	Debt-70% & Equity-30%	NCCBL & IPFF
4	Doreen Power House and Technologies	11 MW Gas fired power plant	15 years	564.60	Debt-65.40% & Equity-	Note*

	Ltd. at Fei				34.60%	
5	Regent Power Ltd. at Barabkunda, Chittahong	22 MW Gas fired power plant	15 years	1108.17	Debt-57% & Equity-43%	Note**
6	United Power Generation & Distribution Ltd. (Power Plant at CEPZ)	44 MW Gas fired power plant	30 years	1919.00	Debt-70% & Equity-30%	Note***
7	United Power Generation & Distribution Ltd. (Power Plant at DEPZ)	35 MW Gas fired power plant	30 years	1649.00	Debt-70% & Equity-30%	Note****
Total		178 MW				

Source: IPFF Project Cell of Bangladesh Bank

* Dhaka Bank Limited, International Leasing, IIDFC, SABINCO and IFIC Bank

** Eastern Bank Limited, Uttara Finance and Investment Ltd, IDLC Finance Ltd., Bangladesh Commerce Bank Ltd, Trust Bank Ltd. and State Bank of India

*** AB Bank Ltd., The City Bank Ltd., Prime Bank Ltd., IDLC Finance Ltd. and Shahjalal Isami Bank Ltd.

**** Mercantile Bank Limited, Mutual Trust Bank Limited, Standard Chartered Bank, Standard Bank Ltd., Uttara Bank Ltd., IFIC Bank Ltd., Infrastructure Development Co. Ltd. and Saudi-Bangladesh Industrial and Agricultural Investment Co. Ltd

**Table 4: PPP Projects in Pipeline under IPFF Financing
(March 2011-December 2012)**

SL	Project Name	Location	Estimated IPFF Investment	Status
1	Summit Bibiyana phase I & II Power Plants (Gas fired plants having generation capacity of 341MW each)	Bibiyana, Sylhet	US\$115.00 mil	The Power Cell has issued the Letter of Intent to Summit.
2	D-Water C ETP Ecosystem (Bd.) Ltd.	Dhaka EPZ	BDT 100 .00	BEPZA awarded a contract to D-Water C ETP Ecosystem (BD) Limited to install a central ETP plant in Dhaka EPZ. The loan proposal is now under

				consideration of the World Bank for approval/NOC
3	D-Water Tech Ltd. (a water treatment plant in CEPZ with capacity of 30 lac gallon per day)	Chittagong EPZ	BDT 100.00	BEPZA awarded a contract to a local firm D Water Tech Ltd to install a central water treatment plant in Chittagong EPZ. The loan application for fund from IPPF is under consideration of the World Bank for approval/NOC
4	Desh Cambridge Kumargaon Power Company Limited (DCKPL) for 10MW Natural Gas Generated Power Plant	Sylhet	BDT 280.00	DCKPL, a BOO basis rental power plant, went in to commercial operation on 18 th March 2009, applied to IPPF on 2009, the loan sanctioning is under process.
5	River Container Terminal (RCT) & Container and Freight Station (CFS)	Rupganj	US\$19.14	CEMCOR, a proposed inland container river terminal, is a subsidiary of Summit Alliance Port Limited (SAPL) and will receive LOI from BIWTA soon.
6	Dhaka Elevated Expressway	Dhaka	US\$100.00	Italian-Thai Development Public Company Ltd. (ITD) has won the bid and concession agreement has been signed with the GoB on 19 th January, 2011 to implement a four-lane dual Elevated Expressway of 25.50 km
7	New Mooring Container Terminal	Chittagong Port	-	
	Expected Total IPPF funding	-	BDT 2100 crore	

Source: IPPF Project Cell of Bangladesh Bank