



Risk Management of Public Private Partnership (PPP) Based Port Infrastructure Construction

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ABSTRACT

The Indian economy has brought strong economic growth in many sectors over the past few years. However, bothso that momentum and growth can be shared equitably and equitably in all sections of society. It is important to improve infrastructure - energy, water, roads, ports, airports, city buses and city lines, health and educationresources, etc., - which are the backbone of business, livelihood and health. The Government of India (GOI) hastherefore focused on developing more tools and services to encourage private sector investment in the countryusing the PPPs method. To meet the growing needs of the community, the Public Private Partnership (PPP) has becomeused extensively for procurement of infrastructure projects, such as roads, bridges, tunnels and railway tracks. However, the risks involved in PPP projects vary and change due to the large investment and long-term permit.About 70% of PPP projects fail due to improper distribution of risk among project participants. The current task wasfocuses on the management aspects of these risks. Previous work done on risk management is considered asbenchmark. This paper refers to a brief overview of the various methods and techniques suggested and proposed bydifferent authors to identify, evaluate and minimize risks associated with PPP projects.

Keywords: Risk Management, Public Private Partnership, Port Infrastructure Construction,

1. INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The concept of PPPs is of recent origin and started with the initiative of the Conservative Government in the United Kingdom under Prime Minister Margaret Thatcher, who actively promoted what is known as 'Private Finance Initiative' (PFI). The idea was to make private contractors meet the cost of constructions awarded to them in return for the public authorities agreeing to rent back the finished projects to provide

public services. This enabled the government to build additional social facilities such as schools, hospitals, reformatories etc., without resorting to additional resources mobilization while the private sector retained gains and savings arising from designs and project management and also received from the government agency regular rents for the facilities. Though the arrangement seemed to benefit both sides, there were criticisms that the government was just "mortgaging the future" and there were apprehensions that the

long-term cost of paying the private sector to run these schemes was more than it would cost the public sector to build them on its own.

Risk management:

- Risk is any unexpected event that can affect your project - for better or for worse. Risk can affect anything: people, processes, technology, and resources.
- Risk management is the process of minimizing any potential problems that may negatively impact a project's timetable.
- risk management seeks to identify, prevent, contain and mitigate risks in the interests of a project. the risk management must be ongoing throughout the life cycle of the project and needs to be an iterative process, with a continual search for solutions, assessing of solutions and reassessing the risk.

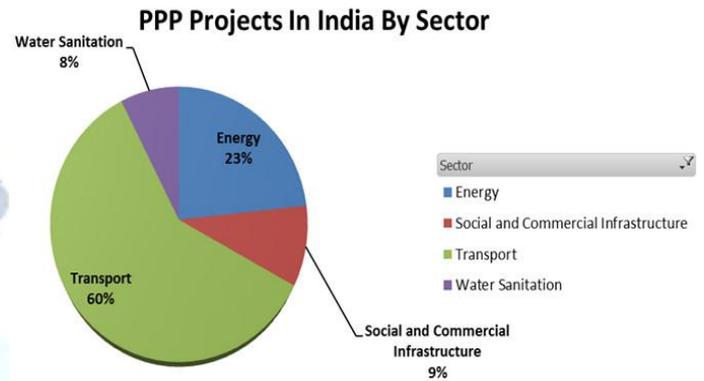
The risk management process consists of 4 main stages:

- risk identification
- Risk Assessment / Analysis
- Risk Response
- * Risk monitoring and control

Public Private Partnership (PPP):

- Public Private Partnership (PPP) is essentially a contractual arrangement between a public sector entity and a for-profit private sector concern, where the contracting parties contribute their expertise and resources to deliver a public service by utilising the economies of the private sector to deliver more effectively the service or infrastructure.
- Public private partnerships (PPP) are widely used to deliver a series of infrastructure projects in the world.
- The PPP approach increases the economic value of infrastructure outputs and facilitates the overall development of infrastructure, such as the establishment of transportation infrastructure, sports facilities, water conservancy facilities, and waste-to-energy plants.
- The PPP model was introduced in India in the year 1999.
- In 2010, India became one of the largest markets of PPP projects globally, according to Infra scope Report 2015.

- But the data analysis from the government database (www.pppindia.gov.in, 2016) Only 48% of PPP projects were operational out of 1500 PPP projects initiated during the last two decades.



Status	Number of Projects	Total Project Cost (In INR Crore)
Pre-Construction	15	34,003
Under-Construction	45	58,140
Operation and Management	48	42,701
Terminated	14	-
Total	122	1,34,844

*as of December 2016

Source: www.pppindia.org

as on 06 December 2019, a total number of 154 ppp projects at Ports (excluding captive).

Major and Important Seaports In India-

- Kandla port, Gujarat
- Nhava Sheva, Maharashtra
- Mumbai Port, Maharashtra
- Visakhapatnam Port, Andhra Pradesh
- Marmagao Port, Goa
- New Mangalore Port, Karnataka
- Chennai Port, Tamil Nadu
- Port Blair Port, Andaman And Nicobar Islands
- Tuticorin Port, Tamil Nadu
- Paradip, Orissa
- Ennore Port, Chennai
- Vizag Port, Visakhapatnam
- Cochin Port, Kerala
- Haldia Port, Kolkata

1.2 PUBLIC PRIVATE PARTNERSHIP IN INFRASTRUCTURE

Governments in most developing countries face the challenge to meet the growing demand for new and better infrastructure services. As available funding from the traditional sources and capacity in the public sector to implement many projects at one time remain limited,

governments have found that partnership with the private sector is an attractive alternative to increase and improve the supply of infrastructure services.

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

- Resources
- Risks
- Responsibilities, and
- Rewards

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

What advantages PPPs may provide?

Governments worldwide have increasingly turned to the private sector to provide infrastructure services in energy and power, communication, transport and water sectors that were once delivered by the public sector. There are several reasons for the growing collaboration with the private sector in developing and providing infrastructure services, which include:

- Increased efficiency in project delivery, and operation and management;
- Availability of additional resources to meet the growing needs of
- investment in the sector; and
- Access to advanced technology (both hardware and software).

Properly executed planning and development of a project also allows better screening of options, and helps in deciding appropriate project structure and choice of technology considering cost over the whole life cycle of the project.

Should lack of government budget be the main factor in considering a PPP?

Often, lack of government funding has been the main reason for considering a PPP option for a project. However, lack of government funding may not be the main reason for deciding a PPP option for the implementation of a project. There are additional costs

for PPP projects – usually the cost of borrowing money is higher for the private sector than for the public sector and there are administrative costs for the management of PPP contractual regimes. Transaction costs of PPP projects can also be substantial. PPP projects may also impose many explicit and implicit liabilities on the government.

A project may not be considered for being implemented as a PPP project unless efficiency gains from improved project delivery, operation and management, and access to advanced technology can offset the above-mentioned additional costs. In fact, many countries have established value for money as the main criterion in judging the merits of a PPP option for a project.

Why PPPs are attractive to governments?

PPPs have become attractive to governments as an off-budget mechanism for infrastructure development as:

- They can enhance the supply of much-needed infrastructure services.
- They may not require any immediate cash spending.
- They provide relief from the burden of the costs of design and construction.
- They allow transfer of many project risks to the private sector.
- They promise better project design, choice of technology, construction,
- operation and service delivery.

How a PPP project is different from a conventional project?

There are significant differences between a conventional construction procurement project and a PPP project that need to be clearly understood. The main differences include:

- PPP projects are different from conventional construction projects in terms of project development, implementation, and management. The administrative and approval processes in the case of PPP projects are also different.
- A PPP project is viable essentially when a robust business model can be developed.
- The focus of a PPP project should not be on delivering a particular class/type of assets but on

delivering specified services at defined quantity and levels.

- The risk allocation between the partners is at the heart of any PPP contract design and is more complex than that of a conventional construction project. Both partners should clearly understand the various risks involved and agree to an allocation of risks between them.
- A PPP contract generally has a much longer tenure than a construction contract. Managing the relationship between the private company and the implementing agency over the contract tenure is vital for the success of a PPP project.

Are there any limitations of PPPs?

There are many important economic, social, political, legal, and administrative aspects, which need to be carefully assessed before approvals of PPPs are considered by the government. PPPs have various limitations which should also be taken into account while they are being considered. The major limitations include:

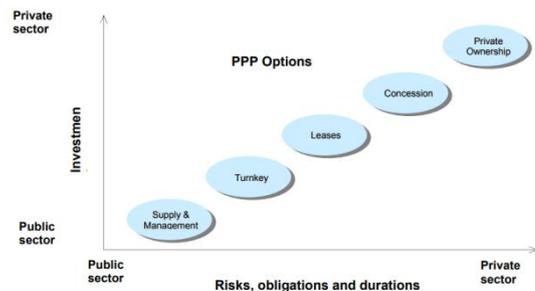
- Not all projects are feasible (for various reasons: political, legal, commercial viability, etc.).
- The private sector may not take interest in a project due to perceived high risks or may lack technical, financial or managerial capacity to implement the project.
- A PPP project may be more costly unless additional costs (due to higher transaction and financing costs) can be off-set through efficiency gains. Change in operation and management control of an infrastructure asset through a PPP may not be sufficient to improve its economic performance unless other necessary conditions are met. These conditions may include appropriate sector and market reform, and change in operational and management practices of infrastructure operation.

1.3 MODELS OF PPP

A wide spectrum of PPP models has emerged. These models vary mainly by:

- Ownership of capital assets;
- Responsibility for investment;
- Assumption of risks; and
- Duration of contract.

- The PPP models can be classified into five broad categories in order of generally (but not always) increased involvement and assumption of risks by the private sector. The five broad categories are:
- Supply and management contracts
- Turnkey contracts
- Affermage/Lease
- Concessions
- Private Finance Initiative (PFI) and Private ownership.



[Fig.1.1: Basic features of PPP models]

Each of these five categories has many variants. A categorization of the PPP/PSP models together with their main characteristics. While the spectrum of models shown in the table are possible as individual options, combinations are also possible such as, a lease or (partial) privatization contract for existing facilities which incorporates provisions for expansion through Build-Operate Transfer. In fact, many PPP projects of recent times are of combination type.

1. Supply and management contracts

A management contract is a contractual arrangement for the management of a part or whole of a public enterprise (for example, a specialized port terminal for container handling at a port or a utility) by the private sector. Management contracts allow private sector skills to be brought into service design and delivery, operational control, labour management and equipment procurement. However, the public sector retains the ownership of facility and equipment. The private sector is assigned specified responsibilities concerning a service and is generally not asked to assume commercial risk.

The private contractor is paid a fee to manage and operate services. Normally, the payment of such fees is performance-based. Usually, the contract period is short, typically three to five years. But the period may be

longer for large and complex operational facilities such as a port or an airport.

The main pros and cons of this model include the following:

Pros:

- Can be implemented in a short time.
- Least complex of all PPP models.
- In some countries, politically and socially more acceptable for certain projects (such as water projects and strategic projects like ports and airports).

Cons:

- Efficiency gains may be limited and little incentive for the private sector to invest.
- Almost all risks are borne by the public sector.
- Applicable mainly to existing infrastructure assets.

2. Turnkey

Turnkey is a traditional public sector procurement model for infrastructure facilities. Generally, a private contractor is selected through a bidding process. The private contractor designs and builds a facility for a fixed fee, rate or total cost, which is one of the key criteria in selecting the winning bid. The contractor assumes risks involved in the design and construction phases. The scale of investment by the private sector is generally low and for a short-term. Typically, in this type of arrangement, there is no strong incentive for early completion of the project. This type of private sector participation is also known as Design-Build.

The main pros and cons of this model include the following:

Pros:

- Well understood traditional model.
- Contract agreement is not complex.
- Generally, contract enforcement is not a major issue.

Cons:

- The private sector has no strong incentive for early completion.
- All risks except those in the construction and installation phases are borne by the public sector.
- Low private investment for a limited period.
- Only limited innovation may be possible.

3. Affermage/Lease

In this category of arrangement, the operator (the leaseholder) is responsible for operating and maintaining the infrastructure facility (that already exists) and services, but generally the operator is not required to make any large investment. However, often this model is applied in combination with other models such as build rehabilitate-operate-transfer. In such a case, the contract period is generally much longer and the private sector is required to make significant investment. The arrangements in an affermage and a lease are very similar. The difference between them is technical. Under a lease, the operator retains revenue collected from customers/users of the facility and makes a specified lease fee payment to the contracting authority. Under an affermage, the operator and the contracting authority share revenue from customers/users. In the affermage/lease types of arrangements, the operator takes lease of both infrastructure and equipment from the government for an agreed period of time. Generally, the government undertakes the responsibility for investment and thus bears investment risks. The operational risks are transferred to the operator. However, as part of the lease, some assets also may be transferred on a permanent basis for a period which extends over the economic life of assets. Fixed facilities and land are leased out for a longer period than for mobile assets. Land to be developed by the leaseholder is usually transferred for a period of 15-30 years.

The main pros and cons of this model include the following:

Pros:

- Can be implemented in a short time.
- Significant private investment possible under longer term agreements.
- In some countries, legally and politically more acceptable for strategic projects like ports and airports.

Cons:

- Has little incentive for the private sector to invest, particularly if the lease period is short.
- Almost all risks are borne by the public sector.
- Generally used for existing infrastructure assets.
- Considerable regulatory oversight may be required.

4. Concessions

In this form of PPP, the government defines and grants specific rights to an entity (usually a private company) to build and operate a facility for a fixed period of time. The government may retain the ultimate ownership of the facility and/or right to supply the services. In concessions, payments can take place both ways: concessionaire pays to government for the concession rights and the government may pay the concessionaire, which it provides under the agreement to meet certain specific conditions. Usually, such payments by the government may be necessary to make projects commercially viable and/or reduce the level of commercial risk taken by the private sector, particularly in a developing or untested PPP market. Typical concession periods range between 5 to 50 years.

The main pros and cons of this model include the following:

Pros:

- Private sector bears a significant share of the risks.
- High level of private investment.
- Potential for efficiency gains in all phases of project development and implementation and technological innovation is high.

Cons:

- Highly complex to implement and administer.
- Difficult to implement in an untested PPP market.
- May have underlying fiscal costs to the government.
- Negotiation between parties and finally making a project deal may require long time.
- May require close regulatory oversight.
- Contingent liabilities on government in the medium and long term.

In a Build-Operate-Transfer or BOT type of concession (and its other variants namely, Build-Transfer-Operate (BTO), Build-Rehabilitate-Operate-Transfer (BROT), Build-Lease-Transfer (BLT) type of arrangement), the concessionaire makes investments and operates the facility for a fixed period of time after which the ownership reverts back to the public sector. In a BOT

modal, operational and investment risks can be substantially transferred to the concessionaire.

In a BOT model, the government has, however, explicit and implicit contingent liabilities that may arise due to loan guarantees and sub-ordinate loans provided, and default of a sub-sovereign government and public or private entity on nonguaranteed loans.

By retaining ultimate ownership, the government controls the policy and can allocate risks to parties that are best suited to assume or remove them. BOT projects may also require direct government support to make them commercially viable. The concessionaire's revenue in a BOT project comes from managing and marketing of the user facilities (for example, toll revenue in a toll road project) and renting of commercial space where possible. Concessions for BOT projects can be structured on either maximum revenue share for a fixed concession period or minimum concession period for a fixed revenue share, a combination of both, or only minimum concession period.

5. Private Finance Initiative (PFI)

In the private finance initiative model, the private sector remains responsible for the design, construction and operation of an infrastructure facility. In some cases, the public sector may relinquish the right of ownership of assets to the private sector. In this model, the public sector purchases infrastructure services from the private sector through a long-term agreement. PFI projects, therefore, bear direct financial obligations to the government in any event. In addition, explicit and implicit contingent liabilities may also arise due to loan guarantees provided to the lenders and default of a public or private entity on non-guaranteed loans. A PFI project can be structured on minimum payment by the government over a fixed contract tenure, or minimum contract tenure for a fixed annual payment, or a combination of both payment and tenure. In the PFI model, asset ownership at the end of the contract period is generally transferred to the public sector. Setting up of a Special Purpose Vehicle (SPV) may not be always necessary (see discussion on SPV in the following section). A PFI contract may be awarded to an existing company. For the purpose of financing, the lenders may, however, require the establishment of an SPV. The PFI model also has many variants.

In a PFI project, as the same entity builds and operates the services, and is paid for the successful supply of services at a pre-defined standard, the SPV / private company has no incentive to reduce the quality or quantity of services. This form of contractual agreement reduces the risks of cost overruns during the design and construction phases or of choosing an inefficient technology, since the operator's future earnings depend on controlling the costs. The public sector's main advantages lie in the relief from bearing the costs of design and construction, the transfer of certain risks to the private sector and the promise of better project design, construction and operation.

The main pros and cons of this model are summarized below:

Pros:

- Private sector may bear a significant share of the risks.
- High level of private investment.
- Potential for efficiency gains and innovation is high.
- Attractive to private investors in an untested or developing PPP market.
- Most suitable for social sector infrastructure projects (schools, dormitories, hospitals, community facilities, etc.).

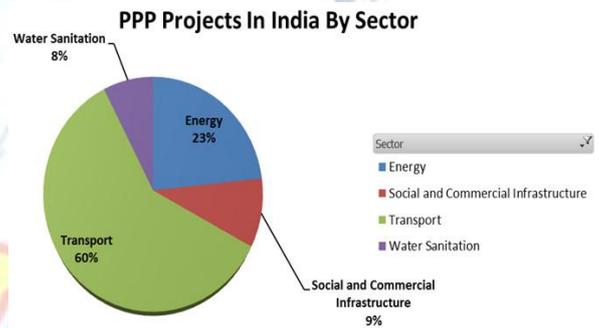
Cons:

- Complex to implement and manage the contractual regimes.
- Government has direct financial liability.
- Negotiation between parties may require long time.
- Regulatory efficiency is very important.
- Contingent liabilities on the government in the medium and long term.

2. PUBLIC PRIVATE PARTNERSHIP MODEL

A public-private partnership (PPP) is a funding model for public infrastructure projects and initiatives such as a new telecommunications system, public transportation system, airport or power plant. Government agencies represent the public partner at a local, state and/or national level.

Public-private partnerships involve collaboration between a government agency and a private-sector company that can be used to finance, build, and operate projects, such as public transportation networks, parks, and convention centers. Financing a project through a public-private partnership can allow a project to be completed sooner or make it a possibility in the first place. Public-private partnerships often involve concessions of tax or other operating revenue, protection from liability, or partial ownership rights over nominally public services and property to private sector, for-profit entities.



As on March 2020, a total number of 1824 PPP projects worth USD 327 Billion are on different stages of implementation in India. Out of these approximately 60% of the projects fall under transportation sector.

Advantages and Disadvantages of Public-Private Partnerships:

Advantages-

- Partnerships between private companies and governments provide advantages to both parties. Private-sector technology and innovation, for example, can help improve the operational efficiency of providing public services.
- The public sector, for its part, provides incentives for the private sector to deliver projects on time and within budget.
- In addition, creating economic diversification makes the country more competitive in facilitating its infrastructure base and boosting associated construction, equipment, support services, and other businesses.

Disadvantages-

- The private partner may face special risks from engaging in a public-private partnership. Physical

infrastructure, such as roads or railways, involve construction risks. If the product is not delivered on time, exceeds cost estimates, or has technical defects, the private partner typically bears the burden.

- In addition, the private partner faces availability risk if it cannot provide the service promised. A company may not meet safety or other relevant quality standards, for example, when running a prison, hospital, or school. Demand risk occurs when there are fewer users than expected for the service or infrastructure, such as toll roads, bridges, or tunnels. However, this risk can be shifted to the public partner, if the public partner agreed to pay a minimum fee no matter the demand.
- Public-private partnerships also create risks from the general public's and taxpayers' point of view. Private operators' partnership with the government may insulate them from accountability to the users of the public service for cutting too many corners, providing substandard service, or even violating peoples' civil or Constitutional rights. At the same time, the private partner may enjoy a position to raise tolls, rates, and fees for captive consumers who may be compelled by law or geographic natural monopoly to pay for their services.
- Lastly, as with any situation where ownership and decision rights are separated, public-private partnerships can create complex [principal-agent problems](#). This may facilitate corrupt dealings, pay-offs to political cronies, and general [rent-seeking](#) activity by attenuating the link between the private parties who make important decisions over a project, from which they stand to benefit, and accountability to the taxpayers who foot at least part of the bill and who may be left holding the bag in terms of ultimate liability for the project's outcome.

3. RISK MANAGEMENT

Risk management is the process of identifying, assessing and controlling financial, legal, strategic and security risks to an organization's capital and earnings. These threats, or risks, could stem from a wide variety of sources, including financial uncertainty, legal liabilities, strategic management errors, accidents and natural disasters.

If an unforeseen event catches your organization unaware, the impact could be minor, such as a small impact on your overhead costs. In a worst-case scenario, though, it could be catastrophic and have serious ramifications, such as a significant financial burden or even the closure of your business.

To reduce risk, an organization needs to apply resources to minimize, monitor and control the impact of negative events while maximizing positive events. A consistent, systemic and integrated approach to risk management can help determine how best to identify, manage and mitigate significant risks.

The risk management process-

At the broadest level, risk management is a system of people, processes and technology that enables an organization to establish objectives in line with values and risks. A successful risk assessment program must meet legal, contractual, internal, social and ethical goals, as well as monitor new technology-related regulations. By focusing attention on risk and committing the necessary resources to control and mitigate risk, a business will protect itself from uncertainty, reduce costs and increase the likelihood of business continuity and success.

Three important steps of the risk management process are risk identification, risk analysis and assessment, and risk mitigation and monitoring.

1. Identifying risks: Risk identification is the process of identifying and assessing threats to an organization, its operations and its workforce. For example, risk identification may include assessing IT security threats such as malware and ransomware, accidents, natural disasters and other potentially harmful events that could disrupt business operations.

2. Risk analysis and assessment: Risk analysis involves establishing the probability that a risk event might occur and the potential outcome of each event. Risk evaluation compares the magnitude of each risk and ranks them according to prominence and consequence.

3. Risk mitigation and monitoring: Risk mitigation refers to the process of planning and developing methods and options to reduce threats to project objectives. A project team might implement risk mitigation strategies to identify, monitor and evaluate risks and consequences inherent to completing a specific

project, such as new product creation. Risk mitigation also includes the actions put into place to deal with issues and effects of those issues regarding a project. Risk management is a nonstop process that adapts and changes over time. Repeating and continually monitoring the processes can help assure maximum coverage of known and unknown risks.

Risk response strategies and treatment-

There are five commonly accepted strategies for addressing risk. The process begins with an initial consideration of risk avoidance then proceeds to three additional avenues of addressing risk (transfer, spreading and reduction). Ideally, these three avenues are employed in concert with one another as part of a comprehensive strategy. Some residual risk may remain.

What are the most common responses to risk?

- Risk avoidance
Avoidance is a method for mitigating risk by not participating in activities that may negatively affect the organization. Not making an investment or starting a product line are examples of such activities as they avoid the risk of loss.
- Risk reduction
This method of risk management attempts to minimize the loss, rather than completely eliminate it. While accepting the risk, it stays focused on keeping the loss contained and preventing it from spreading. An example of this in health insurance is preventative care.
- Risk sharing
When risks are shared, the possibility of loss is transferred from the individual to the group. A corporation is a good example of risk sharing – a number of investors pool their capital and each only bears a portion of the risk that the enterprise may fail.
- Transferring risk
Contractually transferring a risk to a third-party, such as, insurance to cover possible property damage or injury shifts the risks associated with the property from the owner to the insurance company.
- Risk acceptance and retention
After all risk sharing, risk transfer and risk reduction measures have been implemented, some risk will remain since it is virtually impossible to

eliminate all risk (except through risk avoidance). This is called residual risk.

4. LITERATURE REVIEW

2.1 GENERAL

2.1.1 Objectives of Public Private Partnership

In order to carry out their audit objectively and without bias, public auditors must develop a deep understanding and appreciation of the basic objectives of Public Private Partnerships. In the words of the “The National PPP Policy Framework of Australia” (December, 2008), the PPP policy provides a framework that enables public and private sectors to work together to improve public services delivery through private sector provision of public infrastructure and related services.

According to the above Framework, the objectives of PPP are to:

- Encourage private sector involvement in public infrastructure and related services where value for money for the government could be clearly demonstrated.
- Encourage innovation in the provision of infrastructure and related service delivery.
- Encourage rigorous governance over the selection of projects and competition for the award of contracts.
- Clearly articulate accountability for outcomes.

2.1.2 Role of Private Sector Partners in PPP Projects

- The role of the private sector partners in PPP projects is fiduciary and needs careful appreciation. It must be accepted that the private entrepreneurs come into the PPP arrangements primarily with profit motive, and with a view to pursuing their business prospects, which alone impels them to assume the risks associated with the PPP projects. However, these arrangements involve substantial public interest which both the parties to the arrangements are bound to safeguard, with the public sector partner retaining the accountability to ensure it. This does not mean that they are competing between them, but are to work together as partners and colleagues in the process of national development. In auditing the PPP projects, public auditors must appreciate the respective roles of each

partner and focus in audit on the achievement of the end results, and compliance with the established rules and procedures at all stages of the project.

- The private sector partners have to bring in not only the required finances and suitable technology for the project, but also have to be innovative in approach. There should be no tendency to “over engineer” the projects and to pad the total capital expenditures. They must also have excellent project management and O&M capability, and must be able to demonstrate their commitment to the partnerships. They must not merely look forward to making profits at any cost, but must be committed to providing sustainable and quality service to the customers. The PPP agreements should essentially yield VFM to the government or the public sector partner concerned. The public auditor will always be expected to be mindful of the fact that the private sector partner should equally gain from the improvements and innovations brought about by it.
- The somewhat conflicting objectives of the public and private participants in a PPP arrangement should ideally get resolved within the framework of the PPP based on shared risks and rewards and should, therefore, not lead to disputes affecting the provision of services to the public at any time during the operation of the contracts. This is best achieved by establishing clear and transparent norms prior to the establishment of the PPP and by entering into unambiguous and specific contract relationships. There should be built into the contracts an efficient dispute resolution mechanism for resolving disputes which may arise, speedily and without disruption to the service provided. To have a good idea of the norms and guidelines to be adhered to by promoters of PPP projects, the public auditors must familiarize themselves with the various documents and model agreements issued by the Ministry of Finance and the Planning Commission in this regard.

2.1.3 Public Private Partnership Audit in Different (Infrastructure) Sectors

Public private partnerships are increasingly adopted for the development of all infrastructure sectors in India to fill the huge ‘infrastructure gap’ which exists currently. Maximum PPP contracts are however signed in the case of national highways, followed by state highways,

namely the road sector. Airport development is another area where PPP has made an impact, along with the power sector and the port sector. There are a few PPP projects already operating in the Railways, and it is expected that during the current and future five-year plans, more emphasis will be given to PPP for Railway’s development and Modernization programme, with a target of about 40 percent of the outlay. Each of these sectors and PPP arrangements pertaining to them will have their own unique and special features; but there are several common features running across all of them, which have been discussed in these Guidelines at appropriate places.

2.1.4 Reserve Bank of India Definition of Infrastructure

Reserve Bank of India has defined infrastructure as: A company engaged in developing or operating and maintaining any infrastructure facility that is a project in any of the following sectors, or any infrastructure facility of similar nature:

- road, including toll road, a bridge, or a rail system;
- a highway project including other activities being an integral part of the highway project;
- a port, airport, inland waterway, or inland port;
- a water supply project, irrigation project, water treatment system, sanitation or sewerage system, or solid waste management system;
- telecom services whether basic or cellular including radio paging, broadband network, internet service;
- an industrial park, or special economic zone;
- generation and distribution of power;
- transmission or distribution of power by laying a network of new transmission and distribution lines;
- construction relating to projects involving agro-processing and supply of inputs into agriculture;
- construction for preservation and storage of processed agro-products, perishable goods such as fruits, vegetables and flowers including testing facilities for quality;
- construction of educational institutions and hospitals; and,
- any other infrastructure facility of similar nature.

Under the Government of India scheme for Financial Support to PPPs in Infrastructure, however, the

eligibility for the support is available for only the following sectors:

- a) Roads and bridges, railways, seaports, airports, inland waterways;
- b) Power;
- c) Urban transport, water supply, sewerages, solid waste management, and other physical infrastructure in urban areas;
- d) Infrastructure projects in special economic zones; and, International Convention Centres and other tourism infrastructure projects.

In some States, the management and running of schools have been transferred to private management, by leasing the school buildings and other infrastructure facilities, subject to conditions. The private management may receive annuity payments for the management of the schools. Such public private partnerships are subject to public audit; and the guidelines included in this document could be usefully adopted to test their efficiency and effectiveness.

2.1.5 Organizational Structure for the Appraisal and Approval of Public Private Partnership Projects

The institutional arrangement for the appraisal and the approval of Public Private Partnership (PPP) Projects sponsored by various Ministries is centralized in the Ministry of Finance (MOF). Guidelines for formulation, appraisal and approval of PPP Projects were issued vide Ministry of Finance O.M.No.1/52005 dated 12th January, 2006. Please refer to the web site of the Ministry of Finance for details. The highest authority which lays down the PPP policy and procedures and considers and approves individual PPP projects is the Committee on Infrastructure constituted under the chairmanship of the Prime Minister. The Committee includes the Finance Minister, the Deputy Chairman of the Planning Commission, Ministers in charge of the respective infrastructure Ministries, and two members of the Planning Commission.

The institutional arrangement has been designed to carry out comprehensive and meticulous due diligence to address the risks attached to PPP project proposals and purportedly addresses the need to secure 'good value in terms of performance standards, user concerns, public revenue and contingent liabilities'¹⁶. The broad-based "Public Private Partnership Appraisal

Committee" (PPPAC) established for the purpose comprise of the following members: Secretary, Department of Economic Affairs – Chairperson. Secretary, Planning Commission. Secretary, Department of Expenditure. Secretary, Department of Legal affairs. Secretary, Department sponsoring the Proposal.

The Committee will be serviced by a Special Cell set up for the purpose in the Department of Economic Affairs (DEA). Moreover, the Ministry of Finance (MOF) will be the nodal ministry to examine concession agreements from the financial angle and the guarantees to be extended, and to assess the risk allocation from the investment and banking perspectives. MOF is also responsible to ensure that PPP projects are scrutinized from the perspective of government expenditure. Further, in the Planning Commission, a PPP Appraisal Unit (PPPAU) has been established to evaluate PPP project proposals and to prepare appraisal notes for the PPPAC on all relevant issues including on the concession terms. Ministry of Finance and the Planning Commission may engage experts in related areas to undertake the due diligence, as considered necessary.

2.1.6 Financial Powers of PPPAC

Under the initial guidelines of the MOF, all Public Private Partnership (PPP) Projects where the capital cost or the underlying value of assets are more than Rs.100 crores were to be brought up before the PPPAC. However, by a subsequent decision, projects costing more than Rs.100 crores but less than Rs.250 crores will be appraised by a Committee comprising Secretary, DEA and the Secretary of the Department sponsoring the project, so much so, only projects in excess of this limit will be appraised by the PPPAC. For appraisal of individual projects under the National Highway Development Authority (NHDA) which are of Rs.250 crores or more but less than Rs.500 crores and fulfill certain established criteria, another committee with Secretary, DEA and the Secretary, Department of Road Transport and Highways (DRTH) has also been set up. It is to be noted that projects costing below the limit of Rs.100 crores will be considered and approved by the Expenditure Finance Committee / Standing Finance Committee (EFC/SFC) of the Ministry concerned. Detailed guidelines have been issued by the Department of Expenditure (DOE) in this regard.

After the clearance of the relevant committees, the sponsored projects would be submitted to the Committee on Infrastructure for final approval.

2.1.7 Procedure for Formulation and Appraisal of PPP Projects

Under the guidelines of the Finance Ministry, the sponsoring Ministry may develop individual project proposals with the help of experts in relevant areas, or by availing the benefit of inter-ministerial consultative groups for the "in-principle" clearance of the PPPAC before inviting Expressions of Interest (EOI) from prospective investors. After getting the 'in-principle' clearance, the sponsoring Ministry may invite EOI, develop the required documents and carry out inter-ministerial consultations, pre-bid conferences etc. It is to be noted that the concession agreements finalized for the purpose of inviting financial bids should be cleared by the PPPAC before technical and financial bids are invited. However, 'in-principle' approval of the PPPAC will not be required where a project is based entirely on a duly approved Model Concession Agreement (MCA).

2.1.8 Appraisal by / Approval of PPPAC

Request for Proposal (RFP) or invitation to submit financial bids should be accompanied by all agreements that are proposed to be entered into with the successful bidder. After formulating the draft RFP, the sponsoring ministry will seek the clearance of the PPPAC before inviting the financial bids. These will be reviewed by the PPP Cell, PPPAU and Ministries concerned and their observations will be conveyed to the sponsoring Ministry for responses. The PPPAC will take a view on the Appraisal Note and other comments and responses etc. duly circulated to the members and in appropriate cases, recommend the proposal for the approval of the Committee on Infrastructure under the Prime Minister. Details to be included in the Memorandum for PPPAC, Term Sheet for the proposed Concession Agreement etc. are available as part of the MOF Guidelines on Formulation, Appraisal and Approval of PPP Projects.

2.1.9 Financial Support to PPP Projects in Infrastructure

Ministry of Finance has notified the guidelines for Financial Support to PPP projects in Infrastructure

(Viability Gap Funding) vide its OM No. 1/5/2005-PPP dated 12th January, 2006. The scheme provides for financial support to roads and bridges, railways and sea ports, airports and waterways, power, urban transport, water supply and sewerage, solid waste management, tourism projects etc. In order to operate the scheme, the Government has set up an Empowered Committee, supported by an Empowered Institution. The Committee / Institution are authorized to approve financial assistance to PPP projects which satisfy the eligibility criteria specified in the scheme. The Committee is chaired by the Secretary of the Department of Economic Affairs and has the Secretaries of Planning Commission, Department of Expenditure and the sponsoring Ministry as members. The Committee is empowered to sanction Viability Gap Funding (VGF) of up to Rs. 200 Crores for each project subject to the budgetary ceiling indicated by the Finance Ministry. Amounts in excess of the above ceiling will require the approval of the Finance Minister. The Empowered Institution is competent to sanction financial support up to Rs.100 Crores for eligible projects subject to budgetary ceilings and has the Additional Secretaries of DEA and Expenditure and the Joint Secretaries of DEA, Planning Commission, and the sponsoring Ministry as members. The scheme is applicable to PPP Projects proposed by the Central Ministries, State Governments and statutory authorities which own the underlying assets of the projects. It is important to note that the benefits under the scheme will be available only if the concession is awarded to a private sector company in which 51% shares or more of the subscribed and paid equity are owned and controlled by a private company and has been selected on the basis of competitive bidding, with responsibility for financing, construction, maintenance and operation of the project during the entire period of the concession. The project should also provide a service against payment of a pre-determined tariff or user charge. In case parallel financial support is available from any other Ministry of the Central Government under another on-going scheme for assistance to PPPs, the Empowered Committee will consider the recommendations of that Ministry for any additional assistance under VGF in appropriate cases.

2.1.10 Model Concession Agreements (MCA)

No discussion on the Institutional Arrangements for PPP Projects would be complete without a mention of the Model Concession Agreements (MCA). The MCA is a document prepared by the Planning Commission, at the instance of the Committee on Infrastructure, to ensure that the complex problems relating to PPP projects and the conflicting interests of the partners of such arrangements are adequately addressed up front. The MCA also seeks to achieve an appropriate balance of risks and obligations shared between the partners. Apart from spelling out the policy and the regulatory framework of the infrastructure sector concerned, the MCA also deals with aspects such as the mode of financing the projects, mitigating and unbundling of risks, allocation of risks and rewards, reduction of transaction costs, force majeure and termination etc. The MCA also aims at cost-effectiveness in designs, phasing of the investment requirements, fixing the concession periods, and establishing technical parameters based on output specifications etc. An important clause in the MCA provides for the forfeiture of the bid security if the concessionaire fails to achieve financial close within the stipulated (six months) period. The MCA is a carefully drafted legal document which helps the partners of the project to define and spell out mutual rights and obligations clearly and in specific contractual terms. As mentioned earlier, material or substantive deviations from the MCA will require specific approval of the authority which approved the MCA (Committee on Infrastructure) whereas those which are not material will require the clearance of the PPPAC and the Finance Minister.

Planning Commission has brought out separate MCAs for PPP in National Highways, State Highways, Operation and Maintenance of Highways, and Ports. In addition, Planning Commission has also issued Manuals of Specifications and Standards for Four-laning of Highways to be used along with the MCA concerned. Public auditors are encouraged to familiarize themselves with all MCAs published by the Planning Commission and refer to the relevant ones to verify the compliance by the PPP partners, as part of the audit scrutiny during assignments.

2.1.11 Institutional arrangements in State Governments

Various State Governments have made specific institutional arrangements to encourage entrepreneurs to invest in PPP projects and to process and appraise PPP project proposals received by public agencies in the respective States. For instance, Andhra Pradesh and Gujarat have passed laws to promote and regulate PPP projects while some others have established their own rules and regulations and issued related notifications. In some States like Karnataka, special or dedicated cells have been constituted in the Secretariat to deal with PPP policy and project proposals whereas in some others like Tamil Nadu, State Infrastructure Corporations undertake most duties and responsibilities regarding the promotion of PPP in those States. Details of the State PPP organizations could be accessed from respective State Government websites.

2.1.12 Scope and Objectives of PPP Audit

A contentious issue in the context of PPP arrangements and their audit relates to the scope of audit by Supreme Audit Institutions (SAI), in view of the following:

- The government or the public sector partner is usually only a minority partner /shareholder or will have only minority participation in the PPP arrangement, with the private sector partner controlling the majority stake.
- Most of the funds are brought in by the private sector partner.
- The construction, management and operational risks are transferred to the private sector partner.
- The work culture and the decision-making processes of the private sector partner which may be alien to and contra-distinct from those of the public sector institutions.
- The emphasis of PPP projects is usually on the end results of the PPP arrangements and not on the means to achieve them.

Nevertheless, the following broad considerations would support the intervention of public audit in PPP projects:

- The authority of the government / public entity to provide the goods and services to the public at affordable cost stands transferred to the private sector partner.

- The right to levy tolls / user charges also gets shifted to the private sector partner.
- The cost of executing the project directly by the government or its agency may be relatively lower since they are able to raise funds (either from revenue or by borrowing) at a cheaper cost.
- The government / public agency concerned will continue to retain accountability for the provision of the service to the public at a reasonable cost.
- The contracts / concessions granted are usually for a long term and thereby alienates the statutory right involved for a very long period.
- The transfer of the public assets to the private body for the duration of the contract requires audit involvement.

The most important factor that would weigh with the SAI to conduct the audit of PPP projects is to ensure the value for money aspects of such transactions. The main purpose of the audit, and based on which the scope could be defined, would thus be to provide a reasonable assurance to all stakeholders including the government, parliament / legislatures, and the public that the PPP arrangement subjected to the audit has yielded value for money and that public interests have been adequately protected.

In order to reach valid audit conclusions on the PPP arrangements, therefore, the auditor should have a sufficiently wide and detailed jurisdiction covering all aspects of the transaction, beginning from the formulation of the proposal to the final end results. Since the SAI is the auditor for the government department and the public sector body which are party to the PPP arrangement, it follows that the documents and data relating to the arrangement will be available with them for audit scrutiny. However, the question arises about extending the audit scrutiny to the records of the PPP entity since these would be in the control of the private sector partner, who may raise the argument of commercial confidentiality to avoid the public auditing of their project activities.

Broadly speaking, the audit of PPPs by the SAI may cover the aspects of the project indicated here under:

- The data, records, analysis and the decision process of the government department / public sector

agency to prefer the PPP route to execute the project instead of undertaking it directly.

- Documents and files leading to the formulation, appraisal and approval of the project. The process of identifying the private sector partner, requests for proposals, bidding and tendering process of the contract with due diligence to fairness, transparency and objectivity.
- In-depth analysis of the project documents including the shareholders' agreement, concession agreement, operation and maintenance agreement etc., total project cost, financing arrangements (including cash flow, ROI / ERR / DCF), justification for the viability gap funding, contract period etc.
- Accounts documents, bills, records and schedules relating to the construction, and oversight arrangements.
- Value for money considerations and safeguarding the public interest.
- Operation and maintenance of the assets, tariff / toll / user-charges collection and accounting and revenue sharing arrangements, escrow accounts.
- Quality and standards of the service, customer protection, dispute resolution and asset transfer arrangements etc.
- End of the project operations including valuation of residual assets, decommissioning, dispute resolution mechanism, etc.

The scope of the public audit will include a verification of the PPP arrangement to ensure that the public sector agency has effectively put in place a sound system to oversee the efficiency and competence of the project implementation including construction, quality management, compliance with contractual conditions, and integrity of the provision of the targeted public service strictly in terms of the established norms and contract conditions. The scope of audit will also extend to the following:

- Actual volume of demand (viz., traffic) and revenue generation (including from commercial developments) against the projected flow and the arrangements to monitor the trend periodically.
- System to verify the accuracy and reliability of reporting the results.

- Economy in the cost of operations and avoiding “padding” of costs, revenue sharing arrangements.
- Need to re-adjust the contract period in case the Rate of Return (ROR) is higher than what was projected.
- Quality and consistency of service at affordable cost to the users at large etc.
- Any other related issues which may be project specific.

It must be remembered in this context that even though the assets under the PPP will be under the control of the private sector partner, the concession agreements will normally provide for submission of reports and accounts through the Independent Engineer / Auditor (to be appointed from the panels maintained by the government), with contractual and professional responsibility to ensure the accuracy of reports. The fact that there will be one or more representatives of the government / public sector partner on the Board of Directors / Management Committee or equivalent body of the PPP entity and that they will be privy to major decisions will also be helpful to public auditor. Hence, the public auditor must verify all such documents as are supposed to be in the possession of the public sector partner. That includes Board agenda and minutes and other related papers.

2.1.12.1 Objectives of the PPP Audit

The basic objective of public audit is to ‘provide unbiased, objective assessment of whether public resources are responsibly and effectively managed to achieve the intended results. Auditors, through their evaluation, (should) help the government organizations achieve accountability and integrity, improve operations, and instill confidence among citizens and stakeholders. Public auditors’ role supports the governance responsibilities of oversight, insight, and foresight. Oversight addresses whether government entities are doing what they are supposed to do and serves to detect and deter public corruption. Insight assists decision makers by providing an independent assessment of government programmes, policies, operations and results. Foresight identifies trends and emerging challenges’.

The audit of PPP projects differ from the conventional audit of public entities in several ways. For instance, the very concept of PPP arrangements assumes and accepts, ab initio, the conflicting and fundamentally differing approaches of the two partners to the arrangement, namely the responsibility of the public sector partner to provide goods and services to the public at reasonable costs against the motive of the business partners to maximize profits. The former holds the authority and regulatory skill as against the management and technical skills of the latter. Even within the private sector partner different participating members may have divergent and conflicting objectives. For example, the sponsors /financiers may be interested in fixed cost construction contracts whereas the latter may prefer greater flexibility in this regard. While vendors may like to maximize revenue, the financiers / construction contractors may want to minimize such costs. The public auditor must remember this and appreciate that inspite of seemingly conflicting objectives the PPP is a fusion of the diverging talents and skills and that the common objective of the partnership must be to improve the value for money by combining the capabilities of both. Delivering the expected public facility within the desired cost, timeframe and specifications is the surest guarantee that all the involved parties stand to gain. ‘The PPP policy provides a consistent framework that enables the public and the private sectors to work together to improve public services delivery through private sector provision of public infrastructure and selected services. Value for money is the driver for adopting the PPP approach rather than capital scarcity or balance sheet requirements’. It must also be remembered that the audit should focus sufficiently well on the achievement of the contracted end products; it should not stand in the way of innovations injected into the partnerships which is one of the keys to the success of the enterprise.

The main objective of the audit of PPP projects is to provide a reasonable assurance to all stakeholders about the wisdom, faithfulness, integrity, economy, efficiency and effectiveness of the PPP arrangement and to ensure that the infusion of the private sector agency into the project has resulted in improving the value for money for the government. The aim is to cover all aspects of the project contracting and execution, but without

impacting the freedom and innovations built into the arrangement. Further, unlike in the case of audit of government departments and entities, the relevance of regularity and compliance audit will be limited since the focus of PPP audit will be on contract audit, validity of total project cost, economy and efficiency of operations of the entity as seen from the public participant's point of view and most of all on achieving the objectives (results) of the partnership rather than on how the private sector partner secures goods and services for the project. These subtle points have to be borne in mind while planning and conducting the PPP audit.

2.1.13 PPP Audit and Performance Auditing Guidelines

There are several things in common between PPP audit and performance audit. For instance, performance audit is concerned with the audit of economy, efficiency and effectiveness of the programme subjected to audit and embraces-

- audit of the economy of administrative activities in accordance with sound administrative principles and practices and management policies;
- audit of the efficiency of utilization of human, financial and other resources, including examination of information systems, performance measures and monitoring arrangements and procedures followed by audited entities for remedying identified deficiencies; and,
- audit of the effectiveness of performance in relation to the achievement of the objectives of the audited entity and audit of the actual impact of activities compared with the intended impact.

Performance audit is an independent assessment or examination of the extent to which an entity, programme or organization operates efficiently and effectively, with due regard for economy'. It is true that the major entity involved in the PPP is a private participant who is outside the audit control of the SAI. But at the same, the entire operations carried out by it will impact the public sector partner which has sanctioned the grant to build the facility, manage the operations and collect user-fee, tariff or toll by transferring the assets and the responsibility to do so and share revenue (or receive viability gap funding or annual payments, as may be). It will also impact the user

community who belong to the public at large. Moreover, the accountability of the public participant for the provision of service at affordable cost continues as before in the PPP arrangement. Hence, it is important for the public auditors to assess the efficiency, economy and effectiveness of the operations of the PPP from the public accountability angle, and to that extent, the principles of performance audit would materially apply to PPP audit as well. In a larger sense, performance audit of any aspect of a public authority's functioning may also involve an examination of the PPP arrangements that such an authority may have entered into.

2.1.14 Identifying and Sharing of Risks

A PPP partnership involves several risks, and a balanced sharing of these risks between the public and private sector partners is essential for its enduring success. The INTOSAI Auditing Guidance discussed above identifies the risks of the governments in PPP projects and those guidelines are framed on the basis of such risks. The major risks associated with PPP projects could be described as the following:

1. Feasibility / Organizational Risk

This may relate to the selection of the right type of PPP arrangement suitable for the project. Unless the promoting department or PSU has considered different alternatives for implementing the project and selected the most appropriate set up, the project may not succeed in the long run. Public auditors have to verify the feasibility study carried out by the promoter including demand projections, cash flow, rate of return etc., and review the analysis carried out before reaching a conclusion on the type of partnership selected for the programme. The risk associated with this aspect will remain with the government agency.

2. Condition Precedent Risks

The public sector partner will have to fulfill several conditions precedent to enable the private sector partner to start work on the project, including making available the required land and assets etc. and environmental and other statutory clearances. The private party accepts these risks, but delays in making available the required facilities will impact the construction and operation of the project, which in turn will affect the timeliness of

providing the service to be provided and also the revenue. These will constitute as red flags for the auditors to verify.

3. Financing Risk

A major risk for the project will indeed be the financing risk. This involves two issues, one regarding the ease with which the required finance could be raised for the project, and the other is about the abatement of interest charges and repayment of the principal. The requirement of finance will be dictated by the total capital cost and the return on investment that the investors would expect to earn. This risk is of course transferred to the private partner, which is responsible for raising the funds and for its repayment. However, the total capital cost and the financing pattern will determine the amount of concession to be granted, and the user charges and the period of the concession. It may also involve government guarantees and commitments in the event of contingencies. In other words, the risk related to financing, though borne by the private sector partner, will impact the promoter as well as the customers significantly. Another aspect that needs to be examined are the collateral agreements between various partners within a consortium of bidders as well as the agreements between such consortia and the financiers if they are independent of the consortia. This is necessary because in more complex PPP arrangements the risks are widely shared with risk taken by one element of the arrangement being counter-balanced by the risk taken by another element of the arrangement on a back to back basis. Hence there is need for a very careful evaluation of all associated implications of the financing risks by the public auditors.

4. Construction Risk

Construction risk is assumed in the PPP arrangement by the private sector party which will have to bear the consequences of the delays and variations caused due its inefficiency. On the other hand, all efficiency gains achieved through design efficiency and innovations will be its reward for it to keep. Public auditors should remember that the focus of audit will be on whether the PPP project has achieved its end results and not necessarily on how it was achieved. The risk allocations will enable them to focus on the major objectives of the audit.

5. Operation and Maintenance Risk

The public sector partner has to ensure the quality of maintenance and the standard of the service to the public. This will primarily depend on the specifications and conditions laid down in the Operation, Maintenance and Development (OMD) Agreements, which will be one of the most important documents for verification by the auditors. The reports to be submitted by the Independent Engineers will provide detailed information on the quality and standard being followed by the private partners. However, the private sector partner which will bear the consequences of under performance in terms of scale and specifications of operation and maintenance of a public facility created under the PPP arrangement may diversify such risk by sub-contracting operation and maintenance to another party. The agreements between the private sector partner and the operation and maintenance contractor would come within the scope of audit while assessing the risk to the public authority.

6. Demand Risk

This is a major risk which is usually shared by both parties to the contract. Even though the Detailed Project Report may have provided the basis and the justifications for the demand projections, the private sector partner is expected to conduct his due diligence of the project parameters before bidding for the project. However, since these are contracts for long periods and demands for services would also depend on the state of the economy among other factors, it may happen that there are variations between the projections and actuals. The contracts will provide for readjustments of the concessions / period of concessions to take care of such eventualities. Alternatively, there will be variations to the revenue sharing formulae depending on such variations. The public auditors should carefully review the assessments of the demand risks and the allocation of such risks, together with all conditionalities attached in the contract to ensure that they are balanced and reasonable from public interest point of view. It must be especially noted that if financial support through Viability Gap Funding (VGF) is provided, the question of increasing the tariff / user charges or the concession period so as to reduce the viability gap does not arise, and is prohibited.

7. Revenue Risks

Shortfall in demand and consequentially the revenue has the potential of destabilising the PPP arrangement because the private sector partner may be forced at some stage to opt out. This may not only result in disruption of services but also delay ancillary development thus impacting adversely on the generation of expected revenue. Shortfall in revenue generation will hurt both parties. While the public authority loses the prospect of providing better and early service to the public, the private sector partner will stand to lose potential income. Such variations can also entail higher amounts of annuity being paid to the private sector partner where the public authority is committed to do so under the PPP arrangement. Shortfall in demand and revenue can result from unrealistically higher level of user charges allowed and fixed under the PPP arrangement. It has, therefore, to be seen whether the formula for tariff fixation or user charges is worked out correctly and takes into account the best interest of the user community as well as the investors.

8. Risk from unforeseen developments

Unforeseen developments such as natural disasters are covered under contractual clauses relating to force majeure. However, there could be other developments which may relate to political and business environment, technological changes or any other factor that proves to be a game changer invalidating all the assumptions on the basis of which the business model of a PPP arrangement rests. Such undefinable risks have to be envisaged under the PPP arrangements and suitable provisions built in to allow all the parties particularly the public authority to extricate itself from such situations with minimal damage and to facilitate a movement forward out of a potential stalemate. The agreement between various parties may provide 'step in' and/or 'buy out' mechanisms to facilitate exit of one party and its substitution by another party to facilitate continuity of the project.

9. Termination Risk

This risk will arise if the private sector partner fails in the project because of its management failure, bankruptcy, dismal performance, indebtedness etc. This risk is borne by the promoting public sector partner. The

auditor will have to consider various aspects relating to the selection of the partner, qualifying procedures, reporting and oversight system etc., before coming to conclusions. It is important to examine whether the public agency has considered the possibility of such events and worked out a suitable strategy to face such risks. The Request for Proposal (RFP) issued by the promoter may be scrutinized to check whether all conceivable eventualities were taken into consideration to anticipate the termination risks and to cope with such situations, in case they arose.

10. Residual Value Risk

This risk arises at the end of the PPP contract when the asset is to be transferred back to the government or its agency concerned, who will be holding the risk. The contract between the parties should include suitable provisions regarding the health of the assets, its valuation method and other aspects to avoid disputes and losses arising from poor maintenance of the assets and the assurance for their return in the desired conditions.

In the process of audit planning all the above risks have to be listed keeping in view the nature, the magnitude and complexity of the PPP arrangement. In the course of their audit, public auditors will have to ascertain whether all the relevant risks were considered at the stage of project design and adequately reflected in the RFP document. It will also have to be ascertained as to what extent the risks have been adequately covered under various contractual arrangements between the parties and how these were dealt with in real situations during and after the execution of the project.

Though under a PPP arrangement all the parties involved should be in a position to benefit, there could be seemingly a conflict of objectives between the various parties, viz. the principles, the concessionaires, operators, financiers, construction agencies, vendors, insurers and technology providers, etc. till risks envisaged by all the parties are in balance. However, the question uppermost in the mind of the public auditors would be to ascertain how each of the risks would impact the public sector participants as also on the consumers at large in the medium and long run, and whether the risk allocations have been judicious and fair

for the sustained operation and management of the project.

Generally, risk management encompasses the identification, assessment, treatment and allocation of risks (Rouboutsos and Anagnostopoulos, 2008; Chan et al., 2011). It is one of the topical research areas in PPP studies (Ke et al., 2009). Essentially, a thorough risk assessment and proper risk allocation guarantee value for money (Grimsey and Lewis, 2004). Thus, it is very crucial for project parties to ensure a systematic risk management throughout the PPP project life cycle (Chan et al., 2011).

The first step in conventional risk management process is the identification of risk factors that affect PPP projects' success (Ke et al., 2011; Bajaja et al., 1997). Several techniques including brainstorming, cause and effect diagram, project analogy and work breakdown structure are mostly used for risk identification.

However, the widely used method of risk identification is the development of a risk checklist or register (Li et al., 2005b; Thomas et al., 2003; Ameyaw and Chan, 2013; Xu et al., 2010). Many past studies have adopted a detailed risk register and used different research methods to assess the criticality of risk factors in 205 Risk assessment in PPP Downloaded by Hong Kong Polytechnic University At 02:46 11 October 2017 (PT) PPP projects from different countries' perspectives. For instance, Thomas et al. (2003), by means of a questionnaire survey on practitioners, established eight very significant risk factors in Indian build-operate-transfer projects. These include traffic revenue risk, demand risk, delay in financial closure, completion risk, cost overrun risk, debt servicing risk, delay in land acquisition risk and direct political risk.

Chan et al. (2014), through a Delphi survey and interviews, identified 16 critical risk factors in PPP water infrastructure projects in China. However, out of the 16 risk factors, completion risk, inflation and price change risk were found to have the most significant impact on water PPP projects in China.

Also, Li et al. (2005b), from the UK's perspective, classified 46 potential risk factors in private finance initiative (PFI) projects into three levels, namely, the macro (exogenously), meso (endogenously) and micro (endogenously) factors. The macro-level risk factors relate to the external conditions of PFI projects, the meso level relate to the bonding system of the project and the

micro entails risk factors relating to stakeholder relationship. When the 46 risk factors were assessed by means of a questionnaire survey, construction time delay, construction cost overrun and operation cost overrun were identified to be the most critical risk factors in PFI projects in the UK (Li, 2003).

Rouboutsos and Anagnostopoulos (2008) used the risk register developed by Li et al. (2005b). Through a questionnaire survey, they established that risks related to the public sector, namely, project approvals and permit delays, poor public decision and making process and changes in legislation, are the most significant risk factors in PPP projects developed in Greece. Further, they asserted that political risks such as unstable government and political opposition have low impact in Greece. Their outputs support the findings of Li (2003), where political risks were identified to be of low significance in the UK. These assertions are understandable considering the enormous political acceptability for PPPs and favourable political environment in these countries. However, such assertions may be contrary in developing countries.

In Indonesia, Wibowo and Mohamed (2010) identified non-availability of raw water, entry of new competitor, construction cost escalation, tariff setting uncertainty, non-availability of raw water and breach of contract by government as top significant risk factors in water PPP projects. Also, Shen et al. (2006) analysed the Hong Kong Disneyland Theme Park project in Hong Kong and established 13 catalogues of risks. They include site acquisition risk, pollution to the land surroundings, unexpected underground conditions, risk of land reclamation, development risk, design and construction risk, changes in market conditions, inexperienced private partner, financial risk, operational risk, industrial action, policy and legal risk and force majeure.

In Turkey, Ozdoganm and Birgonul (2000) also presented six categories of risk factors in a hydro power plant project. These include market risks, financial risks, political risks, legal risks, construction risks and operational risks. Further, in Nigeria, Ibrahim et al. (2006) also adopted the risk register developed by Li et al. (2005b). By means of a questionnaire survey, they established that the endogenous factors such as unstable government, inadequate experience in PPP, availability of finance and land acquisition availability are the most

significant risk factors in PPP projects. Following the identification and assessments of risk factors, potential risks must be appropriately allocated to each party. The “golden rule” which applies in risk allocation is that risks must be allocated to the partner with better mitigation technique (Chan et al., 2011). Nonetheless, quite a number of studies have proposed some risk allocation frameworks for PPP projects from different geographical perspectives. Ke et al. (2010) presented a risk allocation framework for Hong Kong and China. They established that political risks, legal CI 17,2 206 Downloaded by Hong Kong Polytechnic University At 02:46 11 October 2017 (PT) risks, land acquisition and lack of tradition of private provision of public service should be allocated to the public sector in Hong Kong. Political and social risks, change in legislation and delays in project approvals and permits should be retained by the public sector in China. Project-specific risk factors (meso level) should be allocated to the private sector in both countries.

Li et al. (2005b) also emphasized that in the UK's PFI, the public sector should retain site availability, political risks and relationship risks, whereas majority of project risks should be retained by the private partner. Further, they asserted that legislation changes should be shared by the public and private sectors.

On the contrary, in Greece, Roumboutsos and Anagnostopoulos (2008), by adopting similar risk register, presented a risk allocation framework in which legislation changes were allocated to the public partner.

Clearly, the above contemporary literature demonstrates the diverse risk factors among countries, particularly between the developing and developed economies/countries, given the differences in culture, socio-political and economic conditions within which PPP operates. Nevertheless, there could be common significant risk factors among developing and developed countries. Thus, an empirical analysis of risk assessment in PPP projects in the two divergent economies will provide a better understanding of the international best practices for PPPs.

2.2 RESEARCH ARTICLE

[1] Risk Management in Public Private Partnership Building Construction Projects

Ernest ItumaEgba, Ogunbode Ezekiel Babatunde, FabunmiFoluke O, Adama Jonathan (2016), The study examines risk management in Public Private Partnership (PPP) projects carried out in the federal capital city of Nigeria. A questionnaire survey approached was adopted in acquiring the data required for the analysis. A total of 155 copies of questionnaire were administered. The analysis shows that the public sector preferred to retain most political, legal and project selection risks, while the private sector preferred to retain most construction risk and operation risk. It was also established that both parties preferred to share the economic risks and market risks. The findings indicate that PPP is a good approach in building construction projects. Also, the findings show that adequate allocation of risk is necessary for the smooth implementation of any PPP model. The paper provides investors a better understanding of risk preferences among the stakeholders in the Nigerian construction industry so that they could better adjust and plan their strategies according to the specific risk factors and achieve better value for money when executing PPP projects.

The World Bank (2009) gave a generally accepted definition of partnership as “a collaborative relationship between entities to work together towards shared objectives through mutually agreed division of labour”. Though, this definition is not a precise one since it does not specifically mention several other important areas of partnership such as shared responsibility, joint investment of resources, shared risk taking and mutual benefits (Demirjan, 2008), however, it has really helped in clarifying that partnerships is different from other relationships. For this reason, several researchers had to further highlight additional aspects of partnering. For example, Demirjan (2008) appears to provide an alternative definition based on the perspective of shared objectives. This is especially true as risk-sharing among governments, utility, lenders and developers is often at the heart of most reservations or debate about Public-Private Partnership projects (Malhotra, 1997; Akintoye et al., 2003). Literature indicate that there is no

single accepted definition of risk (Rockett, 1999), resulting in the fact that risk is a generally misunderstood concept having been used interchangeably with other related terms such as harm, hazard, threat, and uncertainty Khatib et al., (2007). The concept of risk has been studied intensively by researchers across all known schools of thought leading to a focus on three key areas, namely: risk assessment, risk management and risk perceptions. It is particularly important to highlight the fact that risk perception generates considerable interest in cognitive and behavioural psychology (Keil et al., 2000). The reality is that major infrastructure projects, because of their complexity (Pipattanapiwong et al., 2003), are highly risky. To understand the impact of these risks, it is necessary to conduct an exploration of the various independent parameters that impact on decisionmaking (Grimsey and Lewis, 2004). The adoption of PPPs by governments around the world is a recent phenomenon and it is important that good practice is maintained among the parties involved (Reeves and Ryan, 2007). Consequently, the objectives of this paper are to examine the effectiveness of PPP models on building construction projects, determine preferred risk allocation in public private partnership projects, and measure the effects of public private partnership building project execution.

Based on the research carried out it was observed that risk involved in PPP projects can be categorized into ten risk factors. The risk factors were carefully studied in relation to the response of the sampled professionals. The identified risks were looked at with their preferred allocations. Analysis of the effectiveness of PPP models indicates that different PPP models have different efficiency.

[2] Risk Management in PPP (Public Private Partnership) Projects

Gyanendra Kumar, Yogesh Singh (2016)

The Indian economy has been delivering solid economic growth across most sectors for the last few years. However, both for the momentum to continue as well as for growth to be distributed fairly and equitably across all sections of society, it is vital to develop infrastructure – power, water, roads, ports, airports, urban bus and metro lines, health and education facilities, etc., - which

is the backbone for businesses, livelihoods and living. The Government of India (GOI) has therefore focused on developing several enabling tools and activities to spur private sector investment into the country through the modality of PPPs. To fulfill the increasing demands of the public, Public Private Partnership (PPP) has been increasingly used to procure infrastructure projects, such as motor ways, bridges, tunnels and railways. However, the risks involved in PPP projects are unique and dynamic due to large amount of investment and long concession period. About 70 % of PPP projects fail due to improper allocation of risks between project participants. The present work was focused on the aspects of management of these risks. The previous works done on risk management has been taken as a benchmark. This paper refers to the brief knowledge of different methods and techniques suggested and proposed by different authors for identification, evaluation and mitigation of risks related to PPP projects.

Infrastructure development is one of the key factors that have significant and positive influence on economic growth of a country, especially with the developing countries (ADB, 1996). However, development of infrastructure requires massive capital investments since most infrastructure projects are large and high level of complexity (Grimsey and Lewis, 2002). Thus, most developing countries do not have the required amount of capital to develop the necessary infrastructure on their own. This leads to the economic condition will be suffered. Therefore, in order to keep pace with the economic growth and the increasing demand from evergrowing population, the private sector participation was introduced with the intention to assist the government of these developing countries by proving additional capital investment to finance the infrastructure sector development (Walker and Smith, 1995).

PPP itself is a generic term which can stand for a myriad number of structures and forms. It involves real partnership between the appropriate government authority, private operators and end-users. The key issue in developing a PPP is common sense allocation of risks and activities to the party that can manage it best. With a well-defined set of parameters monitoring the

performance of a PPP operator, improvements in service efficiencies should be a clear result from any PPP. The ultimate aim of PPPs is thus not just building assets, but actually operating and maintaining them so as to provide sustainable services which benefit the end user of services, whether water or power supply, provision of good quality education, etc. In this way, all form of natural resources, capital resources and manpower resources can be truly achieved.

5. PROPOSED METHODOLOGY

Step 1: ESTABLISHING THE PROJECT CONTEXT

At first, both the public and private parties have to establish and understand explicitly the following issues:

- Establishing and understanding the organizational structure, contractual structure, project environment, and thorough stakeholder analysis.
- Defining a set of key elements for structuring the risk identification and assessment process in order to disaggregate the project into sections or key elements and should ensure that all important issues are put in place for identifying risks.

The inputs to specify objectives and criteria include key project documents, such as the project execution strategy, project charter, cost and schedule assumptions, scope definitions, engineering design and studies, economic analysis, stakeholders involving, and any other relevant documentation about the project and its purpose.

Step 2: IDENTIFYING RISKS INVOLVING IN THE PROJECT

This stage is pertains to the preliminary phase of a PPP project, and involves a range of activities performed by the public sector. In this stage, the public sector plays a crucial entity concerning the future project, whereas the private sector plays a rather passive role, other than identifying potentials for involvement in a PPP project in terms of resources available to the organization and the sector in which it would like to be involved (Akintola Akintoye et al. 2003).

The activities are executed by the public sector in this stage include the following:

- Defining initially the accurate scope and nature of the public services required
- Establishing the bidding procedures and appraising the bidders in term of affordability, the value-for-money (VFM) criteria, and the impacts of risk allocation under different alternatives
- Developing the first draft of the “public sector comparator” (PSC) and a shadow financial model and developing them in an iterative manner continuously through the project lifecycle
- Conducting a final assessment of the bidder
- Developing the risk matrix, using the VFM criteria, and preparing the outline business case
- Summarizing the main project features in an “Information Memorandum” and giving it to the private sector.

Step 3: RISK ASSESSMENT

At this step, the main activities are addressed on creating a bidding consortium that will win the project. The shortlisted consortia will then submit detailed proposals that will inform the selection of the three best bidders. At this step, the private sector organizations could do the following actions:

- Forming a definite opinion on the suitability of the project
- Developing an initial assessment of opportunities and risks
- Selecting partners to group with
- Choosing bidding strategies
- Establishing lines of responsibility and consolidate the project team
- The private sector could use the following tools and techniques at this stage:
- Using the preliminary financial model to identify and assess risks
- Consultations with experts

Step 4: RISK ALLOCATION BETWEEN PARTIES IN THE PROJECT

In this stage, both the public and private sectors dedicate additional efforts towards achieving a more favorable risk distribution. The public sector could force the private sector to produce quotations, which reflect different risk allocation scenarios. At this stage, a full range of qualitative and quantitative risk assessment techniques can be used to inform the estimated returns

by the consortia. Further, these bidders can re-analyze their own financial models and conduct sensitivity analysis to evaluate risks in more details. Most of the risks that are present in PPP projects can be shared between Government & the project company. The challenge is to reduce the uncertainty to an acceptable level and allocate responsibility to the party best able to handle it.

Step 5: FINAL RISK NEGOTIATION

This stage includes signing the contract and financial close. Until this stage, most of the risks involving project would have been assessed and allocated during the earlier stages. Any remaining deal-breaking issues will be sorted out, and missing details will be clarified. Both parties should scrutinize their earlier estimations using the same methodology and tools, and arrange the final distribution of risks through the negotiations. At this stage, the senior lenders also engage external consultants to examine due diligence (Akintola Akintoye et al. 2003).

The purpose of this activity is threefold:

- Double-check the reliability of all estimations;
- Investigate any possible legal shortfalls;
- Provide assurance that there are no discrepancies

Step 6: CONTINUOUS RISK NEGOTIATIONS

It is important to notice that the risk negotiations should take place between the time the initial risk estimation is undertaken and the time the final risk negotiation is reached. These activities would ensure the risk feedback between the private sector and the public sector. This should guide against deal-breaking risks, which could materialize if the risk negotiation was only taken place at the end of the process.

6. CONCLUSION

Risk management is an essential element playing most important role in ensuring the effective operation and management of the sea ports and terminals.

IMPORTANT CHARACTERISTICS OF PPP PROJECTS-

- Promise of better project structure and design.
- Allows better screening of projects. A bad project is a bad project no matter whether it is implemented by the public or the private sector.

- Better choice of technology based on life-cycle costing.
- Better service delivery, especially if performance based payment is considered.
- Better chances of completion on time and within the budget. – Risk of default. – Project risks can easily turn into government risks.
 - Various liabilities on government (direct and indirect).
 - A long-term contract management system needs to be in place.
 - An administrative mechanism and special skills in the government are required to develop and implement PPP projects.

Conflict of interest statement

Authors declare that they do not have any conflict of interest.

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