

PPP PROJECTS : HOW THEY ARE FINANCED

Institutional Arrangement

The complexity of PPP projects leads to the need for appropriate legal frameworks and institutions to support successful PPP programs. As a result in recent years, governments have considered various changes in the legal and regulatory environment, as well better administrative procedures, in order to reduce uncertainties for private investors. In particular, dedicated PPP Units have been created in some governments. What are the most important considerations in this respect?

Legal Basis Of PPPs

In most countries, provision of infrastructure services is the responsibility of the public sector. Depending on the political and administrative structure of the country, legislation may govern the infrastructure sectors at different levels of government (local, provincial, and national). Generally, some form of government authority is required to permit private involvement in infrastructure development. Legal provisions may also be required to process, promote and facilitate private involvement.

Why Special PPP Laws

In many countries, the legal provisions and procedures related to private sector participation are complex, numerous, scattered over many different instruments, often unclear on many issues, and have no fixed time frame for completion. For example, the PPP legal regime may scatter over many instruments that include private contract law, company law, tax law, labour law, competition law, consumer protection law, insolvency law, infrastructure sector laws, property law, foreign investment law, intellectual property law, environmental law, public procurement law or rules, acquisition or appropriation law and many other laws. In response, many countries have enacted special legal and regulatory instruments, and/or they have amended their existing infrastructure sector laws. These measures have helped to reduce the level of uncertainty surrounding PPP project deals and have increased investors confidence.

Legislation may also play an important role in facilitating the issuance of licences and permits that may be required for project implementation. These include licences for setting up a company by the concessionaire, licence for exploration and extraction of mineral resources, work permits for foreigners, import licence for equipment and other supplies, building permits, as well as radiofrequency spectrum allocation for telecommunication and television transmission.

Contents of Special Laws

The special legal instruments may specify the types of permitted PPP models, general conditions for these models, guidelines on risk sharing arrangements, provision of financial and other incentives, and may provide details of project identification, approval, procurement (including contract negotiation and making contract agreement), and implementation arrangements. The legal instruments may also define division of responsibility between different levels of government. The PPI Act of the Republic of Korea is such a legal instrument. Legal instruments of many countries however, do not provide details of the partnership arrangements and the administrative process.

In some countries, special PPP units in governments have been established under the provisions of such special legal instruments. These PPP units facilitate PPP project development and implementation.

Administrative Mechanism and Coordination

The administrative mechanism of PPP project implementation depends on the system of government and the overall administrative structure, and the legal regime concerning PPPs. As these elements vary from one country to another, the administrative mechanism also varies from one country to another. Generally, the sectoral agencies at the national and provincial levels (in a federal structure) initiate and implement most of the PPP projects. However, in many countries, the Philippines for example, local level governments such as city governments are also allowed to undertake PPP projects.

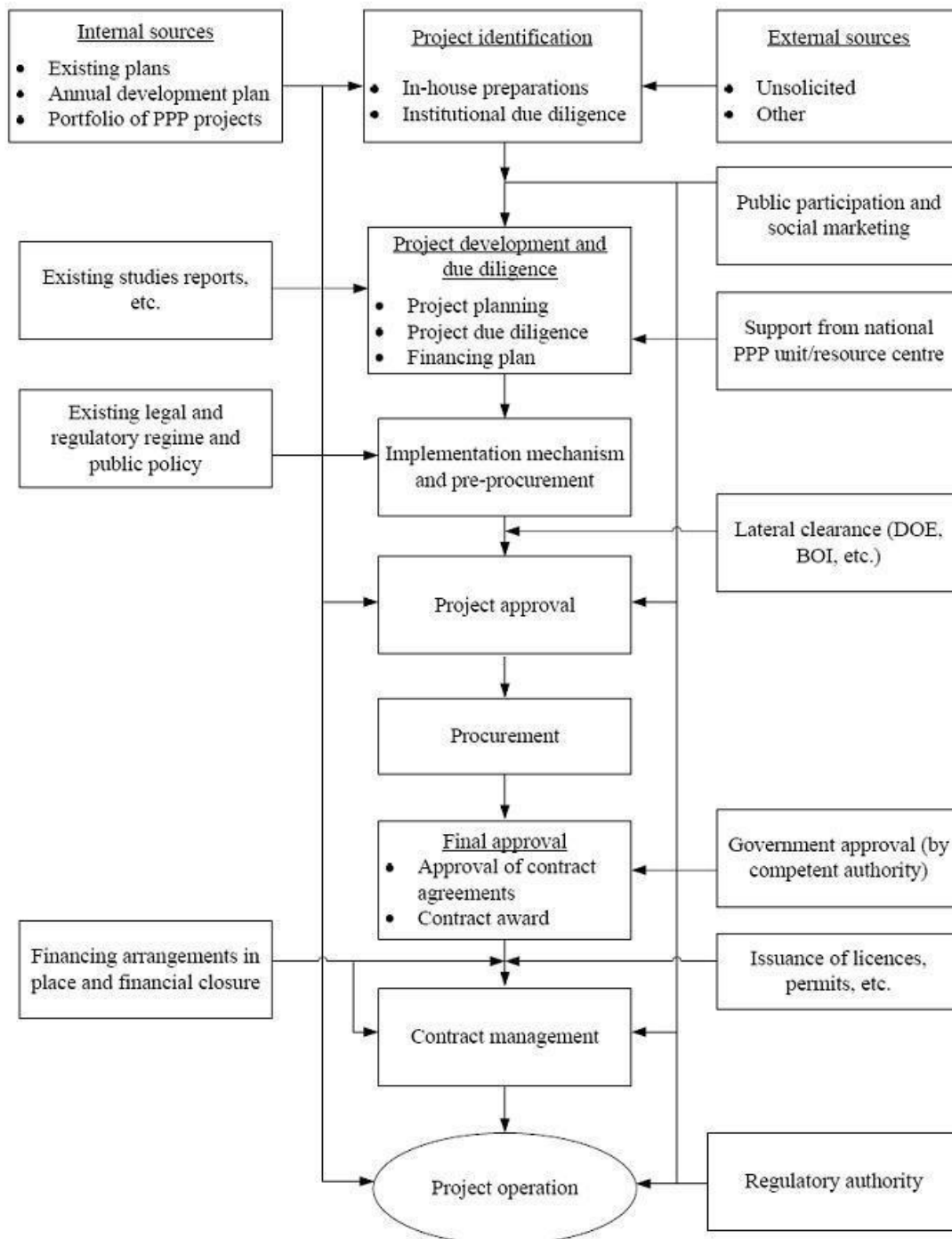
Depending on the system in a country, the implementation of PPP projects may require the involvement of several public authorities at various levels of government. The authority to award PPP contracts and approve contract agreements is generally centralized in a separate public authority. This may be a special body for this purpose and is usually at the ministerial or council of ministers level.

The legal instruments and/or government rules and guidelines define how the sectoral agencies and local governments may initiate, develop, submit for approval of the national/provincial government, procure, negotiate and make deal with the private sector, and finally implement a project. These legal instruments may also define the authority and responsibilities concerning PPPs at different levels or tiers of government.

Steps in PPP Project Development and Implementation

The figure below shows the steps that are generally considered in a PPP project implementation process. Clear definitions and procedures of various tasks and administrative approval from competent authorities at different stages of project implementation process are necessary in

running a successful PPP programme. Streamlined administrative procedures reduce uncertainties at different stages of project development and approval and help to reduce the transaction cost of a PPP project.



The development of a PPP project requires firms and governments to prepare and evaluate proposals, conduct bidding and negotiate deals, and arrange funding. The costs incurred in these processes are called transaction costs, which include staff costs, placement fees and other financing costs, and advisory fees for investment bankers, lawyers, and consultants. Transaction costs may range from 1 to 2 percent to well over 10 per cent of project cost. Experts suggest that transactions cost vary mainly with familiarity and stability of the policy and administrative environment and not so much with the size or technical characteristics of a project

Explanation

More details on tasks at various stages of project development and implementation are provided here:

1. Identification of private sector/PPP projects

„ Project identification

1B. In-house preparatory arrangements

„ Conceptual project structure

„ Institutional due diligence (legal and regulatory framework, government policy, involvement of other departments, in-house capacity, etc.)

„ Project implementation strategy

„ Setting of project committee(s)

1C. Government approval (e.g. by a special body established for PPPs)

1D. Appointment of transaction advisor (if needed)

„ Terms of reference

„ Appointment

Government approval

2. Project development and due diligence

„ Project planning and feasibility

„ Risk analysis

„ Financing

„ Value for money

„ Business model

„ Government support

„ Service and output specifications

„ Basic terms of contract

„ Independent credit rating (when possible)

„ Preliminary financing plan

Government approval (Special body, concerned ministries, central bank) „

Financing plan

3. Implementation arrangement and pre-procurement

- „ Implementation arrangement
 - „ Bidding documents
 - „ Draft contract
 - „ Special issues (land acquisition, foreign exchange, investment promotion, etc.)
 - „ Bid evaluation criteria, committees
- Government approval (Special body, legal office, Ministry of Law)

4. Procurement

- „ Market sounding
 - „ Pre-qualification of bidders
 - „ RFP - finalization of service and output specifications
 - „ Final tender
 - „ Bid evaluation and selection
- Government approval (Special body, cabinet, etc.)

5. Contract award and management

- „ Contract award, financial close and contract signing
 - „ Service delivery management
 - „ Contract compliance
 - „ Relationship management
 - „ Renegotiation (when needed)
- Government approval of renegotiation terms (Special body, cabinet, etc.)

6. Dispute resolution

- „ Establishment of a process and a dispute resolution team Government approval (when needed by defined bodies)

Note: Mention of government approval and the activities shown at any stage are only indicative. The actual stages of government approval and activities undertaken in any stage vary from one country to another.

PPP Units

Developing a PPP project is a complex task requiring skills of a diverse nature many of which are not normally required for traditional public sector projects. The success of PPP projects depends on a strong public sector which has the ability to identify, develop, negotiate, procure, and manage suitable projects through a transparent process. However, the knowledge and the necessary skills that are required in development, financing and management of PPP projects are often lacking in the public sector.


One means of developing the knowledge and skills has been the creation within governments of dedicated Public-Private Partnership Units or launching of special PPP programs with similar objectives. Such units or programs have been established in many countries in Asia and Europe and they are structuring more and more successful projects.

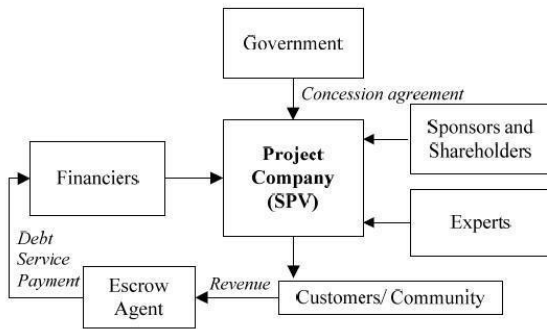
Structure and Functions of PPP Units

The administrative status of PPP units, however, varies from one country to another. For instance, it may be a government, semi-government, autonomous or even a quasi-private entity. The role and function of such units also greatly vary from one country to another. While in some countries these units have a very strong role and wide range of functions from project development to project approval (as in the Philippines, Gujarat in India, and the U.K.), in other countries they have advisory role with limited functions (the Netherlands and Italy, for example).

Another important issue in project implementation is administrative coordination. Generally, multiple agencies are involved in project implementation. The issuance of licences and permits may also need action of many government agencies, often at different levels of government. An institutional mechanism may be required to be established for the coordination of actions by the concerned agencies involved in project implementation as well as for issuing of necessary approvals, licences, permits or authorizations in accordance with the legal and regulatory provisions. The implementing agency can identify all such agencies and authorities that would be involved in the implementation process and in issuing the licences and permits, and establish coordination/liase mechanism at the outset to facilitate the required approvals and issuance of licences and permits in a timely manner.

PPP Structure

A typical PPP structure can be quite complex involving contractual arrangements between a number of parties including the government, project sponsor, project operator, financiers, suppliers, contractors, engineers, third parties (such as an escrow agent), and customers. The next figure shows a simplified PPP structure. However, the actual structure of a PPP depends on the type of partnerships. 



Note: The box on the right side labelled "expert" represents various participating groups in a PPP project including engineers (designer), contractor (builder), operator and insurer.

Similarly, the box on the left side labelled "financiers" includes various parties investing in a project comprising equity and debt financiers which may include domestic and foreign banks and financial institutions, bi-lateral and multi-lateral donor agencies, development banks, and similar other agencies.

The box labelled "escrow agent" represents normally a financial institution that is appointed by the project company and the lenders for managing an account called escrow account. The escrow account is set up to hold funds (including project revenues) accrued to the project company. The funds in the account are disbursed by the escrow agent to various parties in accordance with the conditions of the agreements. An escrow account is also used to hold a deposit in trust until certain specified conditions are met.

Special Purpose Vehicle (SPV)

What is a Special Purpose Vehicle (SPV)?

A Special Purpose/Project Vehicle (SPV) is a legal entity that undertakes a project. All contractual agreements between the various parties are negotiated between themselves and the SPV. An SPV is a commercial company established under the relevant Act of a country through an agreement (also known as memorandum of association) between the shareholders or sponsors. The shareholders agreement sets out the basis on which a company is established, giving such details as its name, ownership structure, management control and corporate matters, authorized share capital and the extent of the liabilities of its members.

The creation of a Special Purpose/Project Vehicle (SPV) is a key feature of most PPPs. The SPV is a legal entity that undertakes a project. All contractual agreements between the various parties are negotiated between themselves and the SPV. SPVs are also a preferred mode of PPP project implementation in limited or non-recourse situations, where the lenders rely on the project's cash flow and security over its assets as the only means to repay debts. The next figure shows a

simplified PPP structure. However, the actual structure of a PPP depends on the type of partnerships.

Joint Ventures

What is Joint Venture ?

The SPV is usually set by the private concessionaire/sponsor(s), who contribute the long-term equity capital in exchange for shares representing ownership in the SPV, and who agree to lead the project. The Government may also contribute to the long-term equity capital of the SPV in exchange of shares. In such a case, the SPV is established as a joint venture company between the public and private sectors and the government acquires equal rights and equivalent interests to the assets within the SPV just like other private sector shareholders.

Why Joint Venture between Public and Private Sectors

Sometimes governments want to ensure a continued interest (with or without controlling authority) in the management and operations of infrastructure assets of strategic importance such as ports or airports or assets that require a significant financial contribution from the government. In these cases, a joint venture may be established. A joint venture is an operating company owned by a government entity and a private company (or multiple companies including foreign companies if permitted by law), or a consortium of private companies. Often, the SPV is formed as a joint venture between an experienced construction company and a service operations company capable of operating and maintaining the project.

Reasons for Direct Government Involvement

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

- To address political sensitivity and fulfill social obligations
- To ensure commercial viability
- To provide greater confidence to lenders
- To have better insight to protect public interest.

PPP Models

A wide spectrum of models has emerged to enable private sector participation in providing infrastructure facilities and services. The models vary from short-term simple management contracts (with or without investment requirements), long-term and very complex BOT form, to divestiture. 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 categorisations are:
 - Supply and management contracts
 - Turnkey projects
 - Affermage/Lease
 - Concessions
 - Private ownership of assets.

Basic Features of PPP Models

The basic features of these five broad categories of PPP models are shown in the next figure. Each model has its own pros and cons and can be suitable to achieve some of the objectives of private participation. Special characteristics of some sectors and their technological development, legal and regulatory regimes, and public and political perception about the services in a sector may also be factors in deciding the suitability of a particular form of private participation. For example, management contracts are common for existing assets in the water and transport sectors, affermage/lease is common in the transport sector, concessions are common in the transport and telecommunication sectors, and turnkey and private ownership of assets are common in the power sector.

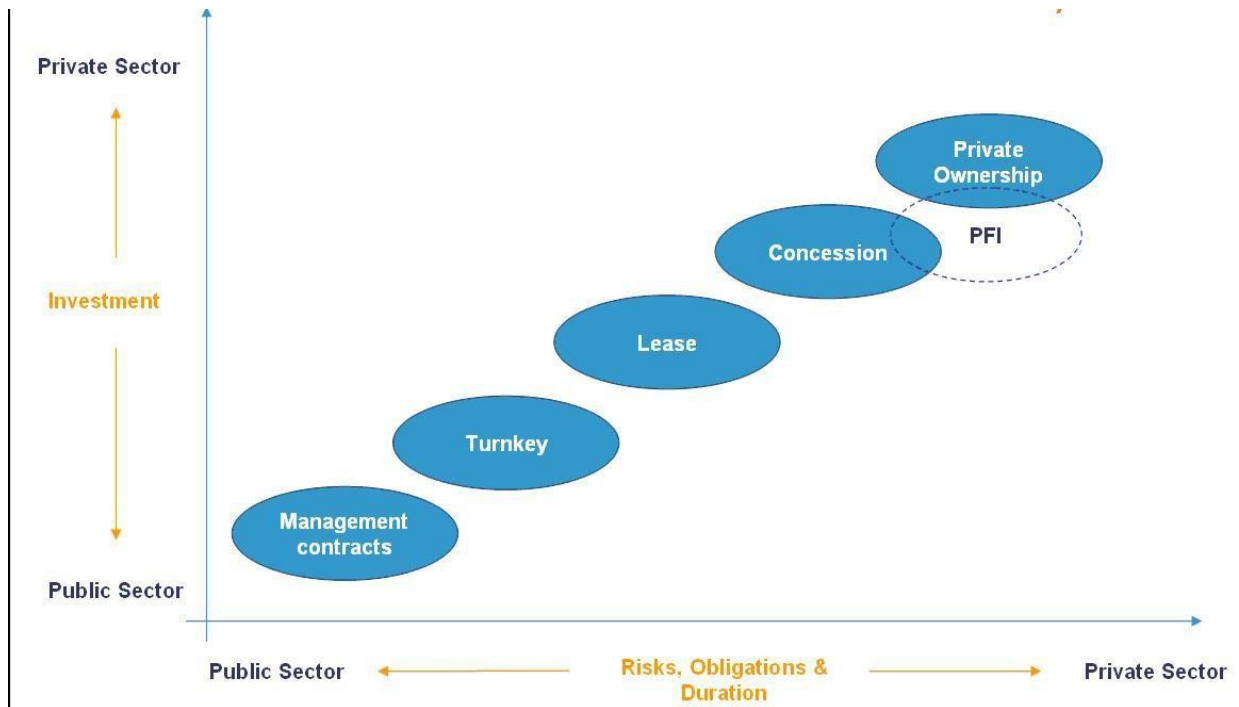


Figure 3: Basic features of PPP models.

A categorization of the PPP/PSP models is shown in the next table. While the spectrum of models shown in the table are possible as individual options, combinations are also possible. For example, a lease or (partial) privatization contract for existing facilities could incorporate provisions for expansion through Build-Operate-Transfer (BOT). In fact, many contracts of recent times are of combination type.

Broad category	Main variants	Ownership of capital assets	Responsibility of investment	Assumption of risk	Duration of contract (years)
Supply and management contract	Outsourcing	Public	Public	Public	1-3
	Maintenance management	Public	Public/Private	Private/Public	3-5
	Operational management	Public	Public	Public	3-5
Turnkey		Public	Public	Private/Public	1-3
Affermage/Lease	Affermage	Public	Public	Private/Public	3-20
	Lease*	Public	Public	Private/Public	3-20
Concessions	Franchise	Public/Private	Private/Public	Private/Public	3-7
	BOT**	Public/Public	Private/Public	Private/Public	15-30
Private ownership of assets (PFI type)	BOO/DBFO	Private	Private	Private	Indefinite
	PFI***	Private/Public	Private	Private/Public	10-30
	Divestiture	Private	Private	Private	Indefinite

* Build-Lease-Transfer (BLT) is a variant.

** Build-Operate-Transfer (BOT) has many other variants such as Build-Transfer-Operate (BTO), Build-Own-Operate-Transfer (BOOT) and Build-Rehabilitate-Operate-Transfer (BROT).

*** The Private Finance Initiative (PFI) model has many other names. In some cases asset ownership may be transferred to, or retained by the public sector.

Examples of PPP projects

Examples of PPP projects of the combination type include The Shanghai Container Terminal Company Limited (between the Port Authority and Hutchinson Whampoa in Shanghai, China), International Container Terminal Services, Inc. (in Manila, Philippines), and Delhi International Airport Limited (under an Operation-Maintenance-Development Agreement between GMRFraport Consortium and Airports Authority of India in New Delhi, India). These long-term lease/concession combination contracts involve operation and management and significant investments in existing public assets.

The Port Klang Container terminal deal in Malaysia is also an example of the combination type of PPP that involved leasing of existing infrastructure facilities at the port and BuildRehabilitate-Operate-Transfer (BROT) for further infrastructure development. The terminal facility was located on land that could not be legally sold to any private company. In order to circumvent this problem, the Port Authority leased the land to the private company for 21 years for the express purpose of operating a container terminal.

Management Contracts

Definition

A management contract is a contractual arrangement for the management of a part or whole of a public enterprise by the private sector, for example, a specialized port terminal for container handling at a port or a utility.

Basic features of management contracts

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 typically assumes specific responsibilities related to a service, and it is typically not asked to assume commercial risk. The private contractor is paid a fee to manage and operate services. Normally, payment of such fees is performance-based.

Usually, the contract period is short, typically two to five years. But longer periods are sometimes being used for large and complex operational facilities, such as ports or airports. For example, the initial management contract for Port Klang in Malaysia with a foreign company was only for three years. The main purpose was to set-up the system so that eventually a local company could take over for a longer period. See more on this project in a later section in this document.

The next figure shows the typical structure of a management contract.

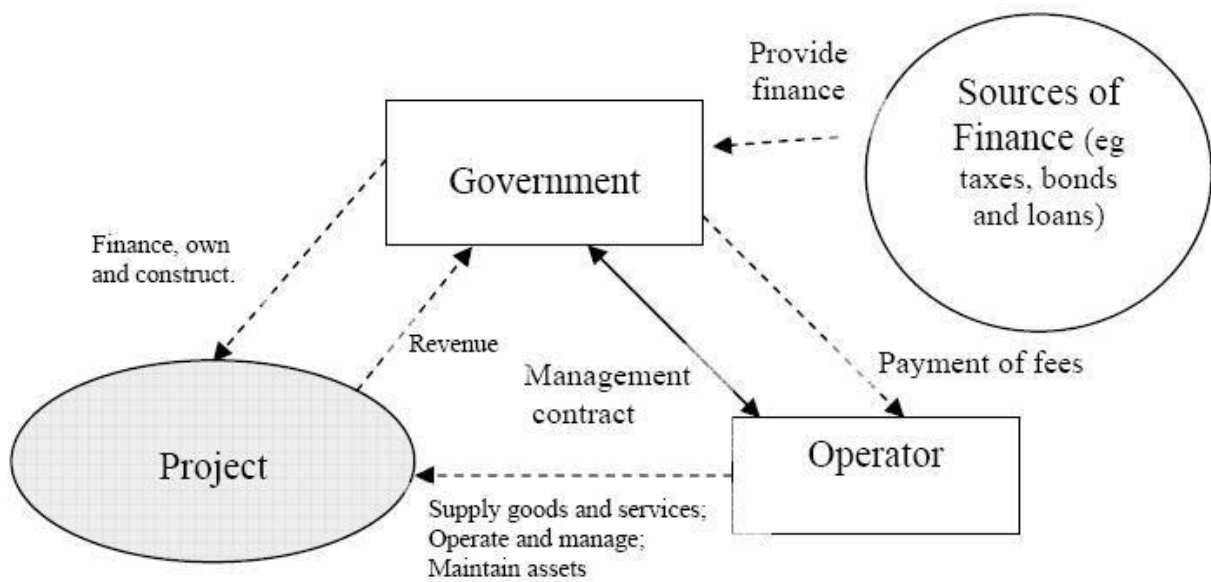


Figure 4: Management contract.

Pros & Cons Of management Contracts

The main pros and cons of using management contracts are:

Pros:

- Can be implemented in a short time
- Least complex of all the broad categories of PPPs
- In some countries, politically and socially more acceptable for certain projects (such as water 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

Types Of Management Contracts

There are several variants under the management contract including:

- Supply or service contract
- Maintenance management
- Operational management These variants are explained next:

a) Supply or service contract

Supply of equipment, raw materials, energy and power, and labour are typical examples of supply or service contract. A private concessionaire (see below) can itself enter into a number of supply or service contracts with other entities/ providers for the supply of equipment, materials, power and energy, and labour. Non-core activities of an organization (public or private) such as catering, cleaning, medical, luggage handling, security, and transport services for staff can be undertaken by private sector service providers. Such an arrangement is also known as outsourcing.

Some form of licensing or operating agreement is used if the private sector is to provide services directly to users of the infrastructure facility. Examples of such an arrangement include, licensing of stevedoring companies for cargo handling labour at ports and catering services for passengers on railway systems (the Indian Railways, for example). The main purpose of such licensing is to ensure the supply of the relevant service at the desired level of quantity and quality.

b) Maintenance management

Assets maintenance contracts are very popular with transport operators. Sometimes equipment vendors/suppliers can also be engaged for the maintenance of assets procured from them. For example, most buses of the Bangkok Metropolitan Transport Authority in Bangkok, Thailand are maintained by the supplier companies.

c) Operational management

Management contracts of major transport facilities such as a port or airport may be useful when local manpower or expertise in running the facility is limited or when inaugurating a new operation. Many airport and port facilities in the region are managed and operated by the private sector operators. Examples include Delhi Airport Cargo Terminal; Vientiane Airport Terminal; and the New Container Terminal in Chittagong, Bangladesh. Management contracts are also quite common in the transport sector for providing some of the non-transport elements of transport operations such as the ticketing system of public transport and reservation systems. Operational management of urban transport services can also be contracted out to the private sector.

In the simplest type of contract, the private operator is paid a fixed fee for performing managerial tasks. More complex contracts may offer greater incentives for efficiency improvement by defining performance targets and the fee is based in part on their fulfilment.

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. In this type of arrangement there is typically no strong incentive for early completion of a project. This type of private sector participation is also known as Design-Build. The next figure shows the typical structure of a turnkey contract.

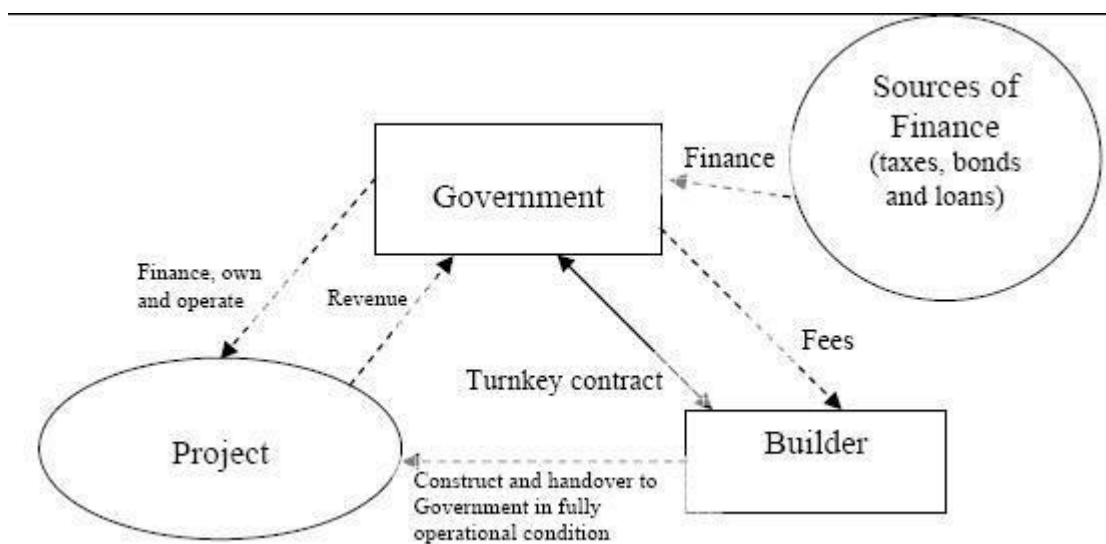


Figure 5: Turnkey contract

The main pros and cons of the turnkey 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

Affermage/ Lease

In the affermage/lease type of arrangement an 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, this model is often applied in combination with other models such as build-rehabilitate-operate-transfer (BROT). In such a case, the contract period is generally much longer, and the private sector is required to make a significant level of investment. The next figure shows the typical structure of an affermage/lease contract.

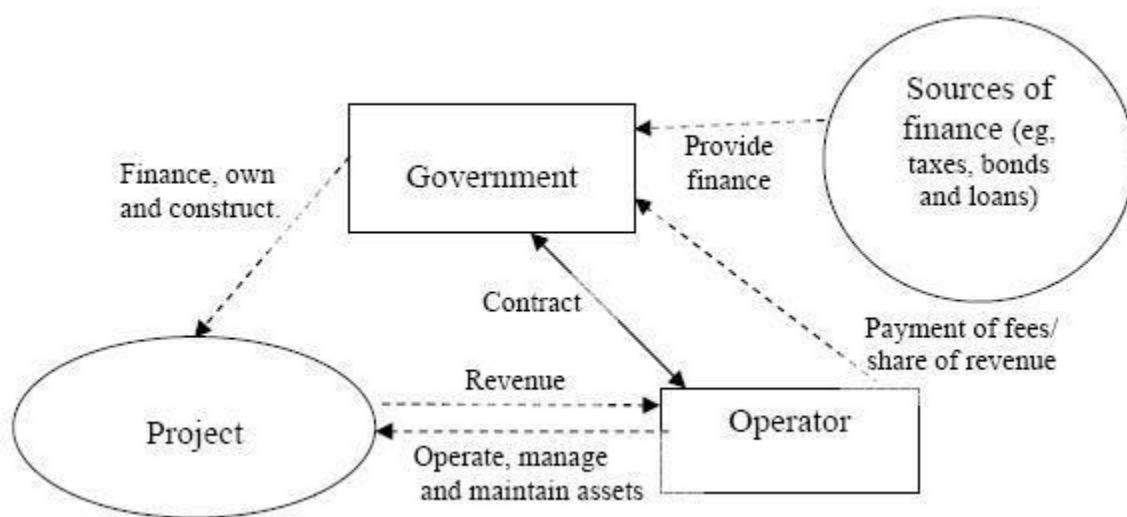


Figure 6: Affermage/lease contract

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 maintains the responsibility for investment and thus bears investment risks. The operational risks are transferred to the operator. However, as part of lease, some assets 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 typically transferred for a period of 15-30 years.

It may be noted here that if the assets transferred to the private sector under a lease agreement are constrained in their use to a specific function or service, the value of assets is dependent upon the revenue potential of that function or service. If assets are transferred to the private sector without restrictions of use, the asset value is associated with the optimum use of the assets and the revenues that they can generate.

Examples of leasing in the transport sector include Rajiv Gandhi Container Terminal, India, Laem Chabang Port Terminals B2, B3 and B4 in Thailand, and Guangzhou Baiyan Airport in China.

The main pros and cons of the affermage/lease 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
- Almost all risks are borne by the public sector
- Generally used for existing infrastructure assets
- Considerable regulatory oversight may be required

Difference between affermage and lease

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.

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 also 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 the initial years of a PPP programme in a country when the private sector may not have enough confidence in undertaking such a commercial venture. Typical concession periods range between 5 to 50 years.

The next figure shows the typical structure of a concession contract. It may be noted that in a concession model of PPP, an SPV may not always be necessary. An SPV may be necessary for a BOT type of concession however.

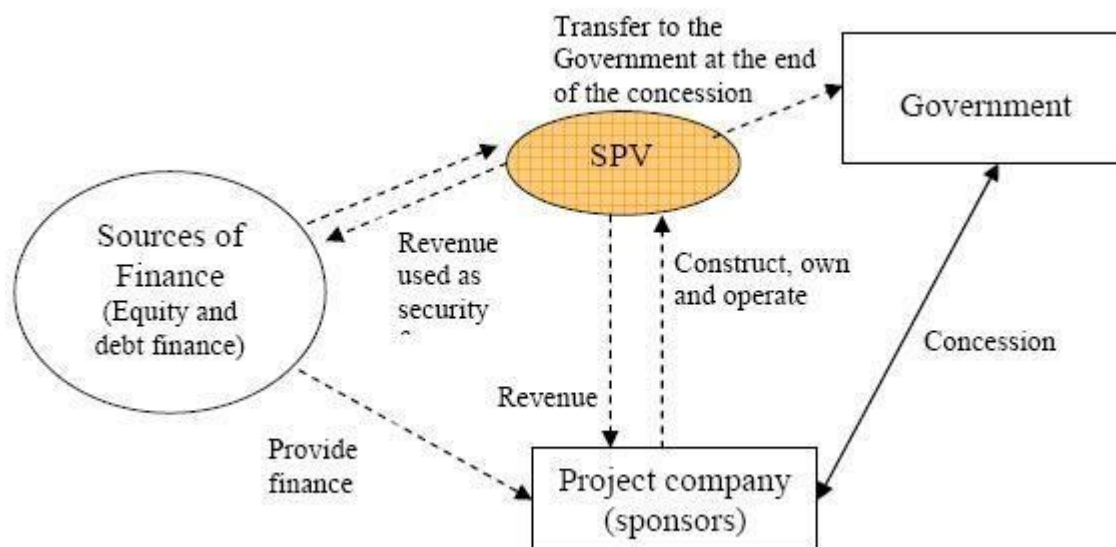


Figure 7. Concession contract

Concessions may be awarded to a concessionaire under two types of contractual arrangements:

- ☐ Franchise
- ☐ BOT type of contracts

Pros & Cons Of Concessions

The main pros and cons of the concession 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
- 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 to the government in the medium and long term

Franchise

Under a franchise arrangement the concessionaire provide services that are fully specified by the franchising authority. The private sector carries commercial risks and may be required to make investments. This form of private sector participation is historically popular in providing urban bus or rail services. Franchise can be used for routes or groups of routes over a contiguous area.

Build-Operate-Transfer (BOT)

Basic features of BOT

In a Build-Operate-Transfer or BOT (and its other variants namely Build-Transfer-Operate (BTO), Build-Rehabilitate-Operate-Transfer (BROT), Build-Lease-Transfer (BLT)) type of arrangement, the concessionaire undertakes investments and operates the facility for a fixed period of time after which the ownership reverts back to the public sector. In this type of arrangement, operating and investment risks can be substantially transferred to the concessionaire.

Liabilities of government

However, in a BOT type of model the government has explicit and implicit contingent liabilities that may arise due to loan guarantees provided and default of a sub-sovereign government and public or private entity on non-guaranteed loans. By retaining ultimate ownership, the government controls policy and can allocate risks to those parties best suited to bear them or remove them.

How a BOT deal is structured

The concessionaire's revenue in a BOT project comes from managing and marketing of 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 a minimum concession period.

Government involvement in a BOT project

In a BOT concession, the concessionaire may be required to establish a special purpose vehicle (SPV) for implementing and operating the project. The SPV may be formed as a joint venture company with equity participation from multiple private sector parties and the public sector. In addition to equity participation, the government may also provide capital grants or other financial incentives to a BOT project. However, it is also quite common that the government may not have any equity participation in a BOT project company.

Examples of BOT in Asia

BOT is a common form of PPP in all sectors in Asian countries.

The Bangkok Mass Transit System Public (BTS), the elevated train system in Bangkok, is an example of BOT project. The project was implemented under a 30-year BOT concession agreement between the concessionaire and Bangkok Metropolitan Administration (the city Government).

A large number of BOT port and road projects have been implemented in the region. The Nhava Sheva International Container Terminal (NSICT) is an interesting example of efficiency gains through a BOT project in the port sector. In 1997, the Jawaharlal Nehru Port Trust (JNPT), India signed an agreement with a consortium led by P&O Australia for the development of a two berth container terminal on BOT basis for 30 years at a cost of US\$ 200 million. P&O completed the project before schedule and commenced operations at the new terminal in 1999. Already the first year of operation the terminal was handling much more traffic than expected. Private participation also resulted in impressive efficiency gains. Efficiency indicators such as average turnaround time of ships and output per ship-berth-day at the terminal were comparable to other efficiently operated ports in the region. The average turnaround time in 2003-04 for ships and containers were 2.04 and 1.84 days, respectively, which were far superior to corresponding indicators for other comparable terminals in the public sector.

The BOT model is often used to exploit the existing the assets and raise capital resources for modernization and capacity addition to the existing infrastructure. The Indian Railway is applying this concept for the modernization of several large city railway stations under the BOT model.

Build-Rehabilitate-Operate-Transfer (BROT) is a variant of the BOT arrangement. Under the BROT arrangement, a private developer builds an add-on to an existing facility or completes a partially built facility and rehabilitates existing assets, then operates and maintains the facility at its own risk for the contract period. BROT is a popular form of PPP in the water sector. Many BROT water sector projects have been implemented in China, Indonesia and Thailand.

Examples of BROT

Port Klang in Malaysia is a good example of BROT in the transport sector. It is also one of the earliest successful PPP projects in the region. Under a 21-year contract, an award was made in 1986 to a private operator, Port Klang Container Terminal to manage and develop container facilities at the port.

The Siam Reap Airport in Cambodia is an example of BROT in the airport sector.

Difference between franchise and BOT

A key distinction between a franchise and BOT type of concession is that, in a franchise the authority is in the lead in specifying the level of service and is prepared to make payments for doing so, whilst in the BOT type the authority imposes a few basic requirements and may have no direct financial responsibility.

Private Ownership Of Assets

In this form of participation, the private sector remains responsible for design, construction and operation of an infrastructure facility and in some cases the public sector may relinquish the right of ownership of assets to the private sector.

Why private ownership may be beneficial

It is argued that by aggregating design, construction and operation of infrastructure services into one contract, important benefits could be achieved through creation of synergies. As the same entity builds and operates the services, and is only paid for the successful supply of services at a pre-defined standard, it has no incentive to reduce the quality or quantity of services. Compared with the traditional public sector procurement model, where design, construction and operation aspects are usually separated, 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 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.

Figure 8 shows a typical structure of this type of PPP model.

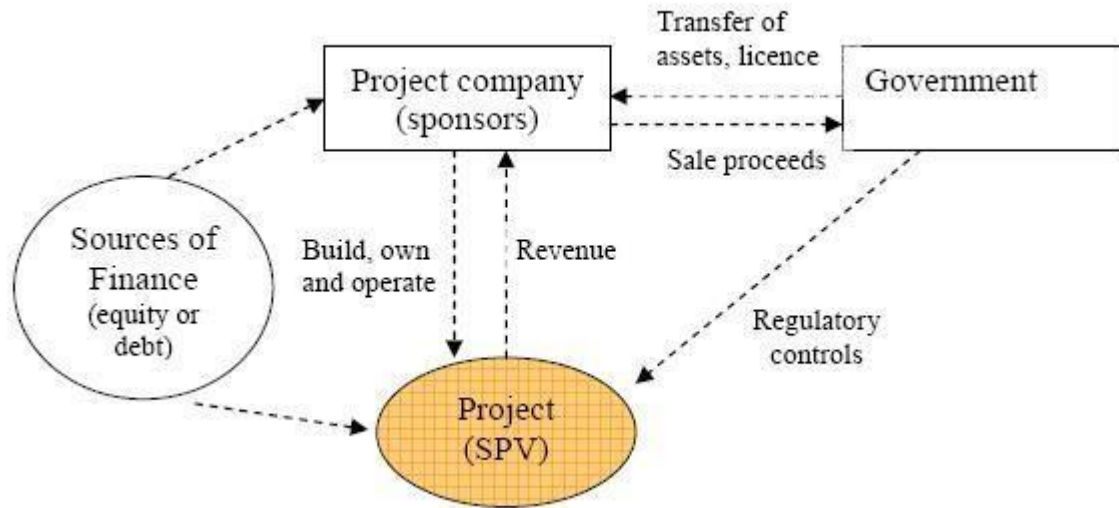


Figure 8. Private ownership of assets.

The main pros and cons of the private ownership model are summarized as follows:

Pros:

- Private sector may bear a significant share of the risks
- High level of private investment
- Potential for efficiency gains and innovation is very high

Cons:

- Complex to implement and manage the contractual regimes
- May have underlying fiscal costs to the government
- Negotiation between parties and finally making a project deal may require long time
- Regulatory efficiency is very important
- There may be contingent liabilities to the government in the medium and long term

There are three main types of PPP models with private ownership of assets:

- Build-Own-Operate (BOO) type of arrangement
- Private Finance Initiative (PFI)
- Divestiture by license or sale

Each of the three types of private ownership of assets models are described next.

Build-Own-Operate (BOO)

In the Build-Own-Operate (BOO) type and its other variants such as Design-Build-FinanceOperate (DBFO), the private sector builds, owns and operates a facility, and sells the product/service to its users or beneficiaries. This is the most common form of private participation in the power sector in many countries (examples are numerous). For a BOO power project, the Government (or a power distribution company) may or may not have a long-term power purchase agreement (commonly known as off-take agreement) at an agreed price from the project operator.

Examples of BOO projects

Many BOO projects have also been implemented in the transport sector. Examples include, Kutch and Pipavav Railways in India (joint venture BOO projects); Xiamen Airport Cargo Terminal in China and Sukhothai Airport in Thailand; and in the port sector, Wuhan Yangluo Container Port in China and Balikpapan Coal Terminal in Indonesia.

Licensing

In many respects, licensing may be considered as a variant of the BOO model of private participation. The Government grants licences to private undertakings to provide services such as fixed line and mobile telephony, Internet service, television and radio broadcast, public transport, and catering services on the railways. However, licensing may also be considered as a form of "concession" with private ownership of assets. Licensing allows competitive pressure in the market by allowing multiple operators, such as in mobile telephony, to provide competing services.

There are two types of licensing: quantity licensing and quality licensing. By setting limits through quantity licensing, the government is able to moderate competition between service providers and adjust supply between one area and other. Quality licensing however, does not place any restriction on number of providers or the amount of service produced but specifies the quality of service that needs to be provided. The government may get a fee and a small share of the revenue earned by the private sector under the licensing arrangement.

Private Finance Initiative (PFI)

In the Private Finance Initiative (PFI) model, the private sector similar to the BOO model builds, owns and operates a facility. However, the public sector (unlike the users in a BOO model) purchases the 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 lenders and default of a public or private entity on non-guaranteed loans.

In the PFI model, asset ownership at the end of the contract period may or may not be transferred to the public sector. The PFI model also has many variants.

Examples of PFI projects

The annuity model for financing of national highways in India is an example of the PFI model. Under this arrangement a selected private bidder is awarded a contract to develop a section of the highway and to maintain it over the whole contract period. The private bidder is compensated with fixed semi-annual payments for his investments in the project. In this approach the concessionaire does not need to bear the commercial risks involved with project operation.

Private infrastructure development in Japan is done mainly via the PFI model.

Apart from building economic infrastructure, the PFI model has been used also for developing social infrastructure such as school and hospital buildings, which do not generate direct "revenues". Examples include Japan and the United Kingdom of Great Britain and Northern Ireland.

Divestiture

This third type of privatization is clear from its very name. In this form a private entity buys an equity stake in a state-owned enterprise. However, the private stake may or may not imply private management of the enterprise. True privatization, however, involves a transfer of deed of title from the public sector to a private undertaking. This may be done either through outright sale or through public floatation of shares of a previously corporatized state enterprise.

Examples of divestiture

Full divestiture of existing infrastructure assets is not very common (Agusan and Barit hydroelectric power plants in the Philippines are examples). However, there are many examples of partial divestiture. Such examples include Beijing and Wuhan airports and Shanghai Port Container Co. in China.

Corporatization occurs when an infrastructure entity (for example, a port or a railway authority) is transformed from its statutory role as a governmental department or a quasi-independent entity subject to the conditions of the relevant sectoral Act (such as the Ports or Railways Act) to a fully commercialized but government-owned body under some form of legislation such as a Companies Act. The aim of corporatization is to increase the organizational flexibility and financial viability of the service provided by an entity by giving it an existence that is legally separate from that of government.

Example of corporatization

As an example, Indian Railways has moved down the path of commercialization and corporatization. A number of public sector undertakings have been formed for this purpose. These include Container Corporation of India Ltd (CONCOR), Kankan Railway Corporation Ltd and Railtel Corporation of India Ltd.

How are PPP Projects Generally Financed

PPP projects are generally financed using project finance arrangements. In project finance, lenders and investors rely either exclusively (“non-recourse” financing) or mainly (“limited recourse” financing) on the cash flow generated by the project to repay their loans and earn a return on their investments. This is in contrast to corporate lending where lenders rely on the strength of the borrower’s balance sheet for their loans.

It is important to stress that the project finance structure should be designed to optimize the costs of finance for the project. It should also underpin the allocation of risks between the public and private sectors as agreed in the PPP contract. In particular, the project financing should ensure that financial and other risks are well managed within and between the PPP Company shareholders, sponsors and its financiers. This should give comfort to the Authority that the PPP Company, and particularly its funders, are both incentivized and empowered to deal in a timely manner with problems that may occur in the project. Indeed, to a very large extent, the project finance structure should ensure that the interests of the main lenders to the project are aligned with those of the Authority “ that is, that both need the project to succeed in order to meet their objectives. Where this is the case, the Authority can be confident that the lenders will take on much of the burden of assuring the ongoing performance of the project. This is a key element of the transfer of risk from the public to the private sector in PPPs.

Principles of project finance

In a project finance transaction a PPP Company would usually be set up by the sponsors solely for the purpose of implementing the PPP project. It will act as borrower under the underlying financing agreements and will be a party to a number of other project-related agreements.

In a typical PPP project, up to 70%–80% of financing would be procured in the form of senior debt while the share of equity would not normally exceed 20%–30%.

The top-tier funding provided by lenders or capital market investors, usually referred to as “senior debt”, typically forms the largest but not the sole source of funding for the PPP Company. The rest of the required financing will be provided by the sponsors in the form of equity or junior debt. Grants, often in effect a form of public sector unremunerated equity, may also contribute to the financing package,

Since senior lenders do not have access to sponsors’ financial resources in project-financed transactions, they need to ensure that the project will produce sufficient cash flow to service the debt. They also need to ensure that the legal structuring of the project is such that senior lenders have priority over more junior creditors in access to this cash. In limited recourse financings, lenders will seek additional credit support from the sponsors and/or third parties to hedge against downside scenarios and the risk of the project’s failing to generate sufficient cash flow. Finally, lenders will wish to ensure that where a project suffers shortfalls in cash as a result of poor performance by one or more of the PPP Company’s subcontractors, these shortfalls flow through to the subcontractor, leaving the ability of the PPP Company to service the debt unimpaired.

Even though responsibility for arranging the financing of a PPP rests with the private sector (the PPP Company is the borrower), it is important for the Authority’s officials and their advisers to understand the financing arrangements and their consequences, for the following reasons:

When the Authority evaluates a bidder’s proposal, it must be able to assess whether the proposed PPP contract is bankable and whether the proposed financing is deliverable in light of the market conditions and practices prevalent at the time. Awarding the PPP contract to a company that ends up being unable to finance the project is a waste of time and resources.

The allocation of risks in the PPP contract can affect the feasibility of different financing packages and the overall cost of the financing.

The financing can have an impact on the long-term robustness of the PPP arrangement. For example, the higher the debt-to-equity ratio, the more likely it is that in bad times the PPP Company will run the risk of a loan default, possibly terminating the project. Conversely, the more

debt in a project, the more lenders are incentivized to ensure that project problems are addressed in order to protect their investment.

If the PPP includes State guarantees or public grants, the Authority will play a direct role in some part of the financing package.

The amounts and details of the financing can directly affect contingent obligations of the Authority (e.g. the payments the public sector would have to make if the PPP contract were terminated for various reasons).

The Authority's financial advisers should have a thorough understanding of what will be needed to make the PPP project bankable, given market conditions and practices prevalent at the time. Carrying out market sounding exercises at different points during the project preparation stages will greatly assist in developing a good understanding of investor and lender attitudes. It will save a great deal of time if any credit enhancement is to be provided by the public sector.

Financing structure

As outlined above, the financing of a PPP project consists principally of senior debt and equity (which may sometimes be in the form of junior shareholder loans). The financing structure may also include other forms of junior debt (such as "mezzanine" debt, which ranks between senior debt and pure equity) and in some cases grant funding.

PPP projects should seek to achieve optimum (as opposed to maximum) risk transfer between the public and private sector. But the allocation of risks among the private sector parties is also crucial. Financial structuring of the project relies on a careful assessment of construction, operating and revenue risks and seeks to achieve optimum risk allocation between the private partners to the transaction. In practice, this means limiting risks to senior lenders and allocating this to equity investors, subcontractors, guarantors and other parties through contractual arrangements of one kind or another.

As a general principle, the higher the gearing of a project, the more affordable it is likely to be to the public sector. This is because senior debt is less expensive than other forms of financing (except grants). Other things being equal, project gearing (i.e. the level of debt senior lenders will provide relative to the level of equity) will be determined by the variability of a project's cash flow. The greater the degree of riskiness in the cash flows, the greater the "cushion" lenders will need in the forecast of available cash flow beyond what will be needed for debt service. This is necessary to reassure lenders that the debt can be repaid even in a bad-case scenario. Lenders will specify their requirement in terms of forward-looking (i.e. predicted) **"annual debt service**

cover ratio” (ADSCR) above a specified minimum level. The value of required ADSCR will depend in large part on project risk, and therefore variability of cash flows.

The ADSCR is defined as the ratio of free cash (i.e. cash left to the project after payment of operating and essential capital costs) available to meet annual interest and principal payments on the debt. For example, if the payment mechanism is designed so that the PPP Company does not take demand risk, lenders might be satisfied with a projected annual debt service cover ratio (ADSCR) of 1.3x. But if a PPP Company bears substantial traffic risk, then lenders may insist on a minimum ADSCR as high as 2.0x. Lenders use detailed forward-looking financial models to estimate future cash flows and cover ratios.

For a given gearing (or volume of debt in the project), the target ADSCR will determine the level of the service fee to be paid by the Authority. Alternatively, for a given level of service fee (perhaps the affordability limit), the target ADSCR will determine the project’s gearing. In other words, the lower a project’s gearing (the more equity relative to debt), the higher the cover ratio from a given service fee.

The Authority’s financial advisers need to understand lenders’ requirements in this regard. It will greatly facilitate financing if the project developed and taken to the market is structured in such a way that the cover ratios are compatible with lenders expectations for the particular sector and type of project. This will also facilitate achieving the best possible cost for the financing and will thus have direct implications for the public sector, which is usually the ultimate payer for a PPP.

One of the fundamental trade-offs in designing PPPs is therefore to strive for the right balance between risk allocation between the public and private sector, the risk allocation within the private sector consortium and the cost of funding for the PPP Company.

Debt

Senior debt enjoys priority in terms of repayment over all other forms of finance. Mezzanine debt is subordinated in terms of repayment to senior debt but ranks above equity both for distributions of free cash in the so-called “cash waterfall” (i.e. priority of each cash inflow and outflow in a project) and in the event of liquidation of the PPP Company. Since mezzanine debt’s repayment can be affected by poor performance of the PPP Company and bearing in mind the priority in repayment of senior debt, mezzanine debt typically commands higher returns than senior debt.

Debt to a PPP project is normally priced on the basis of the underlying cost of funds to the lender plus a fixed component (or “margin”) expressed as a number of basis points to cover default risk

and the lender's other costs (e.g. operating costs, the opportunity cost of capital allocations, profit).

It is important to bear in mind that the underlying cost of funds is typically determined on the basis of floating interest rates (i.e. rates that fluctuate with market movements). These are normally based on interbank lending rates such as EURIBOR in the euro market or LIBOR in the sterling market. In contrast to these floating rate funds, the revenues received by the PPP Company do not generally change along with the interest rates. This mismatch is typically remedied by the use of an interest rate swap, through which the PPP Company ends up paying a fixed interest rate (this is referred to as the "hedging"). Responsibility for incorporating hedging instruments into the financing structure should be left to the PPP Company, as it is the PPP Company that has the right incentives to take appropriate action. However, the cost of these swaps is relevant to the public sector as they may result in costs in certain termination situations. For this reason, they should be analyzed by the Authority's financial adviser.

Debt for major PPP projects may be provided by either commercial banks, international financial institutions (such as the European Investment Bank) or directly from the capital markets. In this last case, project companies issue bonds that are taken up by financial institutions such as pension funds or insurance companies that are looking for long-term investments.

Financial advisers will be able to advise on the likely sources of funding for a given project. They would also be expected to make an assessment of the anticipated costs and benefits of funding options. This will include an assessment of the debt tenors (the length of time to maturity, or repayment, of debt) likely to be available from various sources. This is particularly important if long-term funding is not available for the project and where the public sector may be drawn into risks associated with the need to refinance short-term loans (so-called "miniperm" structures).

Equity

Equity is usually provided by the project sponsors but may also be provided by the contractors who will build and operate the project as well as by financial institutions. A large part of the equity (often referred to as "quasi-equity") may actually be in the form of shareholder subordinated debt, for tax and accounting benefits. Since equity holders bear primary risks under a PPP project, they will seek a higher return on the funding they provide.

Credit enhancement

Project finance transactions may feature various forms of credit enhancement. For example:

Credit support from sponsors and subcontractors: Senior lenders will often require sponsors to put in place certain credit-enhancement measures that take some of the risk away from those senior lenders (and in some cases, equity holders). These may take a variety of forms, including:

guarantees by the sponsors and third parties relating to the performance of the PPP Company's or other participants' obligations under the project documentation;

financing facilities that provide temporary liquidity to deal with specific risks (e.g. a large depreciation of the local currency); and

insurance against certain project related risks (e.g. construction risks, loss of revenue, third party liability, environmental liability).

Public sector support: Public sector support instruments may also be deployed, for example:

- direct funding support by way of public sector capital contributions. These may come from community, national, regional or specific funds. They may be designed to make a project bankable or affordable.
- contingent support or guarantees by the public sector to the PPP Company or other private sector participants for certain types of risks which cannot otherwise be effectively managed or mitigated by the PPP Company or other private sector participants (e.g. minimum revenue guarantee for a toll road).

Loan Guarantee for TEN-Transport (LGTT): The LGTT is a unique credit enhancement instrument specific to TEN-T projects in which the private sector takes traffic risk.

Security structure and lenders' protection

As noted above, project finance lenders rely exclusively or mainly on project cash flows. The lenders' security arrangements and protection mechanisms reflect this and consist mainly of:

secured interests over all the project assets (including and especially all contracts) to enable the lenders to take remedial actions if the PPP Company has failed;

controls over all cash inflows and outflows of the PPP Company. As noted above, loan contracts and other financing documents will establish the waterfall for allocating the PPP Company's cash inflows to the various cost items. This will ensure that senior debt service always has priority. In addition, it will define the circumstances in which senior lenders are able to prevent equity distributions ("lock up"). This will usually be defined by reference to financial ratios such as ADSCR;

cash flow controls in the form of reserve accounts (e.g. debt service reserve account, maintenance reserve account).

For example, performance bonds callable in the event of the contractor's failure to perform the terms of the construction contract. Parent company guarantees will also often be required from construction and other service subcontractors.

The LLCR is defined as the ratio of the net present value of cash flow available for debt service for the outstanding life of the debt to the outstanding debt amount.

Sources of finance. Project finance may come from a variety of sources. The main sources include equity, debt and government grants. Financing from these alternative sources have important implications on project's overall cost, cash flow, ultimate liability and claims to project incomes and assets.

Equity refers to capital invested by sponsor(s) of the PPP project and others.

Debt refers to borrowed capital from banks and other financial institutions. It has fixed maturity and a fixed rate of interest is paid on the principal.

Equity is provided by project sponsors, government, third party private investors, and internally generated cash. Equity providers require a rate of return target, which is higher than the interest rate of debt financing. This is to compensate the higher risks taken by equity investors as they have junior claim to income and assets of the project.

Lenders of debt capital have senior claim on income and assets of the project. Generally, debt finance makes up the major share of investment needs (usually about 70 to 90 per cent) in PPP projects. The common forms of debt are:

- Commercial loan
- Bridge finance
- Bonds and other debt instruments (for borrowing from the capital market)
- Subordinate loans

Commercial loans are funds lent by commercial banks and other financial institutions and are usually the main source of debt financing. Bridge financing is a short-term financing arrangement (e.g., for the construction period or for an initial period) which is generally used until a long-term financing arrangement can be implemented. Bonds are long-term interest bearing debt instruments purchased either through the capital markets or through private placement (which means direct sale to the purchaser, generally an institutional investor - see below). Subordinate

loans are similar to commercial loans but they are secondary or subordinate to commercial loans in their claim on income and assets of the project.

The other sources of project finance include grants from various sources, supplier's credit, etc. Government grants can be made available to make PPP projects commercially viable, to reduce the financial risks of private investors, and to achieve socially desirable objectives such as to induce economic growth in lagging or disadvantaged areas. Many governments have established formal mechanisms for the award of grants to PPP projects. Where grants are available, depending on government policy they may cover 10 to 40 per cent of the total project investment.

Example: Viability gap funding in India

The viability gap funding scheme of the Government of India is an example of an institutional mechanism for providing financial support to public-private partnerships in infrastructure. A grant, one-time or deferred, is provided under this scheme with the objective of making projects commercially viable.

The viability gap funding can take various forms including capital grants, subordinated loans, operation and maintenance support grants, and interest subsidies. A mix of capital and revenue support may also be considered.

A special cell within the Ministry of Finance manages the special fund, which receives annual budget allocations from the Government. Implementing agencies can request funding support from the fund according to some established criteria. In case of projects being implemented at the state level, matching grants are expected from the state government

The main providers of finance for the PPP project are:

Equity investment from project promoters and individual investors

National and foreign commercial banks and financial institutions

Institutional investors

Capital markets

International financial institutions

Loans provided by national and foreign commercial banks and other financial institutions generally form the major part of the debt capital for infrastructure projects. The rate of interest

could be either fixed or floating. Loans are normally provided for a term shorter than the project period. Often two or more banks and financial institutions participate in making a loan to a borrower known as syndicated loan. Refinancing of the loan is required when the loans are provided for a maturity period shorter than the project period.

In addition to commercial banks, international and regional financial institutions such as the World Bank or the Asian Development Bank often provide loans, guarantees or equity to privately financed infrastructure projects.

Institutional investors such as investment funds, insurance companies, mutual funds, or pension funds typically have large sums available for long-term investment and could represent an important source of funding for infrastructure projects either through private placement or via bonds purchases.

When investors and financiers consider financing a project, they carry out extensive due diligence work taking into account technical, financial, legal and other aspects of the PPP deal. This due diligence is intended to ensure that the project company's (or SPV's) business plan is robust and the company has the capacity to deliver on the PPP contract.

The financing arrangement for a large project can be quite complex. For such a project the required finance typically comes from a large number of providers. This is illustrated by the case of a hydropower project in Lao PDR, see next box.

Financing arrangement for a large project: hydropower project in Lao PDR

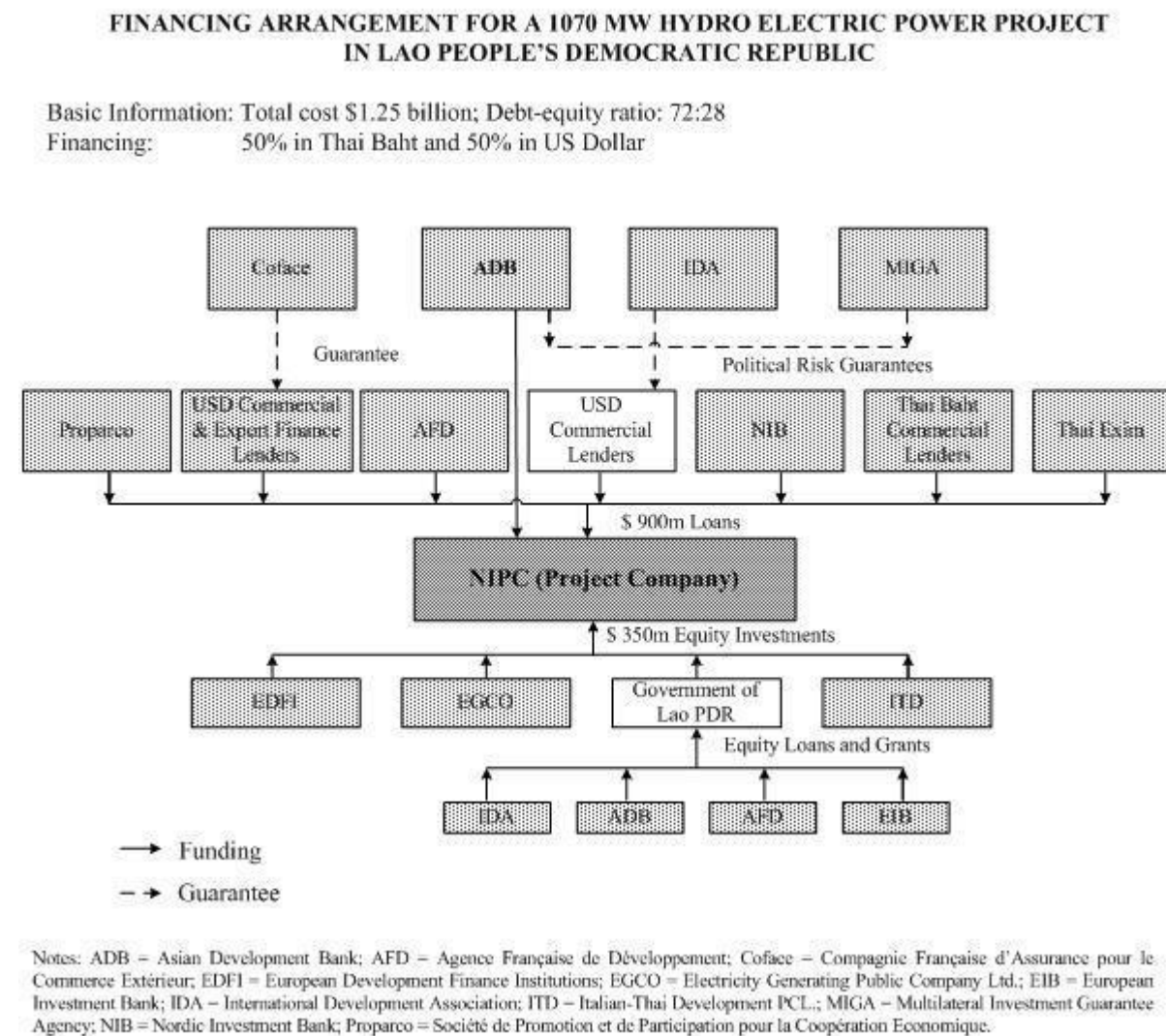


Figure 9

Source: Presentation by the Asian Development Bank at a seminar organized by the Asian Development Bank Institute on 19-22 November 2007, Tokyo, Japan, and other sources.

Why financial structures matter?

Careful analysis of alternative financial structures is required to establish the right financing structure for a project. As the expected return on equity is higher than the return on debt, the relative shares of debt and equity in the total financing package have important implications for the cash flow of the project. Their relative share is also important for taxation purposes.

Generally, the higher the debt, the lower the tax on return. However, a higher proportion of debt, requires a larger cash flow for debt servicing, which can be problematic, especially in the early years of project operation when revenues are generally low. This is often the case in transport and water sector projects, which implies high risks of default.

What is the cost of capital?

The cost of capital for a project is a weighted sum of the cost of debt and the cost of equity. The cost of capital is often used as the discount rate, the rate at which projected cash flow is discounted to find the present value or net present value of a project.

$$\text{Cost of capital} = (\text{Return on debt}) \cdot (\text{share of debt}) + (\text{Return on equity}) \cdot (\text{share of equity})$$

Risk is an important element which is factored in to determine the cost of debt and equity. Interest rate charged by lenders will depend on the level of risk they estimate for the project. The higher the risk perceived, the higher the interest rate will be (interest rate can be decomposed as the sum of a risk free rate - practically the rate at which government can borrow money from the market - to which a risk premium is added).

Similarly, the cost of equity is defined as the risk-weighted projected return required by investors and is established by comparing the investment to other investments with similar risk profiles.

Government regulators need to consider the cost of capital when determining the appropriateness of tariff levels. Ideally, the Internal Rate of Return of a project should be equal to its cost of capital. If IRR is greater than the cost of capital, the concessionaire/investor makes excess profit, and if the IRR is less than the cost of capital, the concessionaire/investor loses money and may even go bankrupt.

Why the debt - equity ratio matters

Usually, banks will be more comfortable to lend to an entity which has a higher share of equity as it makes the project safer while investor will try to reduce equity investments to the minimum to increase their potential return through higher leverage.

How the cost of capital can be lowered

The cost of capital may be lowered through refinancing of PPP projects after their construction phase. Sponsors may be required to provide a significant amount of equity capital at the beginning of a project during the construction phase when the risk is high. Once the construction is complete, the construction risks associated with it have been overcome, and the cash flow begins to materialize, the expensive equity or debt capital can be refinanced using cheaper debt capital thus lowering the total cost of capital.

How refinancing helps

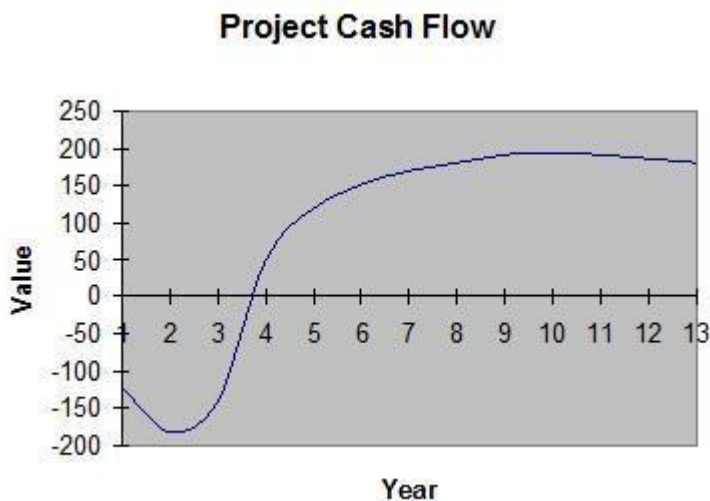
The relationship between risk and return of a project changes over different phases. The highest level of risk exists during the construction phase of a project when construction delays and cost overruns can have serious consequences to a project's success. It is during this phase that investors require the highest return on their capital to compensate for the risk, thus the higher cost of capital. Once construction is over and the cash flow from operations has begun, project risks drop off substantially and it is possible for sponsors to refinance at a lower cost.

Why cash flow analysis is important

It is important to analyze a project's cash flow as available cash is used to service any debt obligations. The analysis is done through the development of a cash flow model. Once the financial model for a project is developed, the implications of alternative financial structures and effects of changes in other parameter values on cash flow can be analyzed. The next figure shows a typical cash flow situation.

Figure

10



Critical components of a cash flow model are:

Capital investment

Terminal cash flow

Discount rate

Assumptions on parameter values

Next, we will discuss these components in more detail.

Components of a Cash Flow model:

The capital investment is the cost of developing a project, regardless of funding sources. Typical components of capital investment cost are: land and site development costs, buildings and all civil works, plant and machinery, and technical, engineering and other professional service fees.

The terminal cash flow is the cash that is generated from the sale or transfer of assets upon termination or liquidation of the PPP contract tenure. In the case of a PPP project, the residual or transfer price is generally negotiated and included in the contract agreement.

The discount rate is the rate that is used to calculate the present value of future cash flows. It is often the weighted average cost of capital for the project from different sources.

In order to calculate the future cash flows, it is also necessary to make assumptions for important parameter values over the project's life. The main parameters for which values need to be assumed include: interest and inflation rates, the pricing mechanism, demand for the goods and services produced by the project, construction time, debt repayment method, depreciation schedule, tax structure, and physical and technological lifetime of assets.

How subordinate debt helps in debt financing

The revenue available for debt service is used first to meet the senior claims. If revenue is still available it is then used to meet the junior claims (subordinate debt and thereafter equity). A simplified example below shows how it works in reducing the burden of debt on a project.

Amount Coverage Ratio

Revenue: \$1,050

Senior claims: \$700 $1,050/700 = 1.50$

Junior claims: \$200 $1,050/(700+200) = 1.17$

On a combined claim (if the whole amount of loan was of the same type, i.e. senior debt), the coverage ratio is 1.17, which in most circumstances would be considered low and not qualify for cheaper credits. The coverage ratio, however, is significantly improved if the debt is divided into two parts: a senior debt and a subordinate debt. As the senior debt is only a portion of the total debt and has the first claim on all the revenues available for debt service, its coverage is increased to 1.5 and its credit quality would be enhanced. The credit quality is very important to debt financing. With a good credit rating the project may find cheaper debt financing.

The availability of subordinate debt helps in reducing the risk to senior debt lenders and allows the project sponsor to borrow at lower interest rates. The subordinate debt provider, however, absorbs a share of the risk if revenues fall short of debt service requirements.

Because of this feature of subordinate debt in reducing the monetary cost of debt, some governments provide loans to implementing agencies (under public credit assistance programmes) to improve the credit quality of senior debt. It lowers the risk to lenders and helps the implementing agency to obtain loans at a lower interest rate reducing the debt burden on the project.

Source: Based on an example given in Federal Highway Administration, US Department of Transportation (undated). Innovative Finance Primer, Publication Number FHWA-AD-02-004.

Financial Indicators:

A number of financial indicators are used to assess the financial viability of a project and alternative financial structures for its implementation. Some of the main indicators include:

- Return on Equity (ROE)
- Annual Debt Service Coverage Ratio (ADSCR)
- Project Life Coverage Ratio
- Payback period
- Net Present Value (NPV)
- Financial Internal Rate of Return (FIRR)

These are explained next:

Return on Equity. The net income earned on an equity investment. It measures the investment return on the capital invested by shareholders and should not be less than the expected return on equity.

Annual Debt Service Coverage Ratio. It is a measure that calculates the cash flow for a period in relation to the amount of loan interest and principal payable for that same period. The ratio should be (at the minimum) equal to or greater than 1 as that demonstrates that the project is earning enough income to meet its debt obligations. It is an important criterion used by financiers to monitor financial performance of a project.

Project Life Coverage Ratio. It is also similar to debt service coverage ratio but considers debt service coverage on a given date based on future cash flows from that date until the end of the

project life. This ratio enables lenders to assess whether or not there would be sufficient cash flow to be able to service the debt in the event that the debt needs to be restructured.

Payback period. The length of time needed to recover initial investment on a project. It may be determined using either discounted cash flow or non-discounted cash flow.

Net Present Value. It is the sum of the present value of all future cash flows. The present value refers to discounted value of cash flows at future dates. A project is considered for investment if its NPV is positive.

The Internal Rate of Return is the discount rate at which the net present value of the cash flow of a project is zero. The IRR may be calculated based on either economic, or financial (ie, market) prices of all costs and revenues (or benefits). If the financial IRR is less than the cost of capital, it implies that the project would lose money. If the economic IRR is less than the opportunity cost of capital (ie, a predetermined cut-off rate of investment), the project is not viable from an economic point of view.

Special Nature Of Infrastructure Financing Needs:

Infrastructure financing needs investments over a much longer period than for commercial loans. However, typical commercial lenders find it difficult to work with long-term investments, e.g., on the order of 20 to 30 years. The capital markets are most suitable sources for long-term investments in the infrastructure sector (for the supply of both equity and debt). Thus, a successful capital market is very helpful for a thriving PPP programme in a country.

Many countries have established special financing institutions to meet the long-term debt financing needs for their infrastructure sectors. Public-private partnership projects awarded to private companies for development, financing and construction receive priority for financing from such institutions. Another important role such financing institutions playing is the refinancing of those private sector projects initially financed by banks, which find long-term financing for infrastructure projects difficult. See box below for examples of such institutions established in India.

It may be mentioned here that in countries with large PPP programmes, unlike in the past, domestic financing has become more common than foreign investment. This trend is expected to continue in the future. This has made establishment of special infrastructure financing institutions, and development of domestic capital market and innovative financial instruments more important. One major advantage of domestic financing is that it reduces the risks due to fluctuation of the local currency. It also reduces country's obligation to allow repatriation of capital and profit.

Example: Special infrastructure-financing institutions in India:

India has established special institutions that mobilize funds from domestic and international capital markets for the financing of infrastructure projects. The Infrastructure Development Finance Corporation (IDFC) established in 1997 with the participation of the Government of India, the World Bank, KfW, IPEX-Bank and several commercial banks in India, provides longterm loans and guarantees for public and private sector infrastructure projects.

In a separate initiative, in January 2006 the Government of India established a wholly Government-owned company called the India Infrastructure Finance Company Limited (IIFCL).

Compensation To Project Sponsors/ Developers:

Forms of compensation to private sector

There are five main ways to compensate a private investor of a PPP project:

Direct charging of users

Indirect charging of (third party) beneficiaries

Cross-subsidization between project components

Payment by the Government (periodic fixed amount or according to use of the facility, product or service)

Grants and subsidies (already discussed in a separate section)

Direct charging of users by the private investor is most common for economic infrastructures such as power, telecommunication, water, and transport, particularly for port, airport and railway projects. In case of road projects however, compensation may be made either through direct charging of users or payment by the government. Direct charging of road users may not always be possible because of social and political reasons. In such a situation, the government pays the operator on behalf of the road users.

Payment from indirect beneficiaries

Systems for collecting payment from the indirect beneficiaries of transport projects can constitute a major source of funding. Such systems, which include a capital gains tax in the form of certain land-related taxes and fees imposed on property owners and developers, are used, for example, in China; Hong Kong, China; and Japan as well as in the United States of America to capture a part of the development gains generated by new transport projects. However, in most countries such payment systems either do not exist or have very limited applications. Japan and the Republic of Korea have used the land readjustment tool for the financing of urban infrastructure projects.

Land Re-adjustment

Land readjustment is a comprehensive technique for urban area development that provides network infrastructure and other utility facilities and amenities in an integrated manner together with serviced building plots. This approach is also known as land pooling or reconstitution of plots. It may be undertaken by a group of landowners or by a public authority. In this method all the parcels of land in an area are readjusted in a way that each land owner gives up an amount of land in proportion to the benefits received from the infrastructure which is determined on the basis of the size and location of each site. The provision of public facilities enhances the land value and a sound urban area is created. The land contributed by the landowners is used to provide community facilities and amenities and can also be sold or leased out to meet the project costs including those for the infrastructure.

Cross-subsidization in PPPs

PPPs can be designed based on cross-subsidization between project components, when excess revenues generated from one component can be used to compensate the shortfall in another component in order to make the whole project commercially self-sustainable. The rail-property development model used in Hong Kong, China is a good example of such an arrangement. In this model, part of the profit made from real estate development on lands at or close to station areas, and along the right-of-way of rail transit routes is used to partly finance the rail system. A differential pricing policy with the objective of cross-subsidization may be adopted in an urban utility service project. For example, the industrial and commercial users of a water and sanitation project in Tirupur, South India pay a higher price for water to subsidise the residential users who are charged much lower than the actual cost of water.

Government buys the service on behalf of the beneficiaries

The government can make payments of periodic fixed amount or according to use of the facility, product or service at a predetermined agreed price. This type of arrangement is common for social infrastructures such as school, hospital and other public buildings. Shadow tolling of roads is another example. Shadow tolls are payments made by government to the private sector operator of a road, at least in part, based on the number of vehicles using the road. Shadow tolling is practiced in the U.K. However, instead of shadow pricing, the government may also make payments of periodic fixed amount, as the National Highway Authority (NHAI) in India pays for their PPP projects implemented under the "annuity model".

Why grants may be considered

Grants and subsidies by the government, if available, can be used to finance in part. Such grants and subsidies can be justified on the following grounds:

- To meet public service obligations (PSOs)
- To achieve social objectives (for example, to ensure no body is priced out in a water project)
- To rectify market imperfections (that create externalities)
- To make economically viable and socially desirable projects commercially viable
- The size of government support should depend on what extent a particular project may qualify for such grants and subsidies considering such grounds.

Major Issues in PPP development:

Risk sharing and Management:

Risk is inherent in all PPP projects as in any other infrastructure projects. The main types of risks include:

Construction risk (mainly delays in construction)

Technology risk (arises when the technology is not a proven one)

Sponsor risk (ability of the sponsor to deliver the project)

Environmental risk

Commercial risk (lower than expected demand for services produced by the project)

Operating risk (inefficiency in operation leading to higher operating cost)

Legal risk (change in law)

Regulatory risk (change in regulatory regimes)

Political risk (change in government policy)

Force majeure (risks due to unpredictable natural and man-made events such as earth quake, flood, civil war, etc.)

Risk Matrix:

An important aspect of PPPs is an explicit arrangement for sharing of risks between parties involved. Many different techniques ranging from rule of thumb (based on past experiences) to sophisticated simulation models are available for the assessment of different risks in a project.

A risk matrix is developed after assessing risks in quantitative and/or qualitative terms for all possible risk factors. PPP contracts often include incentives that reward private partners for mitigating risk factors. An example of a detailed risk matrix is provided in Annex 2 to this course. Though it is set up from the perspective of the government, it provides an example of how risks can be identified, assessed, and mitigated.

The risk matrix identifies the risks, their magnitudes and possible mitigation measures and serves as a useful tool for the purpose of sharing risks between the parties. The general principle is that project risks are allocated to the party that is the best equipped to manage them most cost effectively. For example, political and regulatory risks are more appropriate to the public sector while construction and operating risks are more suited to the private sector. The allocation of commercial risks is generally more common to the private sector. However, in certain cases, a part of the commercial risks due to lower than expected demand for services produced by the project may be shared by the public sector. In such cases normally a provision is also set to share any excess revenue if the demand exceeds the expected level. The following table provides an example of an arrangement for sharing of various risks.

Table 1: A hypothetical risk allocation table.

Risk	Contractor	Operator	Equity	Lenders	Government	Insurance	Unallocated
1. Construction overruns/delays	*						
2. Change in legal regimes					*		
3. Land acquisition					*		
4. Approvals/licences/permits	*				*		
5. Variations	*				*		
6. Taxation	*		*	*	*		
7. Tariffs and charges		*	*		*		
8. Revenue/Traffic/Demand			*	*	*		
9. Operation		*					
10. Maintenance		*					
11. Defects liability		*					
12. Natural disaster						*	
13. Industrial action		*	*		*		
14. Environmental			*		*		
15. Civil disobedience		*			*		
16. Insurance						*	
17. Force majeure							*
18. Confiscation					*		
19. Interest rate risk			*	*			

Source: Adapted from Antonio Estache and John Strong, The Rise, the Fall, and ...the Emergency Recovery of Project Finance in Transport, World Bank Institute.

Guarantees And Balance In Risk Sharing:

Necessity of good balance in risk sharing

It is important to note that risk transfer is a key element in effective PPP design. If a good balance in sharing risk is not achieved, it will result in increased costs and the inability of one or both parties to fully realize their potential. The magnitude of project risks are also assessed as a part of the due diligence process undertaken by lenders. The higher the assessed/perceived risks of a project, lenders would charge a higher risk premium for lending money. Consequently, the

financing cost of project becomes higher. This means, holding project capital and operating cost constant, the same project in a country with higher risk perceptions would require a higher tariff than in countries with lower risk perceptions.

Implications of loan guarantees

The government can provide loan guarantees (partial or full) for a project to help reducing its risk level and thereby financing costs. This is also helpful to make a project commercially viable. If such a guarantee is available, investments risks can be assessed at the zero or no risk level (compared with sovereign borrowings). However, such guarantees expose the government to potential liabilities in the event of a loan default and as such have implications for fiscal discipline (see Module 3). Further, full guarantee by government reduces the incentives for the private operator to manage the project risks.

Risk guarantee instruments

Multi-lateral agencies such as the Multilateral Investment Guarantee Agency or MIGA of the World Bank Group provide loan guarantee of developing country private sector projects. MIGA provides guarantee against foreign currency transfer restrictions, expropriation, breach of contract, war and civil disturbance. The Asian Development Bank has also a similar mechanism for providing loan guarantee to private projects.

Some countries have their own mechanism for providing loan guarantee. In the Philippines, for example, there is a national agency that provides loan guarantee for projects undertaken by local government units (LGUs).

Unsolicited Projects:

Problems of unsolicited proposals

Normally, the government invites proposals for projects which it wants to implement through the PPP modality. Proposals submitted by private parties in response to such a request are called solicited proposals. Sometimes, private parties may also submit proposals without any request from the government for such proposals. These proposals are called unsolicited project proposals. Unsolicited PPP projects have been implemented in many countries but some countries do not entertain such proposals because of the problems associated with unsolicited proposals, especially the risks they raise for competition and transparency.

Potential merits of unsolicited proposals

There are some merits in keeping provisions for considering unsolicited project proposals. Often, such proposals are based on innovative project ideas. The difficulty with unsolicited proposals

however, rests in getting the right balance between encouraging private companies to submit innovative project ideas without losing the transparency and efficiency gains of a competitive tender process.

Considering the merits of unsolicited proposals that they may often have, some governments have developed systems to transform unsolicited proposals for private infrastructure projects into competitively tendered projects. Such systems are in place in countries such as Chile, the Republic of Korea, the Philippines and South Africa.

Approaches to deal with unsolicited proposals

There are two main approaches that have been developed to deal with unsolicited proposals. These are:

In a formal bidding process, a predetermined bonus point is awarded to the original proponent of the project. Chile and the Republic of Korea have such a system.

The Swiss challenge system in which other parties are invited to make better offers than the original proponent within a specified time period. If a better offer is received, the original proponent has the right to counter match any such better offer. This system is practiced in the Philippines, South Africa and Gujarat in India.

A third approach may also be considered. The government can purchase the project concept and then awards it through a competitive bidding process.

Some governments may not encourage unsolicited proposals. In fact, legal provisions of many countries do not allow such projects. However, for various reasons (financial and political pressures, urgent need, etc.) they may be compelled to consider such proposals, if not illegal. In such a situation, governments are in a better position to handle unsolicited proposals if a transparent system is already in place for such purposes. This would then allow a competitive bidding process but offers the original proponent an advantage in the process. Such a system for handling unsolicited proposals may include an initial screening to determine the merit of a project. It may then consider separate procurement processes for proposals that do not involve proprietary concepts or technology and those that involve proprietary concept or technology.

Sector Specific Issues in PPP Projects:

one of the main objectives behind promotion of PPPs is to achieve efficiency gains in project operation and service delivery. However, often the existing condition in a sector is not conducive to create a multi-operator competitive environment, which is a necessary condition to achieve

this objective. It may be pointed out here that while transfer of ownership to the private sector and/or private operation may bring some improvements but these actions alone may not be sufficient to bring the desired level of improvement in efficiency. Changes in current policies, legal and regulatory regimes and practices may also be required to allow multiple operators operating in a truly competitive environment to generate and provide the services.

The major issues in creating a multi-operator competitive environment conducive to private investment can be categorized in three broad groups, which are:

- Reforms aiming at structural changes of the sector through breaking down of state (or private) monopolies, and removal of sector inefficiencies to create a multi-operator competitive environment conducive to truly sustainable development on economic as well as ecological considerations;
- Issues that arise due mainly to an multi-operator environment such as network expansion, inter-connection and inter-operability (operational issues);
- Physical/natural characteristics of the sector, particularly those related to the optimum use of the natural endowment such as land, water, mineral and mining resources, and radiofrequency spectrum.

Structural Reform (sector and market):

Unbundling facilitates competition

The main purpose of reform is to breaking down or unbundling of the existing (state or private) monopoly vertically and horizontally to facilitate competition and reduce potential abuse of monopoly powers or dominant positions. For example, an existing state electricity monopoly can be vertically broken down into three separate companies for power generation, power transmission, and power distribution and marketing. The power generation company and the distribution companies can be further broken down horizontally into smaller companies. Reformed private policy measures may then allow new entrants at any of the three vertical levels - generation, transmission or marketing and distribution for any particular area or region. Further, the marketing and distribution aspects may also be separated.

Why unbundling may be helpful

It may be mentioned here that private participation may be allowed without breaking down of the public monopoly. However, existence of such a monopoly could pose a barrier or disincentive to private involvement. Unbundling of existing monopoly helps in three ways:

It separates out certain parts that may be a natural monopoly (for example, the gas or electricity transmission lines, which may not be applicable however, for a large country);

It accommodates private investments that are feasible in size and are manageable considering the technical capacity of the private sector;

It allows specialization in infrastructure operation and marketing.

Sector inefficiencies

Another major issue in sector reform concerns removal of sector inefficiencies, particularly those related to technical standards and distortions in resource pricing. Existing technical standards, for example allowable axle loads in the transport sector, could be an obstacle to improve efficiency of operation and thus may be a deterrent to private investment in many infrastructure facilities.

Distortion in resource pricing

Distortion in the pricing of services by competing infrastructure facilities, such as by two transport modes road and rail, can be a serious problem for the motivation of the private sector in many countries. The transport, water and energy costs paid by the users often do not fully reflect their true economic costs due to the provision of subsidy, etc., and (virtual) noninclusion of certain cost items in pricing such as the cost of road infrastructure (which may be considered a free public good), or the environmental costs.

Pricing is important to sustainable development

The distortion in pricing may not only become a barrier to private investment in certain facilities (for example, in rail transport), it may also lead to misallocation of resources and thus set a trend of unsustainable development. This situation should therefore be rectified on the basis of correct evaluation of resource costs to ensure long-term sustainable development in infrastructure sectors. In order to ensure allocation efficiency, future allocation of resources, either by the public sector or by the private sector, should be based on a detailed analysis of true costs and benefits including those of externalities.

Necessity of sector reforms

The benefits of PPPs, particularly in terms of cost and efficiency in service outputs and delivery, could be limited if such projects are undertaken without consideration of necessary sector reforms. It is however not to suggest that sector reforms are a precondition to undertaking PPPs. Reforms may also be considered simultaneously or may follow project implementation.

Technological advancement and change in economic environment may also require further reforms at a future date.

Operational Issues In A Multi-Operator Environment:

Discussion on specific nature of the sectoral problems in PPPs is beyond the scope of this primer. However, the intention here is to flag that there are important sectoral issues that need to be considered in PPP projects. Many of these issues need to be resolved in the policy framework as well as in the country's legal and regulatory regimes. Some other matters need to be included in the contract agreements with explicit reference to future arrangements for their resolutions.

One common problem relates to vertical and horizontal integration of the new systems with the existing and future relevant systems. Most infrastructure facilities are of network nature. As such they should not be undertaken in isolation without considering system and service integration with the existing networks and operators as well as with future networks, and other issues related to network development. The system and service integration issues for each sub-sector are however different due to difference in their technological and operational characteristics. Depending on the nature of the issue, they may be dealt in three ways:

- Issues that can be addressed through sector reforms (this is also necessary to promote PPPs)
- Issues that need to be considered in the policy framework and regulatory regimes
- Issues that need to be considered/reflected in contract agreements
- Transport Sector (Physical/natural characteristics:
 - The major sector issues in the transport sector include:
 - System integration, network expansion (urban transport)
 - Service integration between different operators and across different modes, common ticketing system, PSO (urban transport)
 - Interconnection between systems, access to common infrastructure facilities by service operators, passenger and cargo traffic rights (road and rail)
 - Lateral access control, safety and parting of communities on two sides (road and rail)
 - Intermodal transport development and operation (for all modes)
 - Traffic rights, safety and security, further expansion (port and airport and other facilities such as ICDs and freight villages, etc.)

Some of these issues, many of which are interrelated, are discussed next.

Transport Sector : physical/natural characteristics

A major direction of development in improving transport services (for both passengers and goods) is the integration of services provided by multiple operators often using different modes over a wide geographical area. Successful integration programs can allow seamless travel between two points without the necessity of making separate payments for each segment of the trip and reduce the hassles of transfer at intermodal terminals or transfer points. Integration can make transport cost cheaper and journey time shorter.

Integration can occur at three levels: physical integration, operational integration, and institutional integration.

Physical integration is the lowest level of integration. It refers to the provision of jointly used facilities and equipment. Such facilities may include intermodal terminals, transfer points or stations, transit shelters, standardized identification symbols and display techniques used by all modes and services, etc. Efficiency, comfort and safety at transfer points are of vital importance for consideration.

Operational integration of services can be considered as the second higher level of integration. It allows matching of modes according to service requirements and rationalization/reorganization of existing services. Faster and high-capacity long-haul modes such as rail transport can be used for high-density travel corridors, while lower capacity roadbased modes such as buses and trucks can be used as feeder to these high-capacity modes. Operational integration can also help eliminate wasteful duplication of service by competing modes and resources can be redeployed where they are better utilized. Another important feature of operational integration is unification of the tariff structure. A single tariff structure can be established to permit users pay at the beginning of the trip and transfer freely between all modes or lines of service covered by the system.

Institutional integration refers to the creation of an organizational framework within which joint planning and operation of transport services can be carried out by a number of independent transport operators. Such organizational framework, however, can take different forms. There can be an organizational arrangement for setting a joint tariff and collection and distribution of jointly collected revenues. This type of arrangement works well where partners provide complementary services, do not compete but rather make end-to-end connections. The partners can go beyond this revenue collection and distribution by setting up a framework to coordinate routes and schedules. They can also establish a federated agency and delegate to it powers related to planning, joint facilities, tariffs, charges for the use of common infrastructure, revenue distribution and any other matter they consider appropriate. However, when multiple operators

are to share common infrastructure facilities to run their services, such as a dedicated railway track or transport route, a much stronger form of institutional integration is necessary.

Another major issue that also involves integration is intermodal freight transport. Intermodal transportation utilizes the inherent advantages of each mode involved, creating synergies and efficiencies not otherwise attainable. The service provided is different from and superior to that available from either mode alone. Carriers joined in intermodal combinations seek to provide a complete service from origin to destination. Carriers whose services have historically been restricted to one mode of transportation are transforming into large multi-modal companies through joint ownership or contractual agreement. Whether used to create new types of service, to lower rates to attract more traffic, or to lower costs to increase profitability, these arrangements are reshaping transport development of the present time.

Power/Energy Sector: Physical/natural characteristics:

The availability of reliable and quality power/energy at competitive prices to industrial, commercial and domestic consumers is the main challenge of this sector. A comfortable level of spinning reserve is also needed to ensure grid security and quality and reliability of power/energy supply. In this respect, it is important to impose mandatory reliability standards on the bulk transmission system.

Open access in energy transmission to promote competition amongst the generating/producing companies who can sell energy to different distribution licensees is a major sectoral issue. When open access to distribution networks is introduced for enabling bulk consumers to buy directly from competing power generators or energy producers, competition in the market should increase the availability of cheaper and reliable energy supply. The transmission line infrastructure provider/regulator needs to provide facilitative framework for non-discriminatory open access. This requires load dispatch facilities with state-of-the art communication and data acquisition capability on a real time basis. These general conditions, among others, are important to consider in a PPP project.

The major issues in this sector are:

- Market structure
- Unbundling of the sector (generation, transmission, distribution and sales)
- Imposition of security, and quality and reliability standards on the common energy/power transmission lines
- Access to common energy power/energy transmission lines

- Facilitative framework for non-discriminating open access to common infrastructure facilities
- Source of energy, method of exploration, extraction, etc.
- Choice of technology
- Waste heat recovery and cogeneration
- Waste and waste water treatment and disposal
- Safety and environmental issues

Communication Sector: Physical/natural Characteristics:

The sector and market structures are two major issues in this sector. The other major issues relevant to PPPs in this sector include:

- Interconnection with other operators (technology, fee, management of interconnection facility, monitoring of call and data transfer between operators)
- Internet, Voice over Internet Protocol, and other data transmission technology
- Upgradation of technology (for example, from 3G to 4G in mobile telephony)
- Radiofrequency allocation and utilization
- Reallocation of radio frequency after the expiry of contract period
- Revenue sharing between operators as well as between the government and the operator (in lieu of any licence fee or in addition to such fees)
- International gateway (telephone, Internet, VOIP)
- Value-added service provided by telephone service operators
- PSO

Radiofrequency spectrum management is the major issue related to utilization of this scarce natural endowment. The major concern is the efficient utilization of the limited band of spectrum available for all radio communication services. Following the guidelines of ITU and other international/multi-lateral bodies, countries have their own national frequency tables. Within the permitted band of frequencies, national regulators have flexibility to vary allocations for competing communication services according to local circumstances.

The two issues concerning spectrum allocation that needs to be considered in a PPP project are ensuring technical efficiency and economic efficiency of resource utilization. Technical efficiency refers to the requirement that different users and uses of radiofrequencies should not interfere with each other. Economic efficiency on the other hand refers to a judgement regarding the allocation of limited frequencies among alternative uses to provide various types of communication services. To ensure economic efficiency of utilization, some form of pricing will be required. Therefore, economic value of spectrum needs to be considered in the allocation decision. Since the economic valuation of the spectrum may change over time, a mechanism may be considered to allow reallocation of the spectrum as market valuations change. The reallocation mechanism can be a part of the sectoral policy framework, which may then be translated into regulatory guidelines by the sector regulator and included in the concession contract accordingly.

Water Sector: Physical/ Natural Characteristics:

Water is the most basic of all resources that humans need. The type and level of activities in an area much depends on its availability. Water may be obtained from surface sources such as lakes, rivers and seas or from the underground. Whatever may be the source, in most cases only a limited amount may be available/exploited on a sustainable basis. In order to ensure the optimum utilization of this vital resource, a decision may be required on how much water may be exploited from available sources, particularly when the available water may have other alternative as well as competing uses. This decision on the limits of exploitation should be based on true cost. The main issues in this sector include:

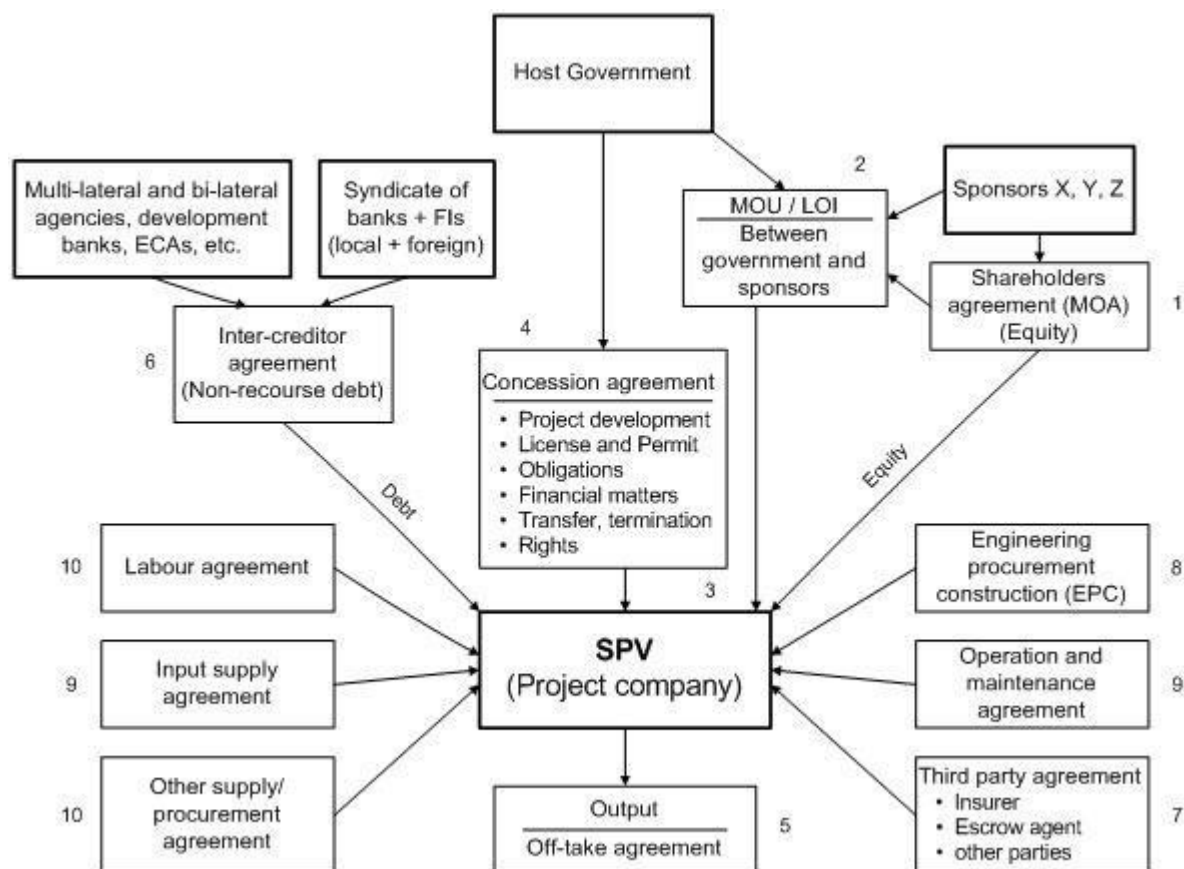
- Sector structure
- Sources of water and the limits of their use for a particular purpose
- Creation of reservoir and other means of storage
- Treatment, disposal and recycling, and use of waste water
- Service area
- PSO (fire service) and other service obligations

Contracts Agreements:

Agreements in a typical PPP structure

The figure below shows the nature and the general order of execution of such agreements between different parties. Among the agreements executed between an SPV (or the concessionaire/private project company) and other parties, the two most important ones are the contract agreement with the government and the agreement with the financiers. In fact, the contract agreement with the government forms the basis for subsequent agreements with other parties. It may be mentioned here that all types of agreements shown in the figure may not be necessary for all projects, for example, an off-take agreement in case of a toll road. An off-take agreement may not be also be required for all power projects.

Figure 12: Agreements in a typical PPP arrangement



Main Contents Of Contract Agreement

Contract agreements of a project between the contracting authority in government and the concessionaire/private project company may be contained in a single document or may consists of more than one separate document. It is difficult to generalize all possible contents of such

agreements as they vary due to difference in legal and regulatory provisions from one country to another, type of PPP model and the nature of involvement of the public sector, implementation arrangements (including financial matters), operational, and various sector specific resource utilisation, technological and other matters. There are, however, certain key elements that are expected to be covered in most contract agreements.

The main issues that are generally covered in the PPP contract may include the following:

- Obligations of parties to the agreement (the private party, the contract awarding agency and the government)
- Tenure of contract and access rights to the project site
- Ownership of land and facility
- Sector specific special issues
- Allocation of risks (and consequences)
- Construction, commissioning, operation and maintenance of the facility
- Performance requirements (service delivery and other technical, quality and safety standards)
- Availability of contracted services and procedures for variations of service scope
- Payment and other financial matters (including penalties for failure to meet performance requirements)
- Price review and adjustments
- Step-in rights (of the government, financiers)
- Insurance
- Change in service requirements
- Upgrading and technological obsolescence
- Amendment and variation of agreement
- Monitoring and review (including data collection, compilation and reporting)
- Contingency planning

- Dispute resolution
- Termination of contract
- End of term arrangements
- Service delivery management
- Contract compliance and management
- Renegotiation

Model Concessions Agreement

The preparation of contract documents can be a major administrative task in PPP development and may also require a considerable amount of time. The availability of standardized contract documents or model contract agreements with the provisions of model clauses can be of great help in this respect. It helps considerably in streamlining the administrative process by reducing the time in preparing such documents and getting them cleared from the concerned government agencies. Model concession/contract agreements or MCAs also reduce the cost of legal fees in preparing contract documents. Considering its advantages many governments have developed MCAs for their PPP programmes.

Example: Model concession agreements of NHAI

The Model concession/contract agreements (MCAs) prepared by the National Highway Authority in India (NHA) for their national highway development program are examples of such model agreements. Please see <http://www.nhai.org/concessionagreement.htm>.

Key Sections Of PPP Contract Agreements

The body of the contract agreement is generally divided in several sections or chapters, each on a specific issue. There may be one or more annexes or schedules attached to the main body of the agreement. These annexes or schedules provide more details on some specific matters, for example the technical and performance specifications for the project. The generally common key sections of an agreement and the nature of their contents are briefly mentioned next:

The preamble of the agreement. This section identifies the parties in agreement, purpose of the agreement, context and reference to legal empowerment of the authority to execute the agreement, objectives and description of the project (generally more elaborate scope of the project are mentioned in a schedule attached to the main agreement), language and number of original copies of the agreement, date of effect, the date and place of agreement, and other related matters.

Definitions and interpretations. This section provides operational definitions and interpretation of terms (such as, accounting year, agency, authority, book value, concession, contractor, financial closure, good industry practice, minister, terminal, etc.) used in the contract document that require clear understanding. It may also define what would prevail if any discrepancies or ambiguities in the text of the agreement are observed.

Concession. With other relevant items, this section outlines authorisation of activities granted to the concessionaire or the project company; rights, privileges and obligations of the concessionaire/project company; and concession/contract period. It may also mention what would have to be done by the private company at the end of the contract period, for example transfer of the assets to the government.

Project Site. The major items in this section include location of the project site, rights, title and use of the project site, handover of the project site, possession of the site, maintenance of the site, and applicable licences and permits that the private company need to collect from concerned authorities. It may also mention if the contracting agency would have any role in securing those licences and permits.

Independent Engineer and other third parties such as insurer and escrow agent. This section specifies the eligibility and general qualifications and broad terms of reference for such parties, procedure for the appointments, payment, replacement and eligibility for reappointment. Payment to independent engineer and other third parties may also be included in this chapter.

Engagement of sub-contractors. The purpose, general rules, applicable areas, obligations of the private company in engaging sub-contractors are mentioned in this section.

Concessionaire's/private company's obligations. This section deals with matters on general obligations, shareholding arrangement, financing arrangement, refinancing, use of insurance proceeds, uninsurable risks, information disclosure, public information, performance security. Obligations in respect of sectoral issues (for example, providing interconnection to services provided by other operators), and various reporting requirements to regulatory bodies may also be included in this section or in a separate section.

Design construction and maintenance of facility. This section may include provisions related to the design and preparation of drawings, approval of architectural and engineering design and drawings, review and approval of design and drawings, project construction, start and completion, consequences of early and late completion, monitoring and supervision of construction, testing and commissioning, operation and maintenance, temporary closure for repair and maintenance, incidence management, network connectivity and access to facility by other operators/agencies, material breach of operation and maintenance, performance

measures (quality and quantity of project outputs), performance monitoring, information disclosure, below performance, insurance, operation period, etc.

Government Agency's obligations. It provides general obligations and specific obligations of the contracting agency. These may include, for example, establishment of a tariff review commission, government incentives that may be applicable, handing over the project site and other areas in which the concessionaire/project company may expect support from the government and the conditions of such support. The obligations of the government if any, may be considered in a separate section.

Change of scope. This section defines the necessity of change, admissible changes and the defined procedure for making such changes.

Payments and financial matters. This section may consider the provision of types and period of payments, procedure for payment, calculation of the amount of payment, payment adjustment, bonus and reduction in payment, security, sinking funds, VAT and other taxes, performance security, supervision charges of the implementing authority, monitoring expenses, and insurance.

Tariff, fees, levy and their collection and appropriation. The government agency's rights, concessionaire's obligation, tariff structure and amount, exemption and discrimination, subsidization/cross-subsidization, reviewing of tariff, tariff adjustment, cost of tariff review, fees and levy, integration of fees and tariff with other relevant operators, appropriation, revision of fees, collection and payment/transfer mechanism are included in this section. It may also include accounting standards, information on cost of operation, tariff review process and mechanism.

Capacity augmentation. The provision on time of consideration, bidding requirements, concessionaire's/private company's rights, terminal payment if the concessionaire does not take part are included.

Waste treatment and disposal. The coverage of this section may include types of waste covered and their sources; methods of collection, transportation, treatment and final disposal (solid and liquid); physical, chemical and biological characteristics of the wastes at final disposal; and recycling of treated waste water. The details of technical standards on treatment and disposal can be considered in a separate annex or schedule.

Change in law. The definition of meaning by change in law, assessment of effect on concessionaire, compensation to concessionaire, obligation of concessionaire and other related matters can be covered in this section.

Force majeure. This section considers events (political and non-political), obligation of parties, allocation of costs, compensation to concessionaire, termination of contract due to force majeure and payments due to such termination.

(Normal) Termination of contract. The contents include the possibility of renewal, the transition arrangements when a new operator takes over, the basis for calculating compensation for assets not fully amortized or depreciated and related matters.

Events of default and termination. The matters of consideration include concessionaire event of default, agency event of default, termination due to concessionaires or agency events of default, obligations and rights of parties, termination procedure and payments and claim on assets.

Mode of payment by agency. Mode of payment, valid discharge, dates of payment, etc. are covered in this section.

Handover of project facility. Time, obligations of concessionaire, defect liability, rights of agency, procedure of handover, and valid discharge are the major points in this section.

Independent auditor. General requirements and eligibility, procedure of appointment, obligations of the auditor and payment of fees are specified in this section.

Applicable law and dispute resolution. The applicable laws, methods of dispute resolution to be used (conciliation, arbitration, etc.) and their procedure, obligations and rights of parties are specified in this section.

Representations and warranties, disclaimer. Representations and warranties of the concessionaire and the government agency, obligations to notify any change to the other party are covered in this section.

Miscellaneous. This section considers liability and indemnity, amendment, governing laws and jurisdiction, waiver, counterparts, etc.

Annexes or schedules. Description of each schedules on various items (I, II III, etc.) as referred to in the main text are mentioned in this section.