

Build–operate–transfer

Build–operate–transfer (BOT) or **build–own–operate–transfer (BOOT)** is a form of project financing, wherein a private entity receives a [concession](#) from the private or [public sector](#) to finance, design, construct, and operate a facility stated in the concession contract. This enables the project proponent to recover its investment, operating and maintenance expenses in the project.

Forms of [project finance](#) are listed in the sections below.

BOT (build–operate–transfer)

BOT finds extensive application in infrastructure projects and in [public–private partnership](#). In the BOT framework a third party, for example the public administration, delegates to a private sector entity to design and build infrastructure and to operate and maintain these facilities for a certain period. During this period the private party has the responsibility to raise the finance for the project and is entitled to retain all revenues generated by the project and is the owner of the regarded facility. The facility will be then transferred to the public administration at the end of the [concession agreement](#), without any remuneration of the private entity involved. Some or even all of the following different parties could be involved in any BOT project:

- The host government: Normally, the government is the initiator of the infrastructure project and decides if the BOT model is appropriate to meet its needs. In addition, the political and economic circumstances are main factors for this decision. The government provides normally support for the project in some form. (provision of the land/ changed [laws](#))
- The concessionaire: The project sponsors who act as concessionaire create a special purpose entity which is capitalised through their financial contributions.
- Lending banks: Most BOT project are funded to a big extent by commercial debt. The bank will be expected to finance the project on “non-recourse” basis meaning that it has recourse to the special purpose entity and all its assets for the repayment of the debt.
- Other lenders: The special purpose entity might have other lenders such as national or regional development banks
- Parties to the project contracts: Because the [special purpose entity](#) has only limited workforce, it will [subcontract](#) a third party to perform its obligations under the concession agreement. Additionally, it has to assure that it has adequate supply contracts in place for the supply of raw materials and other resources necessary for the project

A BOT Project (build operate transfer project) is typically used to develop a discrete asset rather than a whole network and is generally entirely new or greenfield in nature (although refurbishment may be involved). In a BOT Project the project company or operator generally obtains its revenues through a fee charged to the utility/ government rather than tariffs charged to consumers. A number of projects are called concessions, such as toll road projects, which are new build and have a number of similarities to BOTs.^[4]

In general, a project is financially viable for the private entity if the revenues generated by the project cover its [cost](#) and provide sufficient [return on investment](#). On the other hand, the viability of the project for the host government depends on its efficiency in comparison with the economics of financing the project with public funds. Even if the host government could borrow money on better conditions than a private company could, other factors could offset this particular advantage. For example, the expertise and efficiency that the private entity is expected to bring as well as the [risk transfer](#). Therefore the private entity bears a substantial part of the risk. These are some types of the most common risks involved:

- [Political risk](#): especially in the developing countries because of the possibility of dramatic overnight political change.
- Technical risk: construction difficulties, for example unforeseen soil conditions, breakdown of equipment
- Financing risk: foreign exchange rate risk and interest rate fluctuation, [market risk](#) (change in the price of raw materials), income risk (over-optimistic cash-flow forecasts), cost overrun risk^{[5][6][7]}

BOOT (build–own–operate–transfer)

A BOOT structure differs from BOT in that the private entity owns the works. During the concession period the private company owns and operates the facility with the prime goal to recover the costs of investment and maintenance while trying to achieve higher margin on project. The specific characteristics of BOOT make it suitable for infrastructure projects like highways, roads mass transit, railway transport and power generation and as such they have political importance for the social welfare but are not attractive for other types of private investments. BOOT & BOT are methods which find very extensive application in countries which desire ownership transfer and operations including. Some advantages of BOOT projects are:

- Encourage private investment
- Inject new foreign capital to the country
- Transfer of technology and know-how
- Completing project within time frame and planned budget
- Providing additional financial source for other priority projects
- Releasing the burden on public budget for infrastructure development^[8]

BOO (build–own–operate)

In a BOO project ownership of the project remains usually with the project company for example a [mobile phone network](#). Therefore the private company gets the benefits of any [residual value](#) of the project. This framework is used when the physical life of the project coincides with the concession period. A BOO scheme involves large amounts of finance and long [payback period](#). Some examples of BOO projects come from the water treatment plants. This facilities run by private companies process raw water, provided by the public sector entity, into filtered water, which is after returned to the public sector utility to deliver to the customers.^[9]

BLT (build–lease–transfer)

Under BLT a private entity builds a complete project and leases it to the government. On this way the control over the project is transferred from the project owner to a lessee. In other words the ownership remains by the [shareholders](#) but operation purposes are leased. After the expiry of the [leasing](#) the ownership of the asset and the operational responsibility are transferred to the government at a previously agreed price. For foreign investors taking into account the [country risk](#) BLT provides good conditions because the project company maintains the [property rights](#) while avoiding [operational risk](#).

DBFO (design–build–finance–operate)

Design–build–finance–operate is a project delivery method very similar to BOOT except that there is no actual ownership transfer. Moreover, the contractor assumes the risk of financing till the end of the contract period. The owner then assumes the responsibility for maintenance and operation. Some disadvantages of DBFO are the difficulty with long term relationships and the threat of possible future political changes which may not agree with prior commitments. This model is extensively used in specific infrastructure projects such as [toll roads](#). The private construction company is responsible for the design and construction of a piece of infrastructure for the government, which is the true owner. Moreover the private entity has the responsibility to raise finance during the construction and the exploitation period. The [cash flows](#) serve to repay the investment and reward its shareholders. They end up in form of periodical payment to the government for the use of the infrastructure. The government has the advantage that it remains the owner of the facility and at the same time avoids direct payment from the users. Additionally, the government succeeds to avoid getting into [debt](#) and to spread out the cost for the road over the years of exploitation.^[10]

DBOT (design–build–operate–transfer)

DCMF (design–construct–manage–finance)

Some examples for the DCMF model are the prisons or the public hospitals. A private entity is built to design, construct, manage, and finance a facility, based on the specifications of the government. Project cash flows result from the government's payment for the rent of the facility. In the case of the hospitals, the government has the ownership over the facility and has the price and [quality control](#). The same [financial model](#) could be applied on other projects such as prisons. Therefore this model could be interpreted as a mean to avoid new indebtedness of [public finance](#).

PPP CONCEPT

Infrastructure projects have been traditionally funded with investment from budgetary resources and funding from bilateral and multilateral organisations. However, budgetary resources and borrowings have not been sufficient to meet the funding required for infrastructure creation. In order to fill the infrastructure gap, private capital from private sector participation has been sought through public private partnership (PPP) route. PPP is defined as an

arrangement between a government/government owned entity on one side and a private sector entity for the creation and/or management of infrastructure for provision of services to public for a specified period of time on commercial terms. In addition, private sector participation is expected to usher efficiency gains arising from innovation, management, and marketing skills offered by the private sector and greater incentives for the control of construction, maintenance and operation costs.

In PPP, public agencies enter into a long-term contractual agreement with the private sector with the aim of sharing the resources and skills of each stakeholder in order to deliver a service or facility for use by general public. Besides, sharing the resources and skills each party shares the risks and rewards in the delivery of the service or the facility.

PPP refers to different arrangement of partnership between the parties incorporating one or more of the following features:

- Public agencies transfer the infrastructure facilities previously controlled by them to the private sector entity usually for the term of the arrangement. The existing facilities can be transferred to private sector entity either at no cost or at a nominal fee from the private sector.
- Private sector entity either builds a new facility or extends and renovates the existing facility.
- Public agencies specify the operating features of the facility.
- Private sector is obligated to provide the services using the facility for a defined period of time (usually within the specifications on operations and pricing).
- Private sector entity either agrees to transfer the facility to the public sector (with or without payment) at the end of the contractual period or owns and operates the infrastructure facility in perpetuity.

BENEFITS OF PPP

Governments have adopted the innovative public private partnership route for development of infrastructure projects mainly to get additional private capital to overcome the budgetary constraints faced by them in building the infrastructure. In addition to the availability of private capital, private sector participation brings in the following benefits to the government.

1. PPPs allow for allocation of risks to the party best able to manage them. Public sector can pass on those risks which can be effectively managed by the private sector and retain those risks which they are in a better position to manage them or their consequences. Much of the risks associated with the design and construction of infrastructure projects, which were traditionally borne by public sector, are transferred to private sector and this in turn insulates the governments from such risks. The effect of the optimal risk allocation is that the project will achieve better value

for money and benefit from the efficiency gains than they otherwise would if retained wholly under government control.

2. PPPs enable faster delivery of projects. The pace at which the projects are launched can be accelerated as the projects are freed from the constraints of public sector spending. In addition, private sector has the incentive to expedite the project delivery in order to avoid inflationary cost increases, keep the project cost low, and bring forward the revenue stream. Contractual conditions such as early completion bonus payments and inclusion of construction period within concession period further provide the incentive for private sector to expedite the project delivery.
3. PPPs encourage innovation and efficiency. The combination of public and private sectors unique motivations and skills; and the competitive process for contract award provide high potential for innovative approaches to public infrastructure delivery with PPPs. PPPs facilitate greater flexibility to private sector to maximize the use of new and innovative approaches to financing, development, construction, operation and maintenance. Involvement of leading technical and financial experts assists in rigorous assessment of project feasibility; close examination of project costs and risks; and imaginative approaches to provide solutions to apparently difficult problems. Moreover, adoption of flexible and innovative approaches will encourage high standards of performance and efficiency. In case of certain arrangements of PPPs which integrate project development and delivery, private sector has the incentive to optimize expenditure and maximize innovation to achieve greatest level of cost efficiency over the life cycle of the project through a life cycle approach.
4. PPP projects can be completed more reliably on time and within budget. Private sector is strongly motivated to complete the project as early as possible to control its costs so that the payment stream can commence. The private sector is under the pressure to complete the project within budget as the project cost is fixed before construction commences. There is more certainty of project outcomes as the project sector will effectively manage the risks of cost and time overruns which have been allocated to them through contractual arrangements.
5. PPPs can facilitate transfer of technology and training. PPPs can attract experts and organizations with international standing and experience which can be a catalyst for technology transfer and exchange. In addition to technology transfer, the local staff can be trained and the operational methods and techniques of local firms can be enhanced on account of exposure to international management techniques and state-of-the-art technology.
6. PPPs can provide access to international finance and foster the local capital markets. PPPs provide a medium for investments from abroad. This will help them access the global bank and capital markets and develop domestic investment environment. This will in turn help in development of existing local capital markets and acts as a catalyst in the creation of new ones.

TYPES OF PPP MODELS

The term PPPs is used to refer to wide range of collaboration between public and private sector to deliver an infrastructure project. The range of collaboration could vary from the simple arrangement such as supply and management contract wherein public agency assume most of the responsibilities at one end of the spectrum to divestiture or full privatization on the other end of the spectrum, where private sector assume a greater responsibilities for the provision of infrastructure services. Turnkey, Leases, and Concessions are the other PPP models between the two extremes. These PPP models differ from one another with respect to the following aspects:

- Whether the ownership of the assets remains with the public sector or private sector.
- Who will be responsible for Responsibility of investment
- The degree of risk sharing between the public and private sector
- Duration of contract.

The Supply and Management contracts are contractual arrangement wherein the private sector is given the responsibilities for management of a part or whole of an infrastructure project. The public sector retains the ownership of the project facilities. The private sector is paid a performance-based fee for managing the infrastructure project. The duration of the contract is usually short, typically three to five years. However, in case of large projects with complex facilities such as ports and airports the duration could be longer.

In Turnkey model, the private sector designs and builds the infrastructure projects to meet the performance specifications laid down by the government agencies for a fixed price. The private sector assumes the risks involved in the design and construction phases. The ownership of the project facilities remains with the public sector. Examples of turnkey model could be seen in India in the form of road projects such as national highways development being undertaken through EPC contract.

In lease, the private sector is responsible for operating and maintaining the infrastructure facility and services. The public sector undertakes the responsibility for investment. The private sector collects the revenue from users of the facility and either shares it with the public sector or makes a specified lease fee payment to the contracting public authority. Lease of fixed facilities are for longer period, typically 15 to 20 years. In some cases, the ownership of the assets may be transferred to private sector for a period which extends the economic life of the assets. This model is normally used for brown field infrastructure projects (i.e. existing infrastructure projects).

The various types of PPP models such as Build-Operate-Transfer and its variants such as Build-Transfer-Operate, Build-Rehabilitate-Operate-Transfer, and Build-Lease-Transfer type of arrangements are collectively known as concessions. In concessions, government defines and grants the private sector to build and operate a facility for a fixed tenure. The private sector provides the funding for building the facility. The investment made by the private sector is recouped in the form of revenue collection from users of the facility. The selection of the private sector entity is either based on the fees the private sector will charge from the users or the concession period (i.e. number

of years the private sector entity will operate the project). Typical concession period could vary from 10 to 50 years. In this model, governments also make payments to private sector to projects to make it financially viable. On the other hand, the private sector could also shares the revenue with the governments in case of projects with sound project economics due to strong demand for the infrastructure services. In such cases, the selection of bidders could be on the amount of grants quoted by the private sector or the amount of revenues the private sector is willing to share with the government. In India, BOT and its variants are the most commonly PPP model. For example, projects which are undertaken through PPP route in National Highways Development Programme (NHDP) Phase I comprising of Golden Quadrilateral linking the four metropolitan cities were developed through BOT route.

In divestiture, the governments transferred all or substantially all their interests to the private sector. The governments do not have any form of control or mechanism for regulation over the privatized infrastructure projects.

The comparison of the various PPP models in terms of how owns the asset, how will provide the operation and maintenance facility during the contract tenure, who will made the capital investment required for creation of the project facilities, who will bear the commercial risk associated with the project, the degree of risks being transferred to the private sector and the duration of the contract is provided below.

PPP Model	Asset Ownership	O&M responsibility	Capital Investment	Commercial Risk	Level of risk transferred to private sector	Duration
Service contracts	Public	Public	Public	Public	Low	1-3 years
Management contracts	Public	Private	Public	Public	Low	2-5 years
Lease contracts	Public	Private	Public	Shared	Moderate	10-15 years
BOT	Public /Private	Private	Private	Private	High	10 – 30 years
Divestiture	Private	Private	Private	Private	High	Indefinite

Financing of Infrastructure Projects - An Overview

1. Introduction

Development of proper infrastructure is vital for economic growth of any country. Investors will like to put the capital only in those countries where there is developed infrastructure. Infrastructure consists of many things such as Road, Railway, Port and harbour, airport, electricity, telecommunication, water supply etc., Development of infrastructure is capital intensive and gestation period is high. At the same time return on capital in case of infrastructure projects is small as well as slow. Hence, investors are shy in investing capital in infrastructure projects unless some special incentives and privileges are provided.

2. Special features of infrastructure projects

- (i) Large Capital requirement
- (ii) High sunk cost. A large proportion of the cost has to be irrevocably committed upfront before the project becomes operative
- (iii) Long gestation periods
- (iv) Returns are slow to pass in
- (v) Availability of foreign funds is poor
- (vi) Sector is sensitive to political environment and policy changes
- (vii) The services produced are non tradable. The excess services generated can not be stored or exported and deficiency in service can not be met with by imports except for certain exceptions

No single solution applies to different projects as characteristics is different from sector to sector. What applies to road sector does not apply to railways and what applies to railways can not apply to telecommunications sector as the capital requirements are different and so is the method of revenue collection.

2. Types of privatization

Following models for privatization of road infrastructure is available.

SI No	NAME	Description
1	Build operate transfer (BOT)	Concession is given to private party to finance, build, operate and maintain the facility. Investors collect the user fee during the concession to recover the cost of construction, debt servicing and operation cost. At the end of the concession, the facility reverts back to Govt. who has given the concession.
2	Build own operate (BOO)	Similar to the BOT but without the transfer of ownership
3	Build own operate transfer (BOOT)	Same as BOT but the project is transferred to the Govt. after a negotiated period.
4	Build transfer lease operate (BTLO)	Govt. provides the right of way on which the highway is built. Private party has to pay a nominal rent of payment for the use of the land
5	Develop build operate (DBO)	This is a new concept. Initially the company does not assume commercial risk but is financially accountable for building and operating the system as per specification. Later on the company assumes commercial risk as per the appropriate regulations laid by Govt.

4. Why Private projects like BOT are costly?

BOT projects are normally costlier if it is compared with the project report prepared by Govt. departments.

Following are the causes:-

- (i). Full funding is to be done by the private company and hence full project cost is required to be mobilised whereas the Govt. department does not need to mobilise full money in one go.
- (ii). Burden of interest during the construction on loans is required which is absent in cash funded govt. projects.
- (iii). Cash flow is a major problem for BOT project as whole investment is to be done upfront and

investments are regulated by investors. Each and everything has to be fully insured and sometimes multilayer insurance which increases the cost of financing. In case of Govt projects money comes as and when it is required as per budgeting allocation.

(iv). Returns are not assured

(v). All liabilities of debt service and equity return commence after physical completion of project, which is absent in case of Govt. projects.

(vi). Pre bid /post bid award expenses are high such as

- (a). Expenditure on conducting feasibility study, engineering survey and preparation of concept design & drawing
- (b). Expenditure on financial viability analysis
- (c). Legal expenses on formation of companies
- (d). Travel cost of overseas partners and other bid documentation
- (e). Negotiation cost, cost of bid bonds, performance and other costs
- (f). Detailed engineering cost such as design, drawing, survey legal & financial management cost.
- (g). Higher staff cost as Indian and foreign specialists have to be hired
- (h). Cost of escalation
- (i). Higher operation maintenance and repair cost
- (j). Project management fee
- (k). Rupee devaluation; inflation and interest rate fluctuation
- (l). cost of risk during construction stage such as – cost and time over runs, drying up of finances during construction, law & order Problem created by local influential people and political

Uncertainty

(vii) Cost all risk taken by entrepreneur

(viii) Contingencies on legal, political & technical including business development cost

Types of infrastructure project

i) Construction of Roads, bridges, highways etc. Large number of roads, by pass, bridges etc. have been constructed by government agencies as well as private agencies specially in Gujarat & Maharashtra. Some of them are pretty successful but many have difficulties in achieving the goal.

ii) Construction of Railways – Konkan Railway is an example in railway construction in India although most of the funding came only through government agencies. If the project would not have

been delayed unduly, it should have started paying back by this time.

The concept of private funding has been introduced in railways basically in two areas – wagons and railway track. Own your wagon scheme is one such area where private parties are encouraged to buy wagons and handed over to railways. Indian railways pay lease charges to the party. Already 14000 wagons are running under this scheme.

iii) Urban transport sector – Urban population is growing rapidly in India. The number of cities having population more than a million is about 50. Mass transport demand is estimated to grow rapidly. To meet this enormous demand, apart from other modes of Public transport; urban transport projects whether rail based or bus based has to be implemented. Metro rail, Mass transit system etc. will have to be executed in a big way. Delhi Metro rail has already been executed with the help of international agencies. Bangalore and Chennai is also going to have metro or mass transit system. This needs investment and financing can be done even through municipal bonds.

iv) Waterways – India has large river system besides it is surrounded on three sides by waterways. Inland shipping and coastal shipping is a big area where large-scale transportation can be accomplished by encouraging private participants. Infrastructure for Jetty construction, ship repair facility etc has to be developed in a big way.

v) Airport – Air traffic is playing an important role in both passenger as well as cargo improvement inside the country as well as outside the country. Large numbers of airports have to be developed, improved and maintained in a professional way. A number of project with private international participation has already been started.

vi) Sea port – There are a large number of major as well as minor ports in India which need improvement in port facilities, emerging ship technology, deeper draughts, container handling system, large cargo movement. Private participation on sea port is going to improve the export potential of this country. Privatization of port development is comparatively easier.

vii) Pipeline transportation – Transportation of gas through pipeline has been started in India and GAIL has already done good jobs. Gas pipeline transportation in Russia, Germany, France etc. has been done in big way as this is the cheapest and most energy efficient and risk free transportation system. Even coal can be transported in slurry form through this system.

viii) Power generation – There is shortage of power generation in each and every state of India. Hence, power is a big necessity. A large number of private power producers were invited. Enron was one of the first power producer who started power production in Dabhol. Other power producers in Orissa, Karnataka and other places have also started production. Unfortunately the experiments with private power producers have not been very good because of inherent shortcomings with State

Electricity Boards. Fortunately now Electricity Boards have separated power generation and transmission. Some of the States are improving the system and new model for power production / distribution has to be developed which will prove to be more successful. Politicization of power subsidy has to be done away with.

At the end it can be said very boldly that private participation in infrastructure projects can be fully successful and financier will also come forward. In Tokyo more than five private companies are running metro rail and is being run very successfully.

Q :- What are the essentials of a valid Transfer of property ?

Answer :-

The following are the eight essentials of a valid transfer of property :

- 1) The transfer must be between two or more living persons . So the transferor and transferee can not be exactly identical .
- 2) The property transferred must be transferable .
- 3) The transfer must not be according to section 6 ---
 - i) opposed to the nature of the interest affected thereby :
 - ii) for an unlawful object or consideration :
 - iii) to a person legally disqualified to be a transferee .
- 4) The transferor must be according to section 7 --
 - i) competent to transfer ,
 - ii) entitled to the transferable property and
 - iii) authorised to dispose of transferable property which is not his own .
- 5) Under section 9 , the transfer must be made in the mode prescribed by the Act . All necessary formalities like attestation , registration etc. must be complied with .
- 6) According to section 13 , If , on a transfer , an interest is created in favour of an unborn person , subject to a prior interest created by the same transfer , it must exhaust the whole of the remaining interest of the transferor .
- 7) Under section 14 the transfer must not offend the rule against perpetuity .
- 8) According to section 25 , when the transfer is conditional , the condition must be not be illegal . impossible , immoral or opposed to the public policy .