

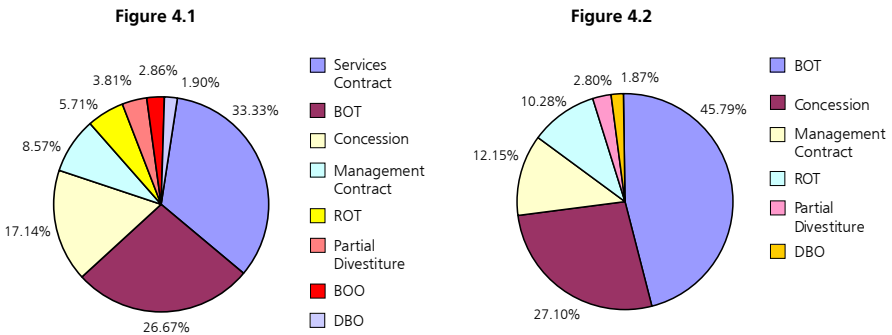
4 Structuring a PPP: Available PPP Options

This chapter discusses the main PPP options available for consideration. Each presents different characteristics to be assessed against the sector reform objectives. The basic PPP contract types are:

- service contracts;
- management contracts;
- affermage or lease contracts;
- build–operate–transfer (BOT) and similar arrangements;
- concessions; and
- joint ventures.

As can be seen in Figure 4, all forms are currently in place in Asia.

Figure 4: Reported Operations Public-Private Partnerships in Asia by Contract Type, Including (4.1) and Excluding (4.2) Service Contract



BOO = build-operate-own, BOT = built-operate-transfer, DBO = design-build-operate, ROT = rehabilitate-operate-transfer. Source: Weitz, Almud, and Richard Franceys, editors. 2002. *Beyond Boundaries, Extending Services to the Urban Poor*. Manila: ADB.

Each PPP option implies varying levels of responsibility and risk to be assumed by the private operator, together with differences in structures and contract forms as discussed in the subsequent sections and summarized in Table 3. Increasingly, contracts are becoming hybrids, adopting features of several contracts to reflect the best local requirements.

Table 3: Summary of Key Features of the Basic Forms of Public-Private Partnership (PPP)

	SERVICE CONTRACTS	MANAGEMENT CONTRACTS	LEASE CONTRACTS	CONCESSIONS	BOT
Scope	Multiple contracts for a variety of support services such as meter reading, billing, etc.	Management of entire operation or a major component	Responsibility for management, operations, and specific renewals	Responsibility for all operations and for financing and execution of specific investments	Investment in and operation of a specific major component, such as a treatment plant
Asset Ownership	Public	Public	Public	Public/Private	Public/Private
Duration	1–3 years	2–5 years	10–15 years	25–30 years	Varies
O&M Responsibility	Public	Private	Private	Private	Private
Capital Investment	Public	Public	Public	Private	Private
Commercial Risk	Public	Public	Shared	Private	Private
Overall Level of Risk Assumed by Private Sector	Minimal	Minimal/moderate	Moderate	High	High
Compensation Terms	Unit prices	Fixed fee, preferably with performance incentives	Portion of tariff revenues	All or part of tariff revenues	Mostly fixed, part variable related to production parameters
Competition	Intense and ongoing	One time only; contracts not usually renewed	Initial contract only; subsequent contracts usually negotiated	Initial contract only; subsequent contracts usually negotiated	One time only; often negotiated without direct competition
Special Features	Useful as part of strategy for improving efficiency of public company; Promotes local private sector development	Interim solution during preparation for more intense private participation	Improves operational and commercial efficiency; Develops local staff	Improves operational and commercial efficiency; Mobilizes investment finance; Develops local staff	Mobilizes investment finance; Develops local staff
Problems and Challenges	Requires ability to administer multiple contracts and strong enforcement of contract laws	Management may not have adequate control over key elements, such as budgetary resources, staff policy, etc.	Potential conflicts between public body which is responsible for investments and the private operator	How to compensate investments and ensure good maintenance during last 5–10 years of contract	Does not necessarily improve efficiency of ongoing operations; May require guarantees

BOT = build-operate-transfer, O&M = operation and maintenance.
 Source: Heather Skilling and Kathleen Booth, 2007.

This chapter provides an overview of the key features of each option as well as some inherent advantages and disadvantages. In addition, decision makers should consider carefully the local capacity available to implement options that are more complex. PPPs with complicated financial structures and/or extensive contractual or monitoring requirements will necessitate hiring and/or training staff, a process that has to be accomplished in advance of the need.

Finally, it should be noted that different PPP forms are more readily adapted to particular sectors or project types and have been used more extensively in these contexts. As part of the selection process outlined in chapter 5, decision makers should note the prior depth of experience in using a particular type of PPP in a particular sector.

4.1 Service Contract

Under a service contract, the government (public authority) hires a private company or entity to carry out one or more specified tasks or services for a period, typically 1–3 years. The public authority remains the primary provider of the infrastructure service and contracts out only portions of its operation to the private partner. The private partner must perform the service at the agreed cost and must typically meet performance standards set by the public sector. Governments generally use competitive bidding procedures to award service contracts, which tend to work well given the limited period and narrowly defined nature of these contracts.

Under a service contract, the government pays the private partner a predetermined fee for the service, which may be based on a one-time fee, unit cost, or other basis. Therefore, the contractor's profit increases if it can reduce its operating costs, while meeting required service standards. One financing option involves a cost-plus-fee formula, where costs such as labor are fixed, and the private partner participates in a profit-sharing system. The private partner typically does not interact with the consumers. The government is responsible for funding any capital investments required to expand or improve the system. Box 3 shows Malaysia's experience with service contracts for water leak reduction.

Potential strengths

Service contracts are usually most suitable where the service can be clearly defined in the contract, the level of demand is reasonably certain, and performance can be monitored easily. Service contracts provide a relatively low-risk option for expanding the role of the private sector. Service contracts can have a quick and substantial impact on system operation and efficiency, and provide a vehicle for technology transfer and development of managerial capacity.

Service contracts are often short term, allowing for repeated competition in the sector. The barriers to entry are also low given that only a discrete service is up for bid. The repeated

Box 3: Service Contract for Leak Reduction in Malaysia

Sandakan is a city of about 450,000 inhabitants in the Malaysian state of Sabah. The State of Sabah has had one of the highest levels of nonrevenue water (NRW) in Malaysia. In the 1990s, the level was calculated at almost 60% of system input volume.

In the spring of 2003, Jabatan Air Sabah (Sabah Water Board) let an NRW reduction contract that was aimed at reducing real or physical losses from two directions, improving and expanding the current active leakage control activities, and replacing the mains with the highest burst frequencies. This contract was for a period of 30 months and was undertaken by Halcrow Water Services in partnership with a Malaysian company, Salcon Engineering. In July 2005, the project was successfully ended.

During the course of the project, about 2,100 leaks were located and repaired. At the end of June 2005, physical losses have been reduced by almost 17.5 million liters per day (Mld) against the target of 15 Mld. About 11 Mld have been saved through active leakage control and 6.5 Mld by replacement of mains. This represented a savings of 20% of the total volume of treated water produced.

The physical activities were paired with a training program to ensure sustainability of the efforts. In 2006, Salcon signed a contract for phase two of the contract. The scope of work includes providing core NRW team and technical personnel to carry on with the NRW reduction work, such as pipe replacement, setting up of district metered zones, active leakage detection, leak repairs, consumer meter replacement, pressure management, and network modeling.

Source: Pilcher, Richard. 2005. *A Practical Approach to Developing a Sustainable Water Loss Reduction Strategy in Sandakan, Sabah, Malaysia*. Halcrow Water Services, Rocfort Road, Snodland, Kent ME6 5AH, United Kingdom.

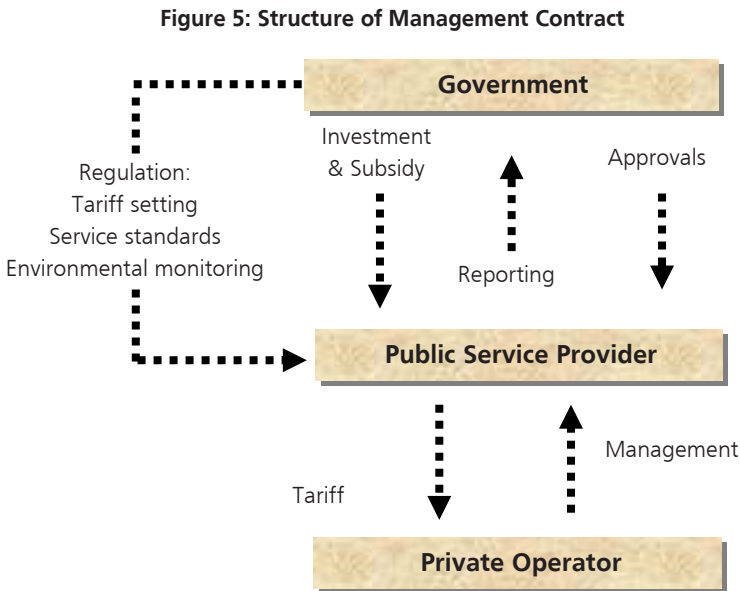
bidding maintains pressure on contractors to maintain low costs, while the low barriers to entry encourage participation in the competition.

Potential weaknesses

Service contracts are unsuitable if the main objective is to attract capital investment. The contracts may improve efficiency and thus release some revenue for other purposes, but the contractor is not under an obligation to provide financing. The effectiveness of the contractor may, in fact, be compromised if other sources of financing (from government or donors, for instance) do not materialize. The fact that the contractor's activities are discrete and segregated from the broader operations of the company may mean that there is no broader or deeper impact on the system operations, only discrete and limited improvements. The public sector remains in charge of tariff setting and assets, both of which are politically vulnerable and critical to sustain the system.

4.2 Management Contracts

A management contract expands the services to be contracted out to include some or all of the management and operation of the public service (i.e., utility, hospital, port authority, etc.). Although ultimate obligation for service provision remains in the public sector, daily management control and authority is assigned to the private partner or contractor. In most cases, the private partner provides working capital but no financing for investment. Figure 5 illustrates the typical structure of a management contract.



Source: Heather Skilling and Kathleen Booth. 2007.

The private contractor is paid a predetermined rate for labor and other anticipated operating costs. To provide an incentive for performance improvement, the contractor is paid an additional amount for achieving prespecified targets. Alternatively, the management contractor can be paid a share of profits. The public sector retains the obligation for major capital investment, particularly those related to expand or substantially improve the system. The contract can specify discrete activities to be funded by the private sector. The private partner interacts with the customers, and the public sector is responsible for setting tariffs. A management contract typically, however, will upgrade the financial and management systems of a company and decisions concerning service levels and priorities may be made on a more commercial basis. Box 4 describes Cambodia's experience with management contracts in the primary health care sector.

Box 4: Cambodia—Contracting Out Primary Health Care to Nongovernment Organizations

In addition to their uses in infrastructure, management contracts are used for other municipal services such as health care. In Cambodia, 4-year management contracts with nongovernment organizations were put in place in primary health care facilities in 12 districts. The contractor has full-line management responsibility and must respond to performance targets including achievements in immunization, antenatal care, family planning, and services to the poor. The contractor must provide certain services free of charge (emergency obstetrical care, minor surgery, inpatient treatment of serious illnesses). Compared with publicly managed facilities, the Government found that private management was more effective than public management in terms of performance and coverage achievements, and improvement in working conditions for staff.

Sources: Loevinsohn, Benjamin. 2000. *Contracting for the Delivery of Primary Health Care in Cambodia: Design and Initial Experience of a Large Pilot Test*. World Bank Institute Flagship Program Online Journal. Available: www.worldbank.org/wbi/healthflagship/journal/index.htm; Bhushan, Indu, Sheryl Keller, and Brad Schwartz. 2002. *Achieving the Twin Objectives of Efficiency and Equity: Contracting Health Services in Cambodia*. *Economic and Research Department Policy Brief No. 6*. Manila: ADB.

Potential strengths

The key advantage of this option is that many operational gains that result from private sector management can be made without transferring the assets to the private sector. The contracts are less difficult to develop than others are and can be less controversial. The contracts are also relatively low cost as fewer staff are dispatched to the utility from the private operator. Management contracts can also be seen as interim arrangements, allowing for modest improvements while more comprehensive contracts and structures are developed. Similarly, a management contract can be structured to phase-in increasingly extensive involvement of the private sector over time and as progress is demonstrated.

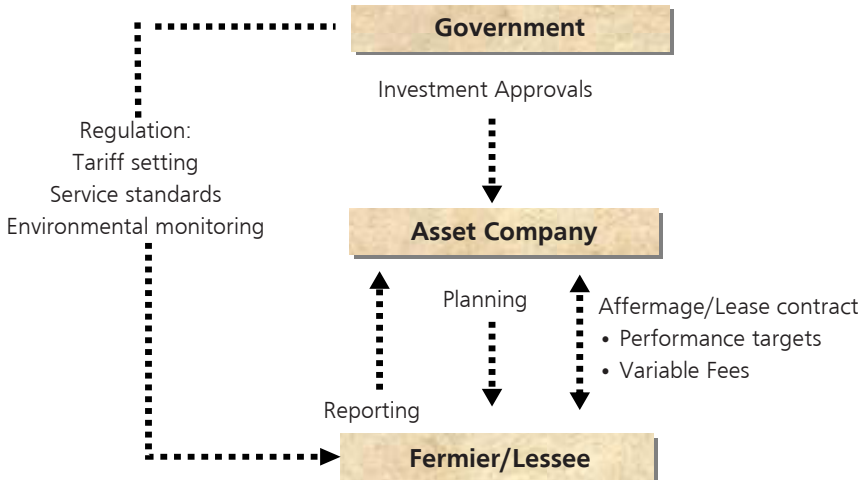
Potential weaknesses

The split between the obligation for service and management, on the one hand, and financing and expansion planning, on the other, is a tricky one. There is a risk that the management contractor does not enjoy the autonomy or the authority (over the labor force, for instance) required to achieve deep and lasting change. If the operator is paid a portion of profits or given an incentive payment, safeguards are required to prevent inflation of reported achievements or deficient maintenance of the system to increase profits.

4.3 Affermage or Lease Contracts

Under a lease contract, the private partner is responsible for the service in its entirety and undertakes obligations relating to quality and service standards. Except for new and replacement investments, which remain the responsibility of the public authority, the operator provides the service at his expense and risk. The duration of the leasing contract is typically for 10 years and may be renewed for up to 20 years. Responsibility for service provision is transferred from the public sector to the private sector and the financial risk for operation and maintenance is borne entirely by the private sector operator. In particular, the operator is responsible for losses and for unpaid consumers' debts. Leases do not involve any sale of assets to the private sector. Figure 6 shows the lease contract's typical structure.

Figure 6: Structure of Lease Contract



Source: Heather Skilling and Kathleen Booth. 2007.

Under this arrangement, the initial establishment of the system is financed by the public authority and contracted to a private company for operation and maintenance. Part of the tariff is transferred to the public authority to service loans raised to finance extensions of the system. See Box 5 on leasing in the ports sector.

An affermage is similar, but not identical, to a lease contract. Unlike a lease where the private sector retains revenue collected from customers and makes a specified lease payment to the contracting authority, an affermage allows the private sector to collect revenue from the customers, pays the contracting authority an affermage fee, and retains the remaining revenue. The affermage can be more appealing to the private partner as it reduces some risks associated with low-cost recovery in sales. The affermage fee is typically an agreed rate per every unit sold.

Box 5: Leasing in the Ports Sector

In Asia, lease contracts are usually used in operating airport terminals or seaport container terminals. Both India and Thailand have ongoing lease contracts to operate container terminals at the seaports of Bangkok and Cochin, Karala State. The Indian contract is for 8 years and involves private participation from the United Arab Emirates. The Thai contract involves local companies and is to run for 27 years. In the People’s Republic of China, the Guangzhou Baiyun Airport Terminal is operated under a lease contract with the Keppel Group of Singapore which has a 15-year contract and 25% ownership of the project company.

Source: World Bank. 2006. Private Participation in Infrastructure database.

Potential strengths

Under lease and affermage contracts, the private partner’s profits depend on the utility’s sales and costs. The key advantage of this option is that it provides incentives for the operator to achieve higher levels of efficiency and higher sales. The principal drawback is the risk of management reducing the level of maintenance on long-lived assets, particularly in the later years of the contract, in order to increase profits. Further, the private partner provides a fee to cover the cost of using the assets although the private partner does not provide investment capital.

Potential weaknesses

The key issue in moving from service and management contracts to a lease is that the contractors’ revenues are derived from customer payments and, hence, the question of tariff levels becomes increasingly sensitive. This may require structuring and revising complex tariff arrangements. In addition, the responsibility for capital investment remains with the government and no private investment capital is mobilized.

4.4 Concessions

A concession makes the private sector operator (concessionaire) responsible for the full delivery of services in a specified area, including operation, maintenance, collection, management, and construction and rehabilitation of the system. Importantly, the operator is now responsible for all capital investment. Although the private sector operator is responsible for providing the assets, such assets are publicly owned even during the concession period. The public sector is responsible for establishing performance standards and ensuring that the concessionaire meets them. In essence, the public sector’s role shifts from being the service provider to regulating the price and quality of service. Table 4 and Box 6 are samples of infrastructure concessions.

The concessionaire collects the tariff directly from the system users. The tariff is typically established by the concession contract, which also includes provisions on how it may be

Table 4: Examples of Infrastructure Concessions in Developing and Transitional Economies**Telecommunications**

People's Republic of China (PRC),
Cook Islands, Guinea-Bissau, Hungary,
Indonesia, Madagascar, Mexico

Electricity

PRC, Cote d'Ivoire, Guinea, Hungary,
Mexico

Natural Gas Transport and Distribution

Argentina

Railways

Argentina, Brazil, Burkina Faso, Chile,
Cote d'Ivoire, Mexico

Water Distribution

Argentina, Brazil, Chile, PRC, Colombia,
Cote d'Ivoire, Guinea, Hungary, Indonesia,
Macao, Malaysia, Mexico, Philippines,
Senegal

Source: Resides, Ioannis N.. 2004. *Reforming Infrastructure: Privatization, Regulation and Competition: A World Bank Policy Research Report*. Washington, DC: World Bank.

Box 6: Republic of Korea's First Airport Railway

The first railway concession project is underway in the Republic of Korea (ROK). The 61.7 kilometer (km) line from Seoul city center to Incheon International Airport will offer both commuter and express service. The 41-km first phase of a new commuter and express rail air link in ROK opened in 2007 between Incheon International Airport and Gimpo domestic airport. It will be extended by 20.7 km 2.5 years later to take the line into the heart of the capital at Seoul central station.

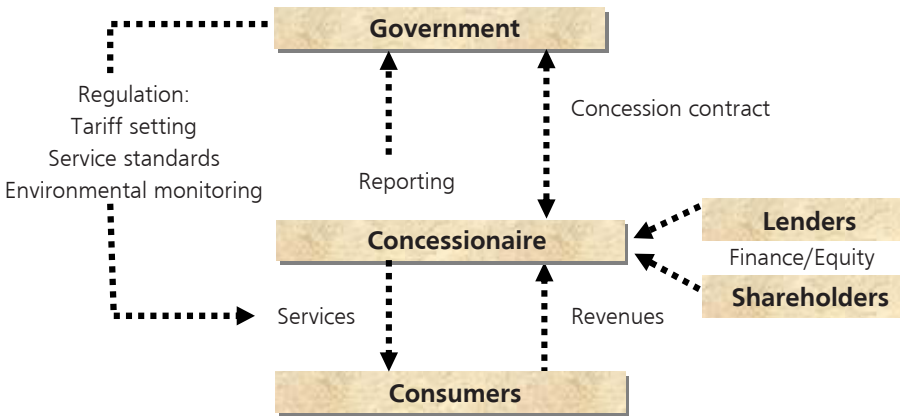
The project is strongly supported by the national and regional governments as a means of linking the Incheon hub to Seoul and the recently opened KTX high-speed railway, which runs from Seoul Central station to Busan. It is the first railway concession project in ROK. Incheon International Airport Railroad Company (liarco), a special purpose company incorporated in March 2001, has a 30-year operating concession from the end of construction.

liarco has 11 shareholders, led by Hyundai Engineering and Construction (HDEC) with 27%, Posco Engineering and Construction (11.9%), Daelim Industrial (10%), Dongbu Corporation (10%), Korea Rail Network Authority (9.9%), and six other Korean companies. Bechtel is providing support for project management to liarco and a Korean consultant, Kortech, is also assisting the concessionaire.

Source: Knutton, Mike. 2004. *International Railway Journal*. May.

changed over time. In rare cases, the government may choose to provide financing support to help the concessionaire fund its capital expenditures. The concessionaire is responsible for any capital investments required to build, upgrade, or expand the system, and for financing those investments out of its resources and from the tariffs paid by the system users. The concessionaire is also responsible for working capital. A concession contract is typically valid for 25–30 years so that the operator has sufficient time to recover the capital invested and earn an appropriate return over the life of the concession. The public authority may contribute to the capital investment cost if necessary. This can be an investment “subsidy” (viability gap financing) to achieve commercial viability of the concession. Alternatively, the government can be compensated for its contribution by receiving a commensurate part of the tariff collected. A concession contract’s typical structure is shown in Figure 7.

Figure 7: Structure of Concession Contract



Source: Heather Skilling and Kathleen Booth. 2007.

Potential strengths

Concessions are an effective way to attract private finance required to fund new construction or rehabilitate existing facilities. A key advantage of the concession arrangement is that it provides incentives to the operator to achieve improved levels of efficiency and effectiveness since gains in efficiency translate into increased profits and return to the concessionaire. The transfer of the full package of operating and financing responsibilities enables the concessionaire to prioritize and innovate as it deems most effective.

Potential weaknesses

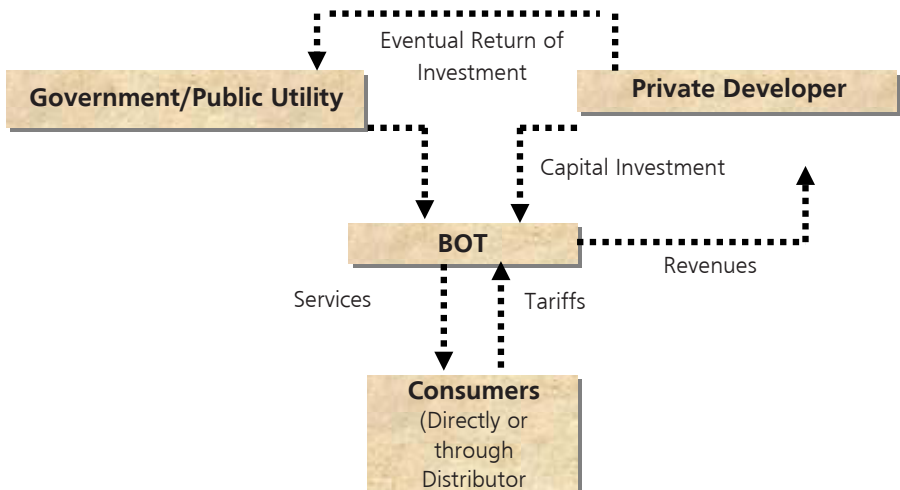
Key drawbacks include the complexity of the contract required to define the operator's activities. Governments also need to upgrade their regulatory capacity in relation to tariffs and

performance monitoring. Further, the long term of the contracts (necessary to recover the substantial investment costs) complicates the bidding process and contract design, given the difficulty in anticipating events over a 25-year period. This drawback may be countered by allowing a periodic review of certain contract terms in the context of the evolving environment. There is additional risk that the operator will only invest in new assets where it expects payback within the remaining period of the contract unless provisions for these events are set out in the contract. Because of the long-term, comprehensive nature of the contracts, they can be politically controversial and difficult to organize. It is argued that concessions provide only limited competition given the limited number of qualified operators for a major infrastructure network. There is also concern that concessions not set out monopoly terms but provide room for additional operators where this is in the best interest of certain groups of consumers and the concessionaire cannot provide equivalent service.

4.5 Build–Operate–Transfer and Similar Arrangements

BOT and similar arrangements are a kind of specialized concession in which a private firm or consortium finances and develops a new infrastructure project or a major component according to performance standards set by the government. Figure 8 illustrates the BOT contract structure.

Figure 8: Structure of a Build–Operation–Transfer (BOT) Contract



Source: Heather Skilling and Kathleen Booth. 2007.

Table 5: Basic Project Delivery Options

	Own	Conceive	Design	Build	Operation & Maintenance	Financial Responsibility
Design-Bid-Build	Public	Public	Private by fee contract		Public	Public
Design-Build	Public	Public	Private by fee contract		Public	Public
Build-Operate-Transfer (BOT)	Public	Public	Private by fee contract			Public
Design-Build-Finance-Operate (DBFO)	Public	Public or Private	Private by fee contract			Public, Public/Private, or Private
Build-Own-Operate (BOO)	Private	Public or Private	Private by contract (concession)			

Source: United States Department of Transportation, Federal Highway Administration. Available: www.fhwa.dot.gov/ppp/options.htm

The variations of BOT-type contracts include those cited in Table 5. Several of these are discussed in this section.

Under BOTs, the private partner provides the capital required to build the new facility. Importantly, the private operator now owns the assets for a period set by contract—sufficient to allow the developer time to recover investment costs through user charges.

The public sector agrees to purchase a minimum level of output produced by the facility, sufficient to allow the operator to recover its costs during operation. A difficulty emerges if the public sector has overestimated demand and finds itself purchasing output under such an agreement (“take-or-pay”) when the demand does not exist. Alternatively, the distribution utility might pay a capacity charge and a consumption charge, thus sharing the demand risk between the public and private partners. BOTs generally require complicated financing packages to achieve the large financing amounts and long repayment periods required. (See Box 7).

At the end of the contract, the public sector assumes ownership but can opt to assume operating responsibility, contract the operation responsibility to the developer, or award a new contract to a new partner.

The distinction between a BOT-type arrangement and a concession—as the term is used here—is that a concession generally involves extensions to and operation of existing systems, whereas a BOT generally involves large “greenfield” investments requiring substantial outside finance, for both equity and debt. However, in practice, a concession contract may include

Box 7: Build–Operate–Transfer for the Construction and Operation of a Solid Waste Transfer Facility in Hong Kong, China

Hong Kong, China issued a build–operate–transfer for constructing and operating its solid waste transfer facilities, which include a transfer station and fleet of transfer trucks. The Government prequalified several firms based on their experience in designing and operating transfer stations, and then held a competitive tendering process to select the winning firm. The bidding documents laid out technical and environmental performance requirements, maintenance requirements, and equipment replacement schedules. The station has been built and is currently in operation. The Government conducts regular inspections of the transfer facilities to verify that the specified requirements are being met.

Source: Public–Private Cooperation in the Delivery of Urban Infrastructure Services (Options & Issues). *Public–Private Partnerships for Urban Environment Working Paper I*. United Nations Development Programme (UNDP). Available: www.undp.org/pppue/gln/publications

the development of major new components as well as extensions to existing systems, and BOTs sometimes involve expansion of existing facilities.

There are many variations on the basic BOT structure including build–transfer–operate (BTO) where the transfer to the public owner takes place at the conclusion of construction rather than the end of the contract and build–own–operate (BOO) where the developer constructs and operates the facility without transferring ownership to the public sector. Under a design–build–operate (DBO) contract, ownership is never in private hands. Instead, a single contract is let out for design, construction, and operation of the infrastructure project.

The questions of ownership and the timing of the transfer are generally determined by local law and financing conditions, and the number of possible permutations is large. (See Box 8).

With the design–build–finance–operate (DBFO) approach, the responsibilities for designing, building, financing, and operating are bundled together and transferred to private sector partners. DBFO arrangements vary greatly in terms of the degree of financial responsibility that is transferred to the private partner.

Potential strengths

BOTs have been widely used to attract private financing to the construction or renovation of infrastructure. BOT agreements tend to reduce commercial risk for the private partner because there is often only one customer, the government. The private partner must be confident however that the purchase agreement will be honored.

Box 8: Build–Own–Operate and Transfer Contract to Develop, Operate, and Maintain a Toll Road in Gujarat, India

The contract for this 32-kilometer toll road facility includes the design and completion of the project road, including the pavement, cross-drainage works, bridges, toll facilities, medians, and separators. It also covers management, and operation and maintenance, including toll collection, operation of the toll plaza, traffic regulation, and maintenance of the facility.

The contractor has relative autonomy to determine its work methods and plan its maintenance. Toll rates are based on a fixed formula and increase annually in line with an escalation formula linked to the consumer price index. For a higher toll increase than approved in the contract, a toll review committee is constituted to provide a recommendation to the Government.

An independent engineer and independent auditor are hired to oversee the contract agreement and report to the Government and the contractor.

Risks are mitigated as follows:

- Land acquisition risk: the Government bears all responsibility for completion.
- Revenue risk: Borne by contractor but tolls are automatically revised every year through an agreed indexation formula.
- Inflation risk: Borne by the contractor but this is transferred to the contractor because of the fixed price nature of the contract.
- Risk of shortfall in traffic: provision to extend the contract in case of nonachievement of a 20% return over the 30-year period. Additional revenue is also possible at the discretion of the Government.
- Force majeure risks: comprehensive insurance coverage and a temporary toll review provision to mitigate loss of revenue for a short period due to force majeure.

Source: World Bank. Tool Kit for Public-Private Partnership in Highways. Available: http://rru.worldbank.org/Documents/Toolkits/Highways/2_carac/23/23_.htm

An advantage to DBFO projects is that they are financed partly or completely by debt, which leverages revenue streams dedicated to the project. Direct user fees (like tolls) are the most common revenue source. However, other sources of finance in the road sector, for instance, might include lease payments, shadow tolls, and vehicle registration fees.

Potential weaknesses

BOTs have a project-specific application so they are potentially a good vehicle for a specific investment, but with less impact on overall system performance. It can be difficult to link the increases in production brought about by a BOT with commensurate improvements on the demand side. While initial capital construction costs may be reduced through the private sector's experience, private debt may be an expensive substitute for public financing where a take-or-pay agreement is in place.

The benefit of competition is limited to the initial bidding process and these contracts are often renegotiated during their life. The tender documents and processes require careful design and adequate time.

4.6 Joint Venture

Joint ventures are alternatives to full privatization in which the infrastructure is co-owned and operated by the public sector and private operators. Under a joint venture, the public and private sector partners can either form a new company or assume joint ownership of an existing company through a sale of shares to one or several private investors. The company may also be listed on the stock exchange. A key requirement of this structure is good corporate governance, in particular the ability of the company to maintain independence from the government. This is important because the government is both part owner and regulator, and officials may be tempted to meddle in the company's business to achieve political goals. From its position as shareholder, however, the government has an interest in the profitability and sustainability of the company and can work to smooth political hurdles. The private partner assumes the operational role and a board of directors generally reflects the shareholding composition or expert representation. Box 9 highlights joint venture arrangements in the PRC.

Box 9: Energy Expansion through Joint Ventures in the People's Republic of China

General Electric (GE) Energy has been active in the People's Republic of China (PRC) for more than 90 years, supplying 70 steam turbines, 165 gas turbines, 97 wind turbines, 180 hydropower units, and 300 compressors as well as total engineering solutions to help the country improve the reliability and availability of its energy production and transmission equipment.

GE Liming is an \$18.9-million joint venture formed on 28 August 2003 between GE Energy (51%) and Shenyang Liming Aero-Engine Company, Ltd. (49%), one of the PRC's primary manufacturers of aero-derivative gas turbines and jet engines. The joint venture manufactures combustion components, buckets, and nozzles to contribute to the assembly of GE's Frame 9FA and 9E gas turbines in the PRC.

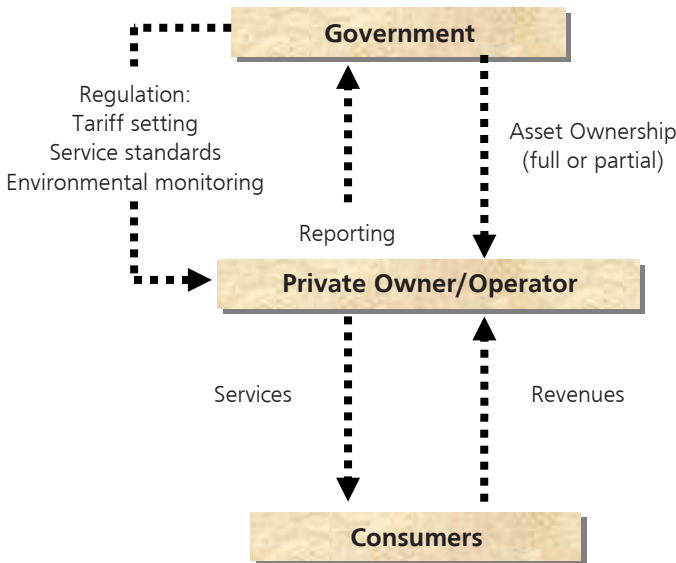
GESTT, a \$13.7 million joint venture, was formed on 8 January 2003 between GE Energy (75%) and Shenyang Blower Works (SBW) (25%), a major state-owned enterprise in centrifugal compressors, blowers, and gear manufacturing in the PRC. The joint venture brings to the Chinese oil and gas industry a wide range of GE Energy's oil and gas service offerings, coupled with strong local capability.

Source: GE Energy. 2005. *GE Energy Expands Role in China*. 25 August. Available: www.gepower.com/about/press/en/2005_press/082505.htm

The joint venture structure is often accompanied by additional contracts (concessions or performance agreements) that specify the expectations of the company. Joint ventures also take some time to develop and allow the public and private partners considerable opportunity for dialogue and cooperation before the project is implemented.

Under the joint venture structure, both public and private partners have to be willing to invest in the company and share certain risks. Figure 9 is the typical joint venture contract’s structure.

Figure 9: Structure of Joint Venture Contract



Source: Heather Skilling and Kathleen Booth. 2007.

Potential strengths

Joint ventures are real partnerships of the public and private sectors that match the advantages of the private sector with the social concerns and local knowledge of the public sector. Under a joint venture, all partners have invested in the company and have an interest in the success of the company and incentives for efficiency.

Potential weaknesses

Government’s dual roles as owner and regulator can lead to conflict of interest. Joint ventures also have a tendency to be directly negotiated or to follow a less formal procurement path, which can lead to concern for corruption.

4.7 Hybrid Arrangements

Contract arrangements that incorporate different characteristics of a range of contract types can also be developed. Called “hybrid arrangements”, these bring together the attributes most suitable to a particular project’s requirements and the operating conditions. Hybrid arrangements provide a tailored solution in terms of scope, risk sharing, and/or scope that is most directly suitable to the project at hand. Obviously, the variations are endless, but examples include:

- A “management contract plus” arrangement, in which the performance-related element of the management contract is substantial enough to transfer real risk. For instance, the payment of bonuses to the management contractor might be linked to achievement to increases in the operating cash flow of the utility by a predetermined amount. To achieve the bonus (if sufficiently large), the contractor may put additional inputs at risk to achieve the cash flow outputs.
- A private contractor, LEMA, through a management contract, is responsible for water distribution and wastewater collection in Amman, Jordan. The contract provided LEMA with a fixed-fee and a bonus based on the improved performance of the utility. Similarly, LEMA faced penalties for not achieving improvements. Under this structure, the management contract in Amman was one of the first to adopt risk-sharing mechanisms more typically associated with deeper forms of PPP.
- In Gabon, a concession contract was offered for a vertically and horizontally integrated national utility, providing both water and electricity. The Government decided to keep water and electricity services together in the scope to permit continued cross-subsidies from electricity to water. This contract design yielded several benefits, including cost reductions through the sharing of human, financial, and technical resources and creation of a platform for investment planning that is more integrated.
- An “affermage–lease plus” arrangement has the ability to share responsibility for investments. Under a standard affermage/lease, the contracting authority retains full responsibility for undertaking and financing new investment even though the operator may be in a better position to manage new construction and some other investment obligations.

In some cases, the operator is given a limited investment responsibility, such as extension of network service coverage in certain areas. Alternatively, the operator and contracting authority may reach an agreement to cofinance investments.