

# Public Hospital Facilities Development Using Build-Operate-Transfer Approach: Policy Consideration for Developing Countries

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## Abstract

**Background:** Advantages and limitations of build-operate-transfer (BOT) contracts in various forms of public-private partnership (PPP) arrangements have not been studied.

**Objectives:** This study is the first of its kind to determine the framework, advantages, and limitations of BOT contracts for health care projects in selected countries.

**Methods:** A comparative design was employed to identify factors affecting the development of medical facilities through the adoption of PPPs and the implementation of BOT contracts. England, Spain, Australia, Turkey, and Canada were selected, and data were gathered through well-known databases for the relevant studies. Electronic databases were searched using the keyword terms, "build-operate-transfer," "public-private partnerships," "health sector/health system," "health care facilities," "Spain," "Canada," "England or United Kingdom," "Turkey," and "Australia."

**Results:** The findings revealed that while there was insufficient information transparency for adoption of the BOT contract model in developing medical facilities and building new hospitals, some similarities were observed in its adoption in public fields. Adoption of the BOT contract model has been proven feasible in the selected countries for the health sector, in particular, for the development of new hospitals. These contracts are usually long-term in nature to provide the private sector with the chance to appropriately exploit the field. Different countries utilize this model to meet public regional and long-term health care needs, where the goal is not just a matter of seeking the private sector's contribution.

**Conclusions:** This study suggests that more information transparency is required for these types of contracts. Factors such as the term of the contract, the maintenance of the facilities built and their post-completion ownership status, facilities and credits offered to the private sector during the construction and operation phases, and the provision of financial and non-financial incentives to the private sector require deeper examination and should also be adjusted to the local contexts of the developing country.

**Keywords:** Public-Private Partnerships, Health Care Sector, Health Care Facilities

## 1. Background

Neither the public nor the private sectors can meet health care service needs independent of each other. This has led to the beginning of a third way that emphasizes the partnership of these sectors (1, 2). Economic theories suggest that the private sector is not motivated enough to invest in health care services, while governments cannot provide sufficient health care services due to limited budgets (3). This situation has been aggravated by poor management, a lack of efficiency, a disproportionate use of funds and time, and low-quality services provided by the public sector (4). The low productivity of government agencies, their mostly unsatisfactory services, and budget constraints both in developed and developing countries have seriously challenged the assumption that health care organization must be administered by governments (5, 6).

As an alternative, a public-private partnership (PPP) offers many advantages. Through this type of agreement, the skills and assets of the private sector are utilized in delivering services or facilities to provide general services (7). Indeed, it is very important to exploit PPP in health care services, especially for the financing, provision, and management of services where the public sector is facing serious difficulties (8). PPP in health care services takes many forms and covers varying degrees of shared responsibilities between these sectors, where each form can be adopted based on its conditions, objectives, and assumed benefits (9). All PPPs include agreements in which the roles and obligations of the partners have been specified and the financial reimbursement rates to the private partner are determined in regard to the risks undertaken by each sector (10). PPP arrangements are categorized by the Asian development bank as service contracts, manage-

ment contracts, lease contracts, concessions, and build-operate-transfer (BOT) contracts (11).

A BOT is a concession in which a private entity (in the form of an agency or consortium) agrees to finance a new infrastructure project and commits to meet the performance standards set by the government (12). The private partner raises the necessary funds for the construction of new facilities and is entitled to retain the ownership of the facilities and buildings during the term of the contract. The term of the contract must be adjusted to allow for the return of the investment of the private entity (13). The public party commits to purchase a minimum level of the private partner's products to allow the private partner to cover its expenses. The public administration either acquires the ownership of the project once it is completed or transfers it to a new partner through the conclusion of another contract (14). Designing BOT projects is a challenging process for both the public and private sectors. Both sectors have their own economic and social characteristics. While the public sector emphasizes accountability and the public interest, the private sector aims for maximum profits as a dynamic entity, emphasizes that have turned the conclusion of BOT contracts into a complex issue (15).

## 2. Objectives

As PPP arrangements have been proposed as a strategy to improve the efficiency of services while enabling the public sector to utilize the private sector's resources, namely its financial resources and manual skills, several studies have been conducted to determine the appropriate form this partnership should take.

However, no research has investigated the conditions, advantages, and limitations of BOT contracts. Therefore, the purpose of this study, as a first study in this area, is to determine the framework, advantages, and limitations of BOT contracts for health care projects in selected countries.

## 3. Methods

### 3.1. Study Design

A comparative study approach was used, as this involves a structured approach to using in-depth research to study the development of hospital facilities using BOTs in selected countries. Through a comparative design, we adopted and allowed model identification across the five countries to provide issue-specific learning for developing countries. Variables included the regulatory framework, the scope of the law (act), private sector selection, the policy framework, the structural framework, the contract

framework, financing methods, and use in the health sector. With our chosen variables, which have frequently been cited and debated in the literature and in policy discussions, we sought to maximize all the insight gained from the experiences of the selected countries in order to provide policy recommendations for developing countries.

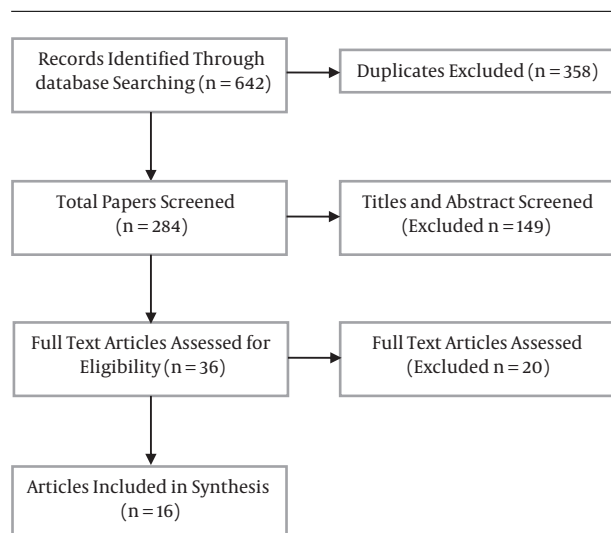
Comparative tables were designed and used as the data gathering tool. The variables for the comparison were extracted from a review of the literature and included the following: legal framework, legal scope, health sector, policy framework, structural framework, contract framework, and funding procedure (16, 17). These variables were validated by the research team and two more experts in the area of PPP. Fish cards were used to gather data through library resources, reports published by the World Health Organization (WHO), research centers, and reputable databases such as Medline, PubMed, Elsevier, Index Copernicus, DOAJ, and EBSCO-CINAHL and Iranian search databases including SID and Iranmedex.

### 3.2. Country Selection

The studied countries were purposefully selected to display diverse experiences of hospital facility development through BOT; this selection allowed us to reach a comparison of the factors underlying the different attributes of hospital facility development and implementation. Using advanced search strategies, we collected qualitative data from the United Kingdom (the UK), Canada, Australia, Turkey, and Spain. The selected countries were developed collaboratively by the research team and were then adapted by the national consortium from the Management and Planning Organization of Iran (MPO) to fit the context of developing countries.

### 3.3. Data Collection and Analysis

Nine scientific bibliographic databases, PubMed, Springer, Index Copernicus, SCI-expanded, Scopus, Emerald, Proquest, and Google scholar, were selected because they are large databases of peer-reviewed literature. A data extraction form designed on the basis of the study variables was used to gather the data. The electronic databases were searched using the keyword terms, "build-operate-transfer," "public-private partnerships," "health sector/health system," "health care facilities," "Spain," "Canada," "England or United Kingdom," "Turkey," and "Australia." Country-specific details reported in the databases were gathered for the period 1990–2015. We identified 16 papers requiring more careful scrutiny (Figure 1). Country-specific details were analyzed using comparative tables, which allowed us to compare the countries based on the variables.



**Figure 1.** Flow Chart of the Literature Review

#### 3.4. Ethical Consideration

The study was approved by the ethics committee of the Iran University of Medical Sciences (IUMS) (Rec: IR.IUMS.1394.9211557201).

## 4. Results

The information for each selected country has been presented separately from the variables (18-33).

#### 4.1. Legal Framework

Although England, Canada, and Turkey have regulated and transparently defined BOT, it is still unregulated and yet to be defined in Spain. BOT regulations have been integrated into other models in Australia. The selected countries also have specific regulations for different types of PPP.

#### 4.2. Legal Scope

BOT projects have been authorized in England in all sectors except the information, security, and military sectors. BOT has been adopted in Canada for the service and higher education sectors and adopted in the service and energy sectors in Turkey. There is no definite information about Spain. BOT has been adopted in all selected countries for healthcare services. PPP contracts in England come in the form of outsourcing, DBFO, and lease contracts, in Canada as outsourcing, BOT, and turnkey contracts, in Australia in the form of outsourcing, services, and DBO contracts, in Turkey as outsourcing, lease, and BOT, and in Spain as DBFO contracts.

#### 4.3. Selection Procedure of Private Sector

Canada and Australia have completely defined and Turkey has partially defined the requirements the private sector has to meet before starting projects, while England and Spain have yet to do so in clear terms. International private enterprises and corporations are authorized to execute projects in Australia and Turkey. However, this has not been clearly defined in other countries. Canada has forbidden the selection of the private sector for projects without competition from other sectors, while other selected countries have not defined this issue clearly.

#### 4.4. Policy Framework

Apart from Spain, all the selected countries have adopted specific policies for BOT projects. While the process of business competition in Canada is transparent, it is unclear in Turkey and has not been addressed in England. Nor have Australia or Spain made this competition process clear. The decision-making process in Australia and Canada is decentralized in the case of BOT projects, while it has no clear definition in the other countries. While Australia has banned local governments and municipalities from negotiating BOT projects with the private sector, other countries are not specific in this regard.

#### 4.5. Structural Framework

Australia has designated a central unit for different PPP arrangements with agencies in all local governments. There is also a BOT unit in all administrative agencies across the country. Again, other countries are not specific in this regard.

#### 4.6. Contract Framework

None of the selected countries has developed a standard format for PPP contracts (not mentioned). The duration of these contracts in England and Australia is 20 - 30 years, in Canada is 25 years in most cases, is 49 years in Turkey, and is 10 - 15 years in Spain. Apart from Spain, where the regional governments are entitled to negotiate and conclude contracts with the private sector, this authority in other countries has been vested with the health sector of local governments. In almost all countries, each phase (designing- building-operation) is completed by a different company.

#### 4.7. Funding Procedure

In England and Australia, the costs of the private sector are covered through revenues obtained from operation of the project during a certain period. This covering of

**Table 1.** Matrix of the Comparison of Candidate Countries in Terms of Legal Framework, Legal Scope, and Selection of Private Sector, Policy Framework, and Structural Framework

Dimension	Criteria	Countries				
		England	Canada	Australia	Turkey	Spain*
Legal framework	Is there any special law introduced for BOT?	Yes	Yes	Is integrated in other models	Yes	Yes
	Are the BOT concepts defined in the laws?	Yes	Yes	Is integrated in other models	Yes	Yes
	Are there any special laws for the types of PPP?	Yes	Yes	Yes	In some types	Yes
Legal scope	In what sectors has implementation of BOT been considered permissible?	All sectors except for information, security, and military	Service and higher education sectors	Service	Service and energy sectors	Has not been clearly defined
	Is PPP also used in the health sector?	Yes	Yes	Yes	Yes	Yes
	Which forms of PPP contracts are most used?	Outsourcing, DBFO, lease contract	Outsourcing, BOT, turnkey contracts	Outsourcing, services, design, build, and operation	Outsourcing, lease contract, BOT	DBFO
Selection of the private sector	Are the conditions of the private sector specified for participating in projects?	Has not been clearly defined	Yes	Yes	To some extent	Has not been clearly published
	Can foreign companies also take part in projects?	Has not been clearly defined	Has not been clearly defined	Yes	Yes	Has not been clearly published
	Is it possible to select the private sector without competitive conditions?	Has not been clearly defined	No	Has not been clearly defined	Has not been clearly defined	Has not been clearly published
Policy framework	Is there any policy document regarding BOT?	Yes	Yes	Yes	Yes	Yes
	Is there any transparent and clear process for a competitive atmosphere?	Has not been mentioned	Yes	Has not been clearly defined	Is ambiguous	Has not been clearly published
	Are BOT project decisions made in a central way?	Has not been clearly defined	No	No	Has not been clearly defined	No
	Are local governments for municipalities also able to lead BOT projects?	Yes	Yes	Yes	Yes	Yes
Structural framework	Is there any central unit for BOT?	Yes	Yes	Exists for all PPP types	Yes	Yes
	If there is a central BOT unit, where is it?	English Health Ministry	The health sectors of local governments	Local governments	Health ministry of Turkey and the health sector in provinces	The local governments have public-private participation units
	Is there any BOT unit in various sectors (executive agencies)?	Exists in educational and transportation sectors	Has not been mentioned	Yes	Exists in the energy sector	Exists
Funding procedure	Is there any standard format for the contracts?	Has not been mentioned	Has not been mentioned	Has not been mentioned	Has not been mentioned	Has not been mentioned
	What is the normal duration of the contracts?	20 - 30 years	Mostly 25 years	20 - 30 Years	Up to 49 years	10 - 15 Years
	Which sector is responsible for making a contract with the private sector?	The local health sector	The health sector of local governments	The health sector of local governments	The health sector in each province or state	Regional government
	Is the government's contract separate for each design-build-implementation, or is carried out by a company?	Is mostly done by a complex	Is mostly done by a complex	Is mostly done by a complex	Is mostly done by a complex	Is mostly done by a complex
Funding procedure	How is the project cost compensated for the private sector?	Operation within an agreed time period	Operation can be done under approved tariffs	Operation within an agreed time period	Operation considering the facilities	According to the payment based on population per capita
	Are there any laws for the procedure and authority for tariff setting for public services done through BOT?	Approved tariffs are used	Is not clear	Is not clear	Has not been mentioned	Has not been mentioned
Health sector	Is BOT applied in the hospital sector?	Yes	Yes	Yes	Yes	Yes
	Is delivery of clinical services also included in BOT?	Yes	Yes	Yes	All sectors	Yes
	Which institution is responsible for BOT in this sector?	The trust is responsible for decision making	The health sector of local governments	The health sector of local governments	Turkey's health ministry and health sector in provinces	The local government is in charge of decision making

private-sector costs occurs in Canada through revenues obtained from the operation of the project based on charging fixed tariffs, in Turkey through the operation of the project while considering the facilities provided for the private sector, and in Spain through per capita-based reimbursement. England charges fixed tariffs for BOT-based public service contracts. This has not been defined in clear terms in Canada and Australia and has not been specified in Turkey and Spain.

#### 4.8. Application in Health Sector

The BOT arrangement is practiced in all the selected countries for hospital development projects as well as in clinical settings. The agency in charge of concluding BOT contracts for health care services in England, Turkey, and Spain has not been clearly specified, while Canada and Australia have delegated this authority to the health sector of local and regional governments.

## 5. Discussion

Various PPP arrangements have been introduced around the world since the 1970s (2). The PPP approach has sometimes produced successful results, while at other times, it has encountered serious challenges. There is no single policy to be adopted for the administration of hospitals under this model of partnership. Each country adopts a specific model in consideration of its prevailing socioeconomic context and makes some gains. But almost every country has faced difficulties and stern challenges while practicing this model of partnership (32).

As the health sector requires the contributions of diverse sectors due to its nature and also due to the fact that various interested entities are involved in different hospital departments, this sector is fertile ground for the private sector to make investments (32). Service departments encourage the involvement of the private sector by their promising nature. As the results suggest, the selected countries are obviously open to diverse PPP arrangements, but they do not limit BOT applications to health care services. These countries are characterized by the adoption of a wide range of PPP models with attention paid to the conditions, the diverse advantages of the various models in different situations, and the lowering of risks of uncertain models. The findings indicated that while there was insufficient information transparency for the adoption of the BOT contract model to increase hospital beds and build new hospitals in the selected countries, some similarities were observed in public fields. These countries have done the groundwork for the application of PPP models, particularly for hospitals. Also, although European countries are

setting great store by PPP modes of financing (34), PPP is yet to be practiced on a large scale in developing countries (35).

BOT contracts are usually long-term in nature to provide the private sector with the chance to appropriately exploit the field. Different governments utilize this mode of financing to meet public regional and long-term health care needs, where this goal is not just a matter of seeking the private sector's contribution. PPP models could be applied in a wide range of fields, and building a hospital could be seen as entailing the inclusion of different departments to offer clinical and non-clinical services in the form of a single package.

The findings of this study indicate that the mechanisms put in place to control and monitor the activities of the private sector to execute BOT projects are not transparent. Bearing in the mind that information about these mechanisms in most countries is not adequate, the importance of health issues and medical products makes it necessary to address these mechanisms carefully. This necessity is further highlighted by McKee et al.'s study, which demonstrated that health care PPP projects are faced with four main challenges: costs, quality, flexibility, and complexity (32).

The economic issues of the health care sector and especially the development of new hospitals with respect to geographical demands have long been considered by regional and national policymakers in different countries. Infrastructure projects play a vital part in the development of the economy. As governments are expected to improve the quality and efficiency of their services on a regular basis, they usually take special measures to facilitate and expedite the execution of these projects to serve their purpose. Considering the public domains of each country and their current challenges and shortcomings, the completion of infrastructure projects in different sectors tends to be drawn-out and largely inefficient as a result of awkward bureaucracies and crippling governmental policies. Governments also have difficulties in raising funds sufficient for these projects. However, the potentials and capacities of every country highlight the importance of utilizing the specialties and innovation of the private sector to complete infrastructure projects in the form of BOTs, outsourcing, services, management contracts etc. (36).

The results of our study suggest that more information transparency is required for these types of contracts. Factors such as the term of the contract, the maintenance of the facilities built and their post-completion ownership status, the facilities and credits offered to the private sector during the construction and operation phases, and the provision of financial and non-financial incentives to the private sector require deeper examination.

The most important issues to take into account while applying this mode of financing and which must be transparently specified before the conclusion of any contracts are the exact terms of the contract, the procedure for transferring the ownership of the hospital once the contract expires, the process of providing facilities (if any) for the private party, the risk-sharing procedure, how doctors will work in the hospitals and what fees will be paid to them, and the procedure of calculating costs that must be paid by patients. Transparent regulations for the transfer of ownership and providing for numerous requirements are very important in these contracts. As the private sector uses public facilities and must abide by the government's regulations, the policy-makers must be careful in the adoption of certain policies. It is clear that the design of PPP models should ultimately result in improved health care services for the patients. Failure to observe the defined standards and requirements will cause disagreements between the partners and will also doom a project.

### 5.1. Conclusion

Studying PPP models, and BOT in particular, for the development of hospitals in most countries shows that BOT-based projects are hard to implement. This is because PPP models in general and the BOT model in particular require the development and definition of specific institutions, processes, and stages. The following policies are proposed to tackle this issue in developing countries:

1. Development of a national strategic instrument or a road map for PPP. It is necessary to prepare an instrument that can recognize risk factors and impediments to the implementation of PPP models through examining and analyzing current legal, political, and regulatory frameworks. Through recognizing risks and designating certain entities to deal with them, road maps help government officials place a project within its proper legal, political, and regulatory frameworks; road maps also offer guidelines for the development of PPPs. Officials can also contribute to the success of BOT projects through the proactive management of existing and potential risk factors.

2. Establish a specialized institution or organization to monitor PPPs across the country. Such a monitoring entity is recommended if one takes into account the experimental findings and multisectoral characteristics of the factors that are influential in the creation, development, and success of public-private partnerships. PPPs demand a powerful public sector with managers who have mastered the skills of negotiation and the conclusion of contracts as well as risk analysis. The public sector must have the authority to recognize appropriate projects and negotiate and finalize BOT contracts on behalf of the government. It must also

supervise the projects and offer and implement practical solutions in case of need.

3. Facilitate public-private partnerships. Two ways of facilitating PPPs are first, to demand that the users of hospital services make payments in order to secure the necessary resources and second, to draw up standard instruments for BOT contracts.

### Footnotes

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