Healthcare Infrastructure Public-Private Partnerships in Developing Countries: The Queen 'Mamohato Hospital in Lesotho

by

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ABSTRACT

Over the past decade, Public-Private Partnerships (PPPs) have increasingly found their application in the sector of health infrastructure. The objective of this paper is to determine whether PPPs are a viable option for health infrastructure projects in developing countries. For this purpose, the author discusses and describes PPPs in general and specifies features of PPPs, which may be relevant for the healthcare sector and developing countries. In a next step, the author extensively analyses the Lesotho New Hospital PPIP case study and establishes key learnings from the undertaking. The combined evidence suggests that the PPP model for health infrastructure projects in developing countries is not recommended as a result of its high complexity and wide spectrum of underlying obstacles. Therefore, the author suggests developing countries' governments to engage in smaller and less demanding PPP projects in order to acquire the skills and expertise that are required for large-scale health infrastructure PPP projects.

Keywords: Public-Private Partnership, PPP, 3P, integrated, PPIP, healthcare, infrastructure, finance, new hospital, Queen 'Mamohato Hospital, Queen Elizabeth II Hospital, developing countries, emerging markets, World Bank Group, International Finance Corporation, IFC, Oxfam, Tšepong, Netcare, Maseru, Lesotho, Bloemfontein, South Africa

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"Gratitude is the memory of the heart."

— **Jean Baptiste Massieu** († 1846)

French teacher and school founder

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Note: All defined terms have been marked with an asterisk (*) throughout the paper at their first appearance and can be found in the Glossary at the end of this thesis.

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Abbreviations and Acronyms

BBO	Buy-Build-Operate
BLOT	Build-Lease-Operate-Transfer
BOO	Build-Own-Operate
BOOT	Build-Own-Operate-Transfer
BOT	Build-Own-Transfer
CAPEX	Capital Expenditure
DB	Design-Build
DBFO	Design-Build-Finance-Operate
DBM	Design-Build-Maintain
DBOM	Design-Build-Operate-Maintain
DBSA	Development Bank of Southern Africa
GoL	Government of Lesotho
IFC	International Finance Corporation
IMF	International Monetary Fund
KPI	Key Performance Indicator
LeBoHA	Lesotho Boston Health Alliance
LED	Local Economic Development
LEE	Local Economic Empowerment
MoH	Ministry of Health
NGO	Non-Governmental Organization
NPO	Not-for-Profit Organization
NPV	Net Present Value
O&M	Operation and Maintenance contract
OPEX	Operating Expenditure
PFI	Private Finance Initiative
PFP	Private Finance Project
PPIP	Public-Private Integrated Partnerships
PPP	Public-Private Partnership
QE II	Queen Elizabeth II Hospital
QMMH	Queen 'Mamohato Memorial Hospital
RFP	Request for Proposal
SPV	Special Purpose / Project Vehicle
VfM	Value for Money

1. Introduction

"The success or failure of any government in the final analysis must be measured by the well-being of its citizens. Nothing can be more important to a state than its public health; the state's paramount concern should be the health of its people."

— **Franklin Delano Roosevelt**

Former President of the United States

This paper is intended to provide fresh insights into the narrow field of health infrastructure Public-Private Partnership (PPP) projects, regardless of prior expertise of the reader in this field. The thesis is a product of an extensive literature research as well as discussions with leaders in the field and was developed to critically discuss and answer the following research question:

➤ Are PPPs a viable option for health infrastructure projects in developing countries? ➤

In this context, Chapter 2 aims to lay out the basic knowledge necessary to understand PPP projects in general. It provides a comprehensive overview of the concepts and underlying principles required to comprehend a PPP's principal functioning, benefits and risks, different forms and fields of application, and financing structure. If you are already familiar with the fundamentals of PPP projects, it might make sense for you to simply skim over this chapter. The third Chapter, reviews the specificities and forces that drive a PPP project in low-income countries. Chapter 4 provides insights about the range of applications of PPPs in the healthcare sector. In this chapter, the specificities that make health infrastructure PPP projects different from those carried out in other sectors are discussed.

The subsequent part of the thesis is case based on and deals with the Queen 'Mamohato Hospital PPP project in Lesotho. The project was completed in October 2011 and is entirely operated by a private consortium to date. The contractual characteristics of the project were examined in detail and the impacts that the project had on the delivered quality of healthcare were studied. In a next step, the factors that significantly increased the project cost for the government were analyzed and key learnings and best practice approaches for a similar project in the future were derived.

In the last part of this thesis, the acquired understandings and insights from the previous chapters and the Lesotho case study were used to critically discuss the concept of health infrastructure PPP projects in developing countries in general and in order to answer the above raised research question. Subsequently, the thesis concludes with a set of recommendations and suggests several areas in which further research and analysis is required.

2. Introduction into Public-Private Partnerships

"We've got to move beyond the idea that the public and private sectors are at odds. Government has to lay the groundwork for private equity to productively invest in things like education. It's a partnership, not a battle."

— **Sebastián Piñera**

Former President of Chile

2.1. What is a Public-Private Partnership?

Throughout the world there exists a great gap between the demand for investment in infrastructure and the ability of governments to provide for these investments. Demand is likely to expand quicker than output and hence tax revenues. Public-Private Partnerships have the potential to overcome this gap by reinforcing public sector* engagement in designing, constructing, maintaining, financing and operating infrastructure projects under strict government regulation and supervision. (The Boston Consulting Group, 2013)

There is no existence of a single, internationally accepted definition of PPP. For example, the World Bank Group embraces the following definition of a PPP:

> "A long-term contract between a private and public party, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance." (The World Bank Group, 2014)

Whereas, the credit rating agency Standard & Poor's defined a PPP as:

> "Any medium- to long-term relationship between the public and private sector*, involving the sharing of risks and rewards of multi-sector skills, expertise, and finance to deliver desired policy outcomes." (Standard & Poor's, 2005)

For the European Investment Bank a PPP is more specifically defined:

> "Public-Private Partnership' is a generic term for the relationships formed between the private sector and public bodies often with the aim of introducing private sector resources and/or expertise in order to help provide and deliver public sector assets and services. The term PPP is, thus, used to describe a wide variety of working arrangements from loose, informal and strategic partnerships, to design build finance and operate type service contracts and formal joint venture companies." (European Investment Bank, 2004)

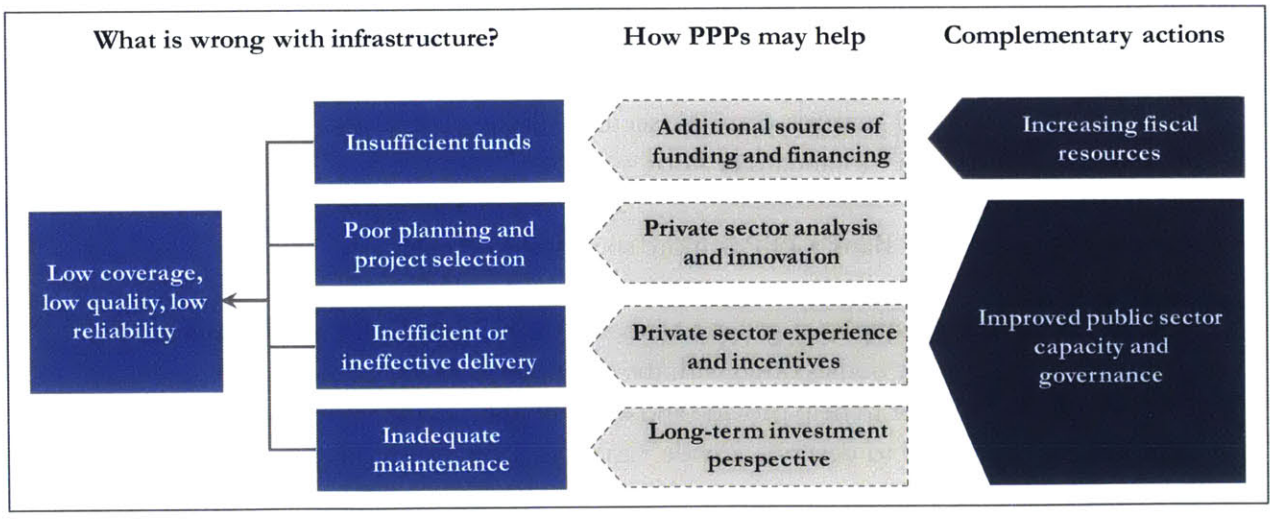
Therefore, a PPP constitutes a long-term contract between a public-sector authority – as for example a federal, state, or local public agency – and one or more private-sector entities, in which the private sector provides for infrastructure assets or services that have historically been delivered by the government. Through this arrangement, complementary financial and technical expertise is shared, thereby allowing for increases in quality, efficiency, transparency and accountability of a public asset and service delivery. Furthermore, as these infrastructure investments are subject to great risks due to high initial costs, long-term durability, and high irreversibility and complexity, a PPP allows for a fair division of potential risks and returns between both public and private party and delivers better value for money (VfM)* to the taxpayer.

PPPs can be found in a wide spectrum of sectors throughout the world such as energy, waste, healthcare, education, water services, telecommunication and transportation. Moreover, PPPs find their specific application in projects as for example hospitals, schools, roads, bridges, railways, dams and sanitation plants. (International Monetary Fund, 2007)

2.2. The challenges of public infrastructure provision

According to a McKinsey & Company study, government leaders will face a global infrastructure investment need of $67 trillion from 2013 to 2030 (McKinsey & Company, 2013). This enormous demand for funds will pose a great pressure on countries' budgets around the world and is exacerbated by the difficult nature of infrastructure projects themselves. In order to elaborate on how PPPs can help the public sector to better provide infrastructure, it is necessary to understand the challenges that a government is facing when delivering public assets and services. So the question is: What makes public asset provision so difficult? Table 1 provides an overview of how PPPs can support infrastructure provision.

Figure 1 - How PPPs can help to overcome the challenges of infrastructure provision
(The World Bank Group, 2014)



The development of infrastructure often involves gigantic upfront investment – which can easily reach billions of dollars – and pose significant financial risks to an investor. These investments, only generate returns long after being placed and are highly irreversible, therefore rendering their public justification difficult and their prearrangement of funds challenging. Furthermore, public infrastructure often builds natural monopolies, such as a tunnel or a railway system, and hence requires a fair distribution of returns, as well as a fair sharing of risk of all parties involved. This lack of competition in a monopolistic condition – if not adequately regulated and monitored by the government – can lead to inefficient pricing structures, unproductive service delivery and insufficient routines of maintenance and follow-up investment. Unfortunately, this is not where the difficulties of infrastructure delivery stop. The involvement of a large number of parties in these projects, can complicate communication, blur assigned responsibilities and create contractual inflexibilities. In addition, the public sector often lacks expertise and experience in planning these mega-projects (especially in low-income countries), which can result in imprecise project forecasting and resource scheduling. A good example for this fact constitutes the overestimation of actual demand for an infrastructure asset in the planning process, which results in overcapacities for the project and therefore excessive costs as well as insufficient returns over the projects life-time. Infrastructure provision gets further complicated by many other variables such as information asymmetries between regulators and concessionaires, governments lack of expertise in running services and even corruption. (Bank for International Settlements, 2014)

2.3. The benefits of Public-Private Partnerships

Governments with a long history in carrying out PPPs have found that public sector involvement can help to overcome common constraints of infrastructure provision, with projects being completed on budget and on time more often, while minimizing the need for renegotiations and readjustments of performance contracts. The following section will describe the advantages of PPPs for public sector authorities.

2.3.1. Attraction of private capital investment

Governments are increasingly challenged to provide sufficient funding for public infrastructure as a result of growing populations, urbanization, necessary network expansion and aging infrastructure assets. In addition, the public sector often has to provide significant subsidies for infrastructure projects operating under a deficit. Therefore, if structured correctly, PPPs can relieve this burden by activating priory untapped sources of funding from the national or international private sector. In return for its participation, the private parties require reimbursement mostly in the form of periodic payments, hence providing them with an adequate rate of return. (Asian Development Bank, 2008)

Infrastructure development is characterized by its long-term nature and often require enormous upfront investment. With the help of correctly structured PPPs, governments can overcome short-term budget limitations by spreading the project cost over the respective project's lifetime. As the private party only receives partial compensation at predefined points in time, PPPs allow the public

sector to avoid huge initial investments and hence to overcome short-term budget constraints. (The World Bank Group, 2014)

Once carried out, private capital investment in infrastructure has the advantage of allowing governments to bring in increased user generated revenues, by establishing charges for the utilization of the asset or service. These revenues can then be used to pay for the project cost itself or to reduce taxpayers financial burden by providing subsidies for the infrastructure object. (The World Bank Group, 2014)

2.3.2. Private sector analysis, scrutiny and innovation

As a result of poor selection processes, weak project analysis and personal interests of decision makers within the public sector, governments often invest limited resources in projects that fail to represent sufficient VfM. These projects can result in weak service provision, higher cost than necessary, or even do not provide customers with the service they require.

Under the framework of PPPs, governments can make use of the expertise and technological know-how, as well as of the innovation capabilities of the private sector. The private sector is heavily dependent on correct cost estimates and revenue forecasts in order to minimize risk and to best predict financial returns. These non-governmental parties, which are driven by their experience and strong profit-driven nature, usually follow higher levels of quality assurance, when compared to the procurement process of the public sector. (The World Bank Group, 2014)

The participation of private sector entities in the tendering process of PPP projects can lead to two advantages for governments:

(1) It can function as a filter for the public sector to detect and abandon white elephant* infrastructure projects upfront, as they often simply do not attract private lenders and investors, who have carried out their own project analysis (Engel, Fischer, & Galetovic, 2008).

(2) It can result in suggestions of innovative ideas by the private sector. If governments show flexibility in finding infrastructure solutions as well as accept unrequested proposals, the private sector can suggest innovative solutions to meet infrastructure challenges. (The World Bank Group, 2014)

It is important to note, that the involvement of private sector entities can facilitate project selection by providing additional analysis and expertise, but can contribute only little to improve the project planning process or coordination among stakeholders. The reason for this is that the private sector is not immune to optimism bias, might be wrongly incentivized or even corrupt. (The World Bank Group, 2014)

2.3.3. Increases in efficiency and more effective usage of available resources

The public sector often only has few or no incentives for efficiency measures when carrying out infrastructure projects and is therefore often inadequately prepared to build, maintain and operate these undertakings. Though the implementation of innovative mindsets into governmental processes is not impossible, it still lags behind the high motivation of the private sector to get project estimates right in order to adequately assess risks and financial metrics. A private lender or investor is undertaking a PPP with the clear target to maximize profits and often does so by introducing measures, which can possibly enhance efficiency and effectiveness of the project, in order to optimize both revenues and costs. Governments can profit from this mindset of the private sector, by utilizing available scarce resources more efficiently and effectively. Additionally, these streamlined processes increase the likelihood that these services are provided in an economically sustainable manner and at affordable cost for the user, while still satisfying profit targets. Moreover, PPPs allow governments to transfer operational roles to the private sector, while placing their focus on core public sector responsibilities such as regulation and monitoring. (Asian Development Bank, 2008)

Through a more effective usage of available resources, PPPs additionally can help to decrease time and cost overruns of new infrastructure assets, when compared to traditional public procurement projects. The United Kingdom House of Lord's summarized these findings as follows:

> "There is strong evidence that Private Finance Projects (PFP) have a better record of on time and on budget delivery than traditionally procured projects, although it appears this gap is narrowing. Nonetheless, too many PFPs are delivered late, albeit contractors rather than public authorities are liable to the consequent financial penalties."

Comparative data gathered from surveys, underline these findings. The information suggest that the enhancement of public procurement processes has helped to decrease the gap of budget and time overruns, when compared to PPPs. Please refer to Table 1 for an overview of the gathered data.

Table 1 - Comparison of PPPs and public procurement performance

(Allen Consulting Group & University of Melbourne, 2007; Duffield & University of Melbourne, 2008; United Kingdom House of Lords, 2010)

Survey	Comparison	Project budget overruns (in %)		Project time overruns (in %)	
		PPP	Public	PPP	Public
United Kingdom, 2003	Contract award to final	22%	73%	24%	70%
United Kingdom, 2008	Contract award to final	35%	46%	31%	37%
Australia, Infrastructure Partnerships survey, 2007	Original approval to final	12%	35%	13%	26%
	Contract to final	1%	15%	-3%	24%
Australia, Duffield Review of PPP Performance, 2008	Original public. to final	24%	52%	17%	15%
	Budget approval to final	8%	20%	12%	18%
	Contract to final	4%	18%	1.4%	26%

Both, PPPs as well as traditional Public Procurement infrastructure projects, show significant budget and time overruns, though the gathered data indicates that PPPs have an advantage in respecting these limitations. Reasons for these differences might stem from a utilization of more precise cost forecasts in PPP contracts or higher cost discipline as a result of PPPs usually not allowing for cost adjustments post contract closure. (The World Bank Group, 2014)

2.3.4. Private sector expertise and experience

The contribution of proficient management expertise, technological know-how and past experience of the private sector can help governments in increasing overall quality of infrastructure service provision while significantly contributing to enhancements in effectiveness and efficiency. A comprehensive study carried out by the World Bank Group in 2009 underlined this suggestion by comparing more than 1,200 electricity and water utilities in more than 71 countries. The study found that significant improvements in service quality as well as efficiency gains were realized for infrastructure projects in which the private sector was introduced. Furthermore, the private sector is more flexible in generating innovative solutions for a better value of money. (Gassner, Popov, & Pushak, 2009)

2.3.5. Quality assurance and maintenance

PPPs have the advantage that they combine the construction or renovation of infrastructure projects with the obligation to carry out periodic maintenance and repairs under one contract. This fact helps to ensure that the infrastructure asset, which is constructed by the private party, is built accurately using high quality materials. PPPs therefore can help to significantly reduce the need for follow-up maintenance and hence to lower the total costs of the project over its lifetime. (U.K. National Audit Office, 2010)

> "Evidence to date suggests PFI is appropriate where there are major and complex capital projects with significant ongoing maintenance requirements. [..] Where it is effective, PFI helps ensure that desired service standards are maintained, that new services start on time and facilities are completed on budget, and that the assets built are of sufficient quality to remain of high standard throughout their life." (HM Treasury, 2003)

Moreover, PPPs incentivize the private party to carry out sufficient maintenance, if the private party generates revenues from users who use the provided infrastructure services. In this case the private entity has to ensure that the asset meets quality requirements in order to be able to attract users and to comply with explicit performance requirements set by the government. Even under government-pays contracts, PPPs can aid to ensure adequate maintenance levels. This is the case, as the government has to commit to provide funding for maintenance available upfront in order to ensure continuous repairs and restorations throughout the asset's lifetime. Additionally, these guarantees can help to reduce the likelihood of reductions in maintenance budgets over the course of the project. (The World Bank Group, 2014)

2.3.6. Reforming sectors by reallocating roles, incentives and accountability

PPPs can function as a driving force to reform and streamline the roles, incentives and accountabilities that a public sector consists of. A sector reformation including a PPP might be a good chance to reexamine and to overcome inefficiencies as well as potential conflicts amongst participants by rearranging the roles of regulators, policy makers and service suppliers. A good illustration of such a reform could be to alter legislation to flatten the ground for private sector participation in order to mobilize funds for public infrastructure projects. These reforms can then lead to spillover gains by serving as best practice examples for other sectors and other fields of application. (Asian Development Bank, 2008)

2.4. The identification and allocation of risks in Public-Private Partnerships

When structuring a PPP, it is very important to understand the risks associated with such a project. These risks can be regarded as an unpredictable change in the value of the project – for some or all stakeholders – that can arise from certain underlying risk factors. The risks associated with a project vary depending on the nature of the project itself, the assets and services involved, as well as the country or region in which the project is implemented[1]. Table 2 provides an overview of the risk categories that can be encountered when carrying out a PPP project.

The assessment of the risks inherent in a project can be carried out either qualitatively or quantitatively. This evaluation is of utmost importance in order to determine the relative importance of a risk for all stakeholders involved and to determine which party will bear the cost (or receive the benefit) arising from a certain risk factor.

Each risk should be allocated to the party that can manage it best. Therefore, a risk is assigned to the party that can (a) best control the likelihood of occurrence of the risk, (b) best control the impact of the risk on the overall project outcome by preparing and responding to it, (c) absorb the risk at the lowest cost.

The allocation and sharing of risks in a PPP project does not mean that the maximum possible risk is being transferred to the private party, but that risks are optimally distributed amongst both the public and private sector. This allocation can then help to lower the total cost of the project and improve the VfM. (The World Bank Group, 2014)

[1] Given the focus of this paper on infrastructure PPPs in health infrastructure in developing countries, please refer to Chapter 3.3 for more information regarding specific risks inherent in PPP projects in developing countries and to Chapter 4.3 regarding specific risks inherent in health infrastructure PPPs.

Table 2 - Overview of Public-Private Partnership risk categories
(Grimsey & Lewis, 2002; The World Bank Group, 2014; Thobani, 1999)

Risk category	Explanation
Design and construction	The risk that the construction of the asset takes longer or costs more than expected or that the design and / or construction do not meet the specified project requirements.
Operating	Risks associated with a successful operation of the asset, which includes interruptions in service provision or asset availability, variations in the quality of service outputs, or differences in the expected cost of operating and maintaining the asset.
Demand and commercial	The risk that the demand for the asset is different than forecasted or that revenues cannot be collected as efficiently as previously expected.
Site	Risks that are linked to the availability and quality of the project site. These can be for example: (a) the time and cost needed to purchase the site, (b) necessary permits, (c) geological or other site conditions, (d) costs associated with environmental standards.
Regulatory and political	Risks that unfavorably affect the viability of the project through regulatory or political decisions as well as changes in the regulatory framework. Moreover, these risks comprise of changes in general law, such as corporate taxation or repatriation of profits and can arise as a result of changes within governments, which in extreme cases can lead to failure in contract renewal, breaches in contract or even asset expropriations.
Default	Risks associated with the financial or technical default of the private party and hence its incapability to implement, finance or operate the project.
Financial	Risks arising from changes in interest rates or exchange rates, as well as consequences from inflation or deflation that harm the projects viability and sustainability.
Asset ownership	The risk connected to the ownership of the assets, such as deviations in the value of the asset at the end of the contract or obsoleteness of the technology.
Force majeure	The uninsurable risk connected to external events outside of the control of the involved parties e.g. natural disasters, war or civil disturbances.

2.5. The different forms of Public-Private Partnerships

2.5.1. Classification by infrastructure asset involved

The first differentiation between PPPs is made between newly constructed and already existing assets. New infrastructure assets, which involve both the public and private sector, are often called "greenfield" projects. On the other hand, PPPs that involve the management and the modernization of previously existing assets are called "brownfield" projects.

2.5.2. Classification by payment scheme

Another way to differentiate PPPs is to look at the underlying payment mechanisms to the private sector. The private party can generate revenues from infrastructure services by charging fees from the actual users of the service, from the public sector or from a combination of the two.

- **Under a "user-pays" PPP contract**, the private party is entitled to charge users for the actual utilization of the infrastructure asset. A common example constitutes a highway for which users have to pay a fee in form of a toll. These fees can be subject to subsidies by the government.
- **Under a "government-pays" PPP scheme**, the private party receives revenue for the actual utilization of the infrastructure asset, solely by the government, such as a shadow-toll road, which is free for the user, but for which the government pays a certain amount per customer. This scheme is often applied for social PPPs such as prisons, courts, and schools.

The selection of a respective payment method mostly depends on which services the private party carries out and is conditional on performance. Payments to the private entity can be either performance-based, as for example based on a contractually determined availability of service quality. Or payments can be output-based, as for example based on a predefined quantity of users served. (The World Bank Group, 2014)

Depending on the respective asset, payment mechanisms are usually linked to inflation. The extent of inflation protection for the private party can differ significantly among different projects and depends on the contractual terms (e.g. linkage of revenues, expenses, capital, etc.), the capital structure, and the location of the infrastructure asset. (RBC Global Asset Management Inc., 2011)

2.5.3. Classification by type of contract and degree of risk transfer

PPPs can furthermore be categorized by the respective allocation of risks and hence involvement of the private sector party. Please refer to Figure 2 for an overview of the different PPP contracts categorized by the infrastructure asset involved. This classification generally evolves around the different functions that the private sector is carrying out: construction, operation, finance and ownership. For a detailed overview of the most common classification definitions used around the world, please refer to Appendix I.

Figure 2 - Examples of different PPP contracts categorized by infrastructure asset involved
(PPIAF, 2012)

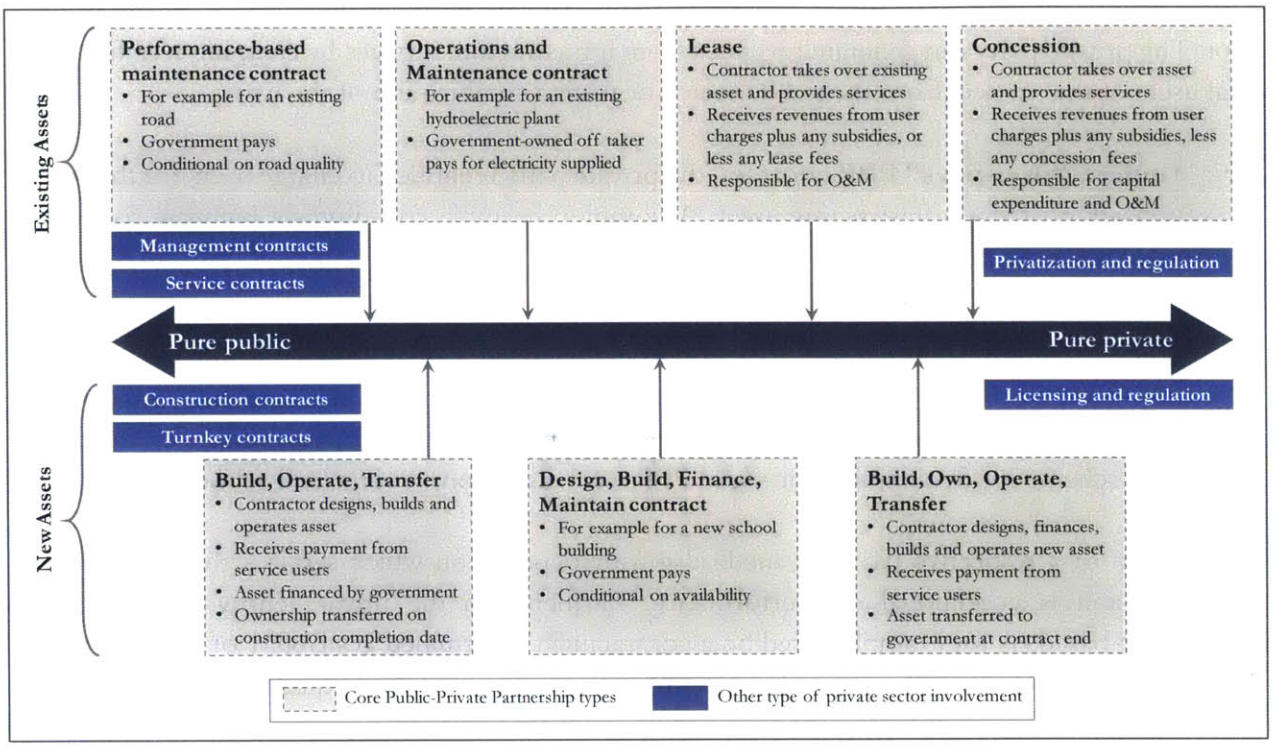
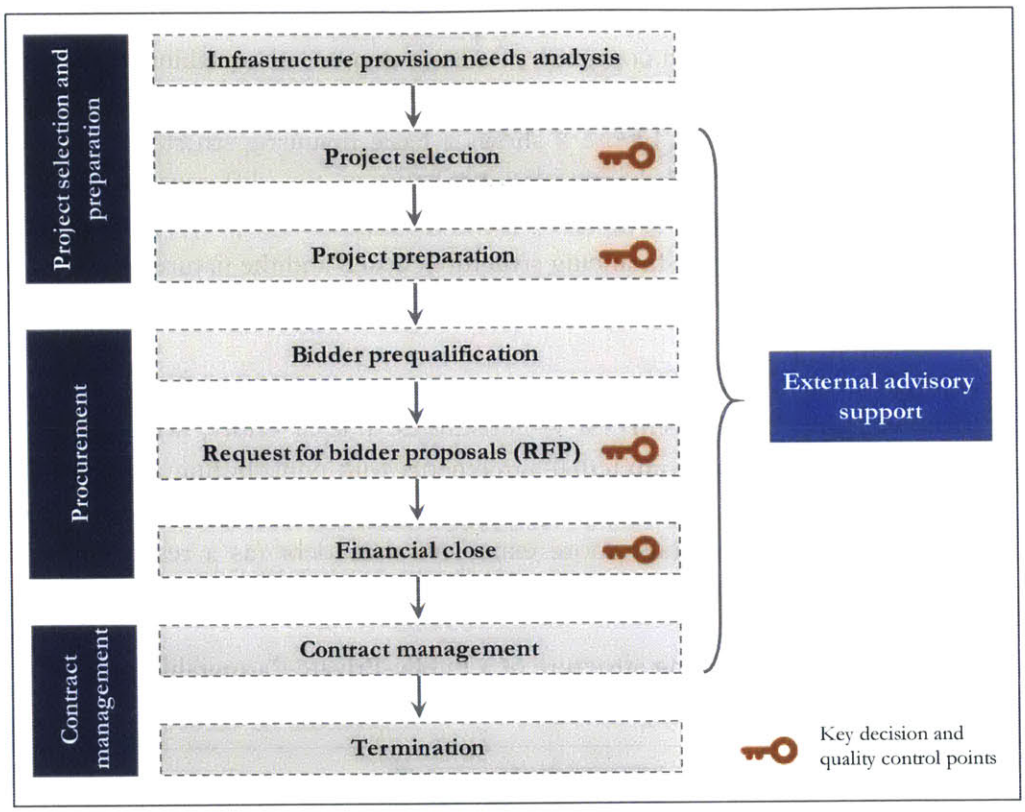


Figure 2 separates PPPs in greenfield and brownfield projects and ranks them by their degree of public and private sector involvement. Horizontally the different forms of private sector participation range from pure public projects, such as management contracts, to pure private projects, such as privatization. It is important to notice, that the higher the private sector involvement in a project, the more risk are being transferred from the government to the private party.

2.6. The key process phases of Public-Private Partnerships

The success of a PPP project greatly depends on how well it is planned and structured upfront, how well it is carried-out and how well it is managed over the lifetime of the project. Breaking down PPP projects in smaller parts can significantly simplify the process and can help to achieve efficient and effective partnerships between the public and private sector. Figure 3 shows an illustration of a typical PPP life-cycle. In this process, the government first identifies the need for various infrastructure projects before selecting the projects that have the largest positive impact on society. After the project preparation, the government pre-selects a number of bidders and requests proposals from them for the project. In a next step, the government selects a preferred bidder, with who it closes the financial contract. After contract closure, the government has to regulate and monitor the service provision of the PPP undertaking over its lifetime.

Figure 3 - Overview of typical Public-Private Partnership life cycle
(PPIAF, 2011)



From the viewpoint of the government, the PPP life cycle can be divided into the three main phases:

(1) **Project selection and preparation:** Definition of priorities and aims of possible PPP program. Identification, evaluation and selection of projects. Preparation of PPP engagement, including definition of responsibilities as well as performance and financing measures.

(2) **Procurement:** Issuance of tender notice with pre-qualification criteria, short-listing of bidders, selection of winning bidder and closure of contract.

(3) **Contract management:** Facilitation of communication amongst parties. Supervision of fulfillment of contractual responsibilities of private party. Application of relevant remedies or penalties. Termination of contract.

Over the whole process, it is important that the government plays a holistic role in developing, implementing and supervising the PPP project. Therefore, it is key that the public sector does not only select a contracting party but a partner and implements clear and transparent processes and responsibilities. (PPIAF, 2011)

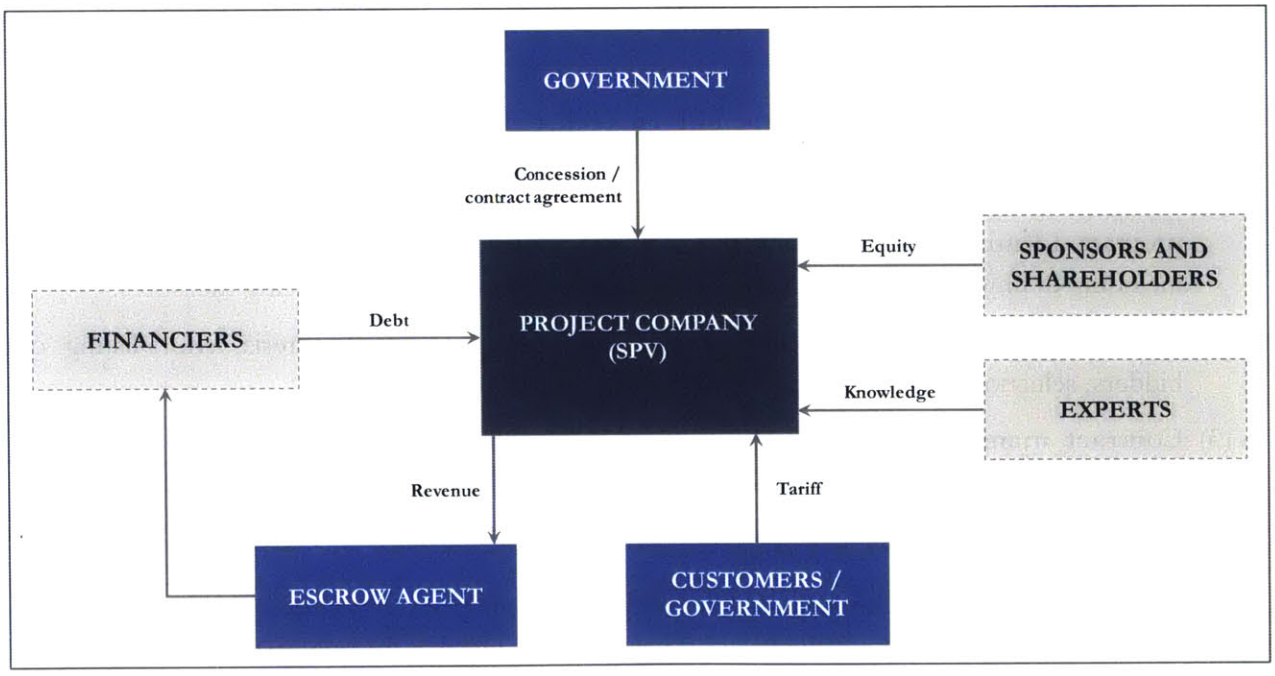
2.7. The financing of Public-Private Partnerships

2.7.1. The typical financial structure of a Public-Private Partnership

PPPs can be highly complex and often comprise of a large number of partaking parties, such as the government, project sponsors and shareholders, service operators, experts, financiers, dealers, contractors, engineers and customers. Figure 4 shows a basic financing structure for a typical PPP project and gives an overview of the interrelations between the different parties. The actual arrangement of a PPP, however, can significantly differ from project to project and depends greatly on the number of parties involved, the financing structure chosen and the nature of the infrastructure service provided.

For most PPPs the private party forms a project company or so called Special Purpose Vehicle* (SPV) in exchange for ownership shares. This SPV constitutes a legal entity, which carries out the infrastructure operations and enters contractual agreements with contributing parties. Furthermore, this company raises funds through a mix of debt provided by banks or bonds, and equity from project shareholders. Because equity is generally more expensive than debt (as a result of bearing more investment risks), SPVs are often highly leveraged. (PPIAF, 2012)

Figure 4 - Typical financing structure of a Public-Private Partnership project
(United Nations ESCAP, 2011)



It is important to notice, that an SPV is not permitted to conduct business activities outside the scope of the project for which it was established. Hence, this crucial characteristic helps to reduce uncertainty in service output and to protect the interests of all stakeholders involved.

Moreover, the formation of an SPV as a legal entity comes with several other advantages. Infrastructure projects often require gigantic investment volumes and multiple different operational skills to be carried out by one single investor. Therefore, an SPV can help to overcome this difficulty by establishing a joint venture, in order to bring in various investors and service providers and to combine their forces under one legal umbrella. A joint venture constitutes an operational corporation and is either owned jointly by public and private sector entities or by multiple private parties.

The joint venture allows the public sector to acquire long-term equity in exchange for shares in order to gain voting rights, to protect its interests, or to share risk as necessary. This engagement can be crucial for a government that is demanding a guaranteed influence in the management and the operations of infrastructure assets – especially for facilities such as airports, ports, or railway systems, which are of strategic importance for or require significant financial contributions by the public sector. Other reasons for governmental partaking in an SVP can be (a) to address political aspects, (b) to perform social responsibilities, (c) to guarantee financial sustainability, or (d) to offer trust for national and foreign lenders. The extent of direct partaking of a government in SPVs depends on the countries' legal and regulatory agenda and can differ significantly among different regions and sectors. (United Nations ESCAP, 2011)

2.7.2. The role of governments in Public-Private Partnership financing

PPPs can facilitate the access to private funding for infrastructure projects. Nonetheless, full private sector participation is not always necessary because governments can finance PPPs either partly or entirely themselves. There are several arguments, why governments might consider providing financing to PPPs:

- **Adjustment of risk:** By participating in the financing of a PPP, the public sector can align the amount of risk, which it wants to absorb as well as the amount of risk it wants to transfer to the private sector.
- **Enhancement of availability:** Where capital markets are immature or distorted and, hence, private financing is limited, governments can help to increase the availability of long-term capital, which would otherwise be unavailable.
- **Reduction of cost of finance:** Governments can often borrow money at a lower interest rate than the private sector, because they have access to funds on concessional terms*. This lower financing cost can therefore be passed on to infrastructure projects' SPVs, thereby reducing the overall project costs.
- **Alleviation of government risk:** Project revenues under government-pays PPP schemes depend on the payments of the public sector. This can introduce risk to the private party and is therefore reflected in the cost of capital for the project. By providing public financing in form of loans or upfront subsidies – often via an escrow agent* – the government can lower the risk of the private sector and hence lower the overall cost of the project.

- **Avoiding of excessive risk premiums:** Public finances can prevent conflicts, if the private sector demands risk premiums for its financing activities that the public sector deems to be too high compared to the actual project risks.

Governments can contribute financing to PPPs in multiple ways such as providing a common loan, a guarantee on a commercial loan, or upfront subsidies. Moreover, governments can indirectly finance a PPP. This is the case if a government-sponsored development bank or other institution is providing funds for a PPP. (The World Bank Group, 2014)

2.7.3. The role of development banks or other publicly financed institutions

International development banks or other finance institutions, such as the World Bank, the Asian Development Bank or the International Monetary Fund (IMF) repeatedly take part in financing PPPs and contribute to them by providing their knowledge and past experiences. In some cases, governments established these institutions solely to assist PPP projects.

As development banks and other publicly financed institutions may be funded by governments, they frequently have access to concessional loans and can hence introduce low financing costs to PPP projects. Given their often extensive experience and knowledge in the field of infrastructure provision, these financial institutions may sometimes be better suited to assess the viability and risks associated with a PPP project. Furthermore, government-owned finance institutions can serve in PPP projects by establishing and enforcing clear rules and procedures for when financing will be available. It is important to notice, that given their proximity to governments such institutions might be subject to political pressure and control. (The World Bank Group, 2014)

3. Public-Private Partnerships in developing countries

"There is nothing I fear more than waking up without a program that will help me bring a little happiness to those with no resources, those who are poor, illiterate, and ridden with terminal disease."

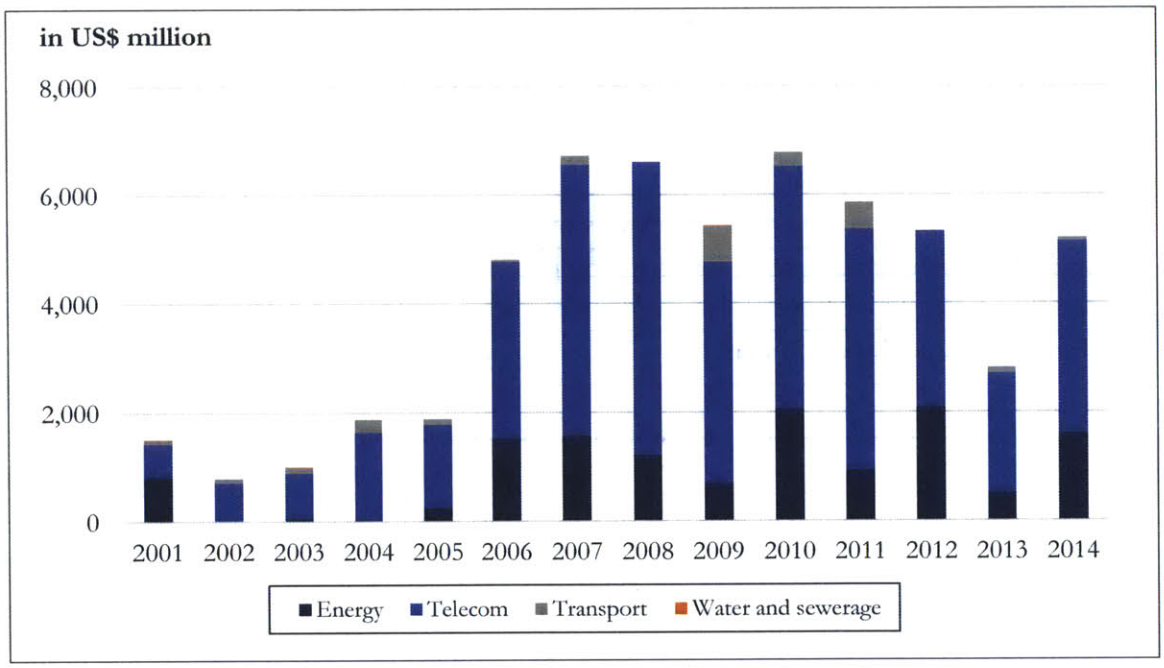
— **Nelson Mandela**

Former President of South Africa

3.1. The role of Public-Private Partnerships in developing countries

PPPs increasingly find their application in low-income and low-resource regions around the world and outside their traditional field of application – in areas such as education and healthcare. Figure 5 shows how private sector participation in infrastructure projects in low-income countries has significantly increased with an average growth rate of 21.7% from 2001 - 2014. The main fields of private party involvement in these regions have been in the telecommunication and energy sector.

Figure 5 - Private sector participation in infrastructure projects in low-income countries
(The World Bank Group, 2016a)[2]



[2] Private sector participation includes management and lease contracts, concessions, greenfield projects, and divestures and focuses on the sectors with some monopoly or oligopoly characteristics (energy, telecom, transport, and water and sewerage). It covers projects that (a) are owned or managed by private companies in low-income countries, (b) directly or indirectly serve the public, or (c) were financially closed after 1983.

Of this great private sector involvement, PPPs have played an increasingly important role, which can be seen by the fact that in developing countries PPP projects nowadays contribute 15 - 20 percent of total infrastructure investment (The World Bank Group, 2012). If implemented and managed well, PPPs can help developing countries around the world to overcome inadequate infrastructure provisions, which continue to restrain their economic growth. Therefore, mobilizing the private sector allows governments to tackle limitations such as insufficiently available public funds or unsatisfactory expertise in the operation and management of infrastructure assets.

3.2. The characteristics of developing countries

There is no commonly agreed definition of the term developing country around the world and hence no clear classification of these countries exists. Nonetheless, the term developing country is commonly utilized globally and often refers to countries with low per-capita incomes and low human development conditions. Please refer to Appendix II for a complete list of developing countries classified by the International Monetary Fund.

Developing countries often share the following characteristics (Kumar, 2011):

- Low per-capita income and high income inequality
- Low levels of human capital
- Low life expectancy and high levels of poverty and under-nutrition
- Low level of urbanization, but rapid rural-to-urban migration
- Higher instability of the political system
- Higher population growth rates
- Higher levels of corruption
- Predominance of agriculture and low levels of industrialization
- Dominance of informal sector (low governmental oversight and regulation)
- Underdeveloped labor, financial, and other markets as well as low degree of integration into global financial and trade system

This list is not exhaustive and not all of the above characteristics can be found in any country that is considered to be developing. However, it is very helpful to be aware of these features when analyzing the forces that shape these regions in the light of PPP projects.

3.3. What makes Public-Private Partnerships in developing countries different?

PPP endeavors in developing countries face certain obstacles that are different from similar projects in developed countries and hence need to be specifically recognized and dealt with by both the public and private party. Being aware of these challenges and factoring them in early in the preparation phase of a PPP, significantly increases the chances of a successful and sustainable project outcome and reduces the necessity of contract renegotiations down the road.

Main challenges for PPP infrastructure projects in low-resource and low-income regions include the following[3] (Sader, 2000; Thomsen, 2004; Winpenny & Camdessus, 2003):

- **Administrative and regulatory bodies:** Developing countries often lack the administrative and regulatory capacities and expertise to efficiently design and manage in a PPP. Moreover, in most countries, existing legislation was established to regulate public sector responsibility in infrastructure projects and has not been adapted to apply for private sector participation, while independent regulators are nonexistent.
- **Public sector budget:** Limited financial resources available for infrastructure provision.
- **Transparency:** The processes during the contract awarding phase often lack transparency and do not follow strict and objective evaluation criteria. Therefore, projects can be awarded by official preference for local participants, sub-contractors, or suppliers and hence result in non-optimal contract allocation. In this light, the lack of corruption in the planning, bidding, contracting and execution phase of a project constitutes a key factor for success (Iossa & Martimort, 2014).
- **Conflicting aims:** In many cases one single project is expected to fulfill various policy objectives, such as financial, health, social, macroeconomic, and environmental goals. Therefore, conflicts initiated by local communities or NGOs against individual PPP projects can rebound on the private parity more often than the initiating authorities.
- **Lack of bidders:** In developing countries there are often not enough bidders to create strong competition. These circumstances can negatively affect the efficiency gains of a PPP and can be significantly improved in the presence of foreign bidders.
- **Public governance:** Misalignment of various public authorities in the process of enforcing regulations and objectives such as regulatory bodies versus ministries or national versus regional authorities.
- **Incumbent service providers:** Current service providers in developing countries – often owned and operated by the government – receive preferential treatment, which makes private sector participation less attractive.
- **Price and tariff settings:** Non-existence of independent regulators, or inexperienced regulators create high uncertainty about price and tariff settings. This element is often reinforced by tariffs that were kept artificially low in the past through subsidies. Therefore, new prices and tariffs often lack public acceptance and hence are highly inflexible in situations such as a currency crisis.
- **Political instability and commitment:** In countries where governments are weak or the rule of law* is not strongly implemented, new authorities have reneged on existing PPP contracts

[3] Please note that no clear generalization of the stated characteristics can be made as the differences heavily depend on the geographical region and the services offered.

or contract terms. This behavior can lead to expropriation as well as creeping expropriation* in the light of public dissatisfaction.

- **Financial uncertainty:** PPP projects in developing countries often are subject to high financial risks such as drastic changes in exchange rates or interest rates, and high levels of inflation or deflation. For example, one of the greatest risks to a foreign investor constitutes rapid currency devaluation.

The main reasons why PPPs often are performing below the expectations of the public vary from case to case but often are a result of one or a combination of the above named challenges. Efficient risk mitigation, technical assistance and capacity building by international organizations as well as output-based aid have proven to enhance the viability and sustainability of PPPs and have resulted in significantly fewer contract renegotiations. (Thomsen, 2004)

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4. Health infrastructure Public-Private Partnerships

"The incompleteness of health PPP contracts is unavoidable, because long-term contracts will necessarily face technological, demographic, managerial, and political changes. Contracting authorities must manage change in the way most compatible with healthcare policy."

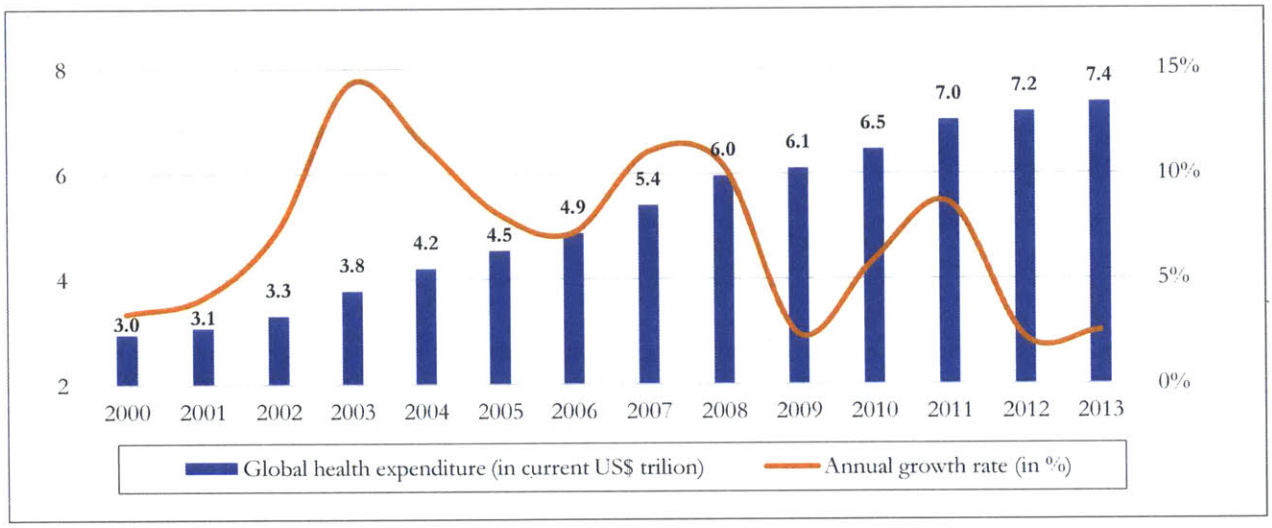
— **Rui Monteiro**

International Finance Corporation

4.1. The global healthcare sector

Around the globe, governments are trying to meet the increasing demand for healthcare services, while handling the respectively increasing healthcare costs. Over the past 13 years, global health expenditure has more than doubled, reaching US$7.4 trillion in 2013 (please refer to Figure 6 for an overview). When compared to 2012, health spending grew by 2.5% in 2013, thereby accounting for 9.8% of the global gross domestic product. (Statista, 2016)

Figure 6 - Global healthcare expenditure 2000 - 2013
(World Bank - Health Nutrition and Population Statistics database, 2016)



Aging populations, strong population growth in emerging and developing countries, and advancement in treatments and technology will continue to drive the health spending of governments around the world. This growth will increasingly put pressure on the budget of the public sector. Therefore, the public sector is urged to reduce healthcare costs by working closely with stakeholders in the industry in order to generate innovative ways to bring new scientific technologies and know-how to the market. Additionally, the public sector has to explore new methods in collaborating with private parties: PPPs can alleviate this growing burden of healthcare spending by combining the complementary capabilities

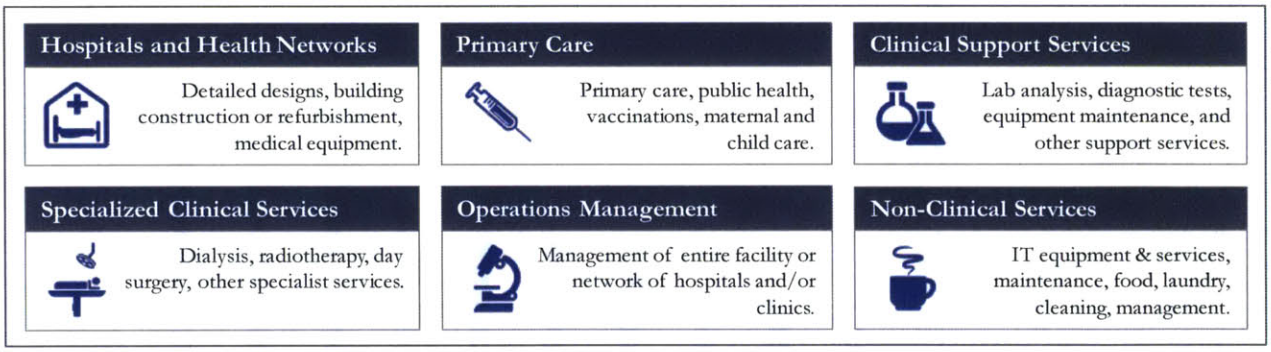
of public and private sectors, while sharing risks and guaranteeing both quality and efficiency of healthcare delivery. (Deloitte, 2015; Reich, 2002)

4.2. The range of Public-Private Partnerships in the health sector

4.2.1. The classification of Health Public-Private Partnerships by fields of application

PPPs in the healthcare sector can range from small product alliances with the industry to large scale infrastructure projects involving multiple governments, international development banks, and not-for-profit organizations (NPOs). The objectives and scope of these partnerships vary significantly from country and region and include – among others – the construction of hospitals, elderly homes and staff accommodations, the development or distribution of pharmaceutical and medical products, as well as the education of the public or the fleet management of the ambulance. Figure 7 provides an overview of the different areas, in which PPPs can be implemented in the healthcare sector. Health PPPs can be introduced to both clinical and non-clinical areas of service provision – for specialized as well as non-specialized services.

Figure 7 - Fields of application for Public-Private Partnerships in the healthcare sector
(International Finance Corporation, 2016)

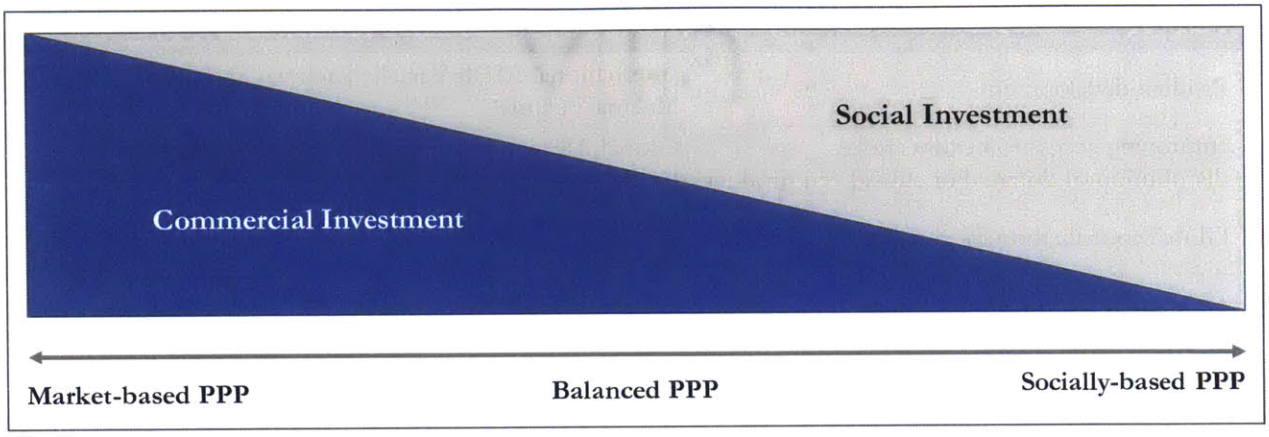


Governments need to carefully evaluate if and in which area of their healthcare systems it makes sense to team-up with the private sector. This task requires the public sector to rigorously analyze the private sector's strength in health service provision. Moreover, the government needs to evaluate its own capabilities in overseeing and regulating the services transferred to the private sector.

4.2.2. The classification of health Public-Private Partnerships by purpose

Besides the field of application, PPPs in the health sector can be categorized by the purpose they serve. The U.S. Agency for International Development (USAID, 2011) classifies PPPs in three models: market-based, socially-based, and balanced. These models differ in the degree of commercial or social investment. Please refer to Figure 8 for an illustration of the categorization.

Figure 8 - Categorization of health Public-Private Partnerships by core activity
(USAID, 2011)



- **The market-based PPP** is driven by a commercial, profit-driven nature, while the public sector commits to a secondary investment in order to generate social impact. It is important to notice, that this model is primarily sustainable through profit generation, driven by either the public or private sector. In the market-based model, the social investment is carried out in such a way that it incentivizes the commercial partner to accept lower returns at the beginning of the project in exchange for higher growth and returns in the long-run.
- In **the socially-based PPP**, the main interest of the parties is to enhance public health and not to generate profits. A good example of a social PPP constitutes a corporate social responsibility program: in this case the commitment is only sustainable, if it can maintain enough tax revenues, donations, or commercial contributions for the project. In the case of a socially-based PPP the parties are interested in earning a social return, which can be in the form of higher reputation and better public image.
- Not surprisingly **the balanced PPP model** comprises both social and commercial nature, each having different process owners and revenue streams. The sustainability of the balanced PPP model depends on social contributions (donations, commercial contributions, etc.) and profit generation. This cooperation benefits public and private parties by improving healthcare access and educating the public, as well as generating enhanced long-term profits through efficiency gains and horizontal expansion.

The high-level approach of breaking down health PPPs into social and commercial collaborations can help to understand and to anticipate driving forces of the partnership early on. After having determined under which of the three model groups above the partnership is categorized, it can be broken down further into specific objectives of healthcare provision that the respective PPP is trying to achieve. These purposes are summarized in Table 3.

Table 3 - Categorization of healthcare Public-Private Partnerships by objective
(Nishtar, 2004; World Health Organisation, 2010)

	Purpose	Example Public-Private Partnerships
1	Product development	International AIDS Vaccine Initiative, Medicines for Malaria Venture
2	Improving access to healthcare i.e. distribution of donated or subsidized product	Global Alliance to Eliminate Leprosy, Global Polio Eradication Initiative
3	Global coordination mechanisms	Micronutrient Initiative, Global Alliance for Improved Nutrition
4	Strengthening of health services	African Comprehensive HIV/AIDS Partnerships, Queen Mamohato Memorial Hospital (Lesotho)
5	Public advocacy and education	Corporate Council on Africa, Alliance for Microbicide Development
6	Improvement of product quality and regulation	Pharmaceutical Security Institute, Anti-Counterfeit Drug Initiatives

A clear categorization of PPPs in the healthcare sector is often difficult to establish. This is the case as PPPs are complex collaborations of multiple parties, which have different incentives and objectives. Moreover, PPPs frequently integrate several different purposes into one single endeavor. Nonetheless, a categorization of healthcare PPPs can help the public and private party to better align their incentives and to foster better coordination and understanding. Furthermore, it simplifies the complex process of PPPs into different sub-groups thereby promoting a standardization of best-practice activities as well as required capabilities and common risks. (Mitchell, 2000)

4.3. What makes health infrastructure Public-Private Partnerships different?

The goals and policy context of PPPs in the health infrastructure sector are different from classic infrastructure projects in industries such as electricity, water, or transportation. When establishing a health partnership between the public and private sector, it is therefore important to understand these differences and to be aware of their implications for the success of the project. The following six subjects summarize these dissimilarities[4]: (Montagu & Harding, 2012)

(1) **Primary purchaser of outputs:** Normally PPPs receive payments from several sources, such as fees from drivers on a highway, subsidies from a government, or grants from NGOs. In healthcare PPPs however the government – not the individual user of the asset – is the main purchaser of the output and almost all income of the project is generated in form of fixed scheduled lease payments or unit service payments. This element simplifies the payment process, but adds substantial political risk for the private party, as the projects require large and ongoing payment from the government. Moreover, the lack of diversification adds risk to

[4] Please note that no clear generalization of the stated characteristics can be made as the differences heavily depend on the geographical region and the health services offered.

the income stream of the private party, if the solvency of the contracting government is in doubt.

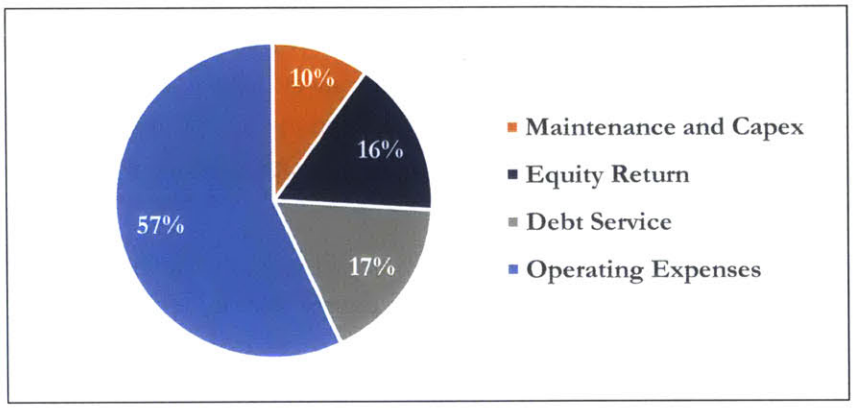
(2) **Source of risks:** Given the detail that the government is the main purchaser of healthcare outputs, the main partnership risks are of political nature and are not driven by the marketplace. This fact becomes increasingly important in countries with unstable political systems and as a result often leads to a higher cost of capital, when compared to PPPs outside the field of healthcare.

(3) **Measurability of output:** General infrastructure PPPs clearly measure service provision given well quantifiable outputs. For example, in the energy sector, service provision can be easily measured and compared by the amount of mega-watts provided or the number of households connected. However, in the field of healthcare infrastructure, outputs are often measured in the number of patients treated. Therefore, it is very difficult to measure service levels as they are heavily depending on the unique characteristics of the respective patient – which are even unobservable in some cases – and the respective disease. Moreover, the effects of preventive care are hard to track and quantify.

(4) **Variability of outputs over time:** The length of a PPP often spans over more than 30 - 40 years. During this time, the output – the population served by the respective health infrastructure asset – can significantly change in composition, wealth, age, and degree of illness. This is especially true in fast changing environments, such as developing countries. In comparison, non-health infrastructure PPPs provide for a more constant mix of outputs.

(5) **Capital expenditure vs. operating expenditure:** The ongoing operating expenses of a health infrastructure asset constitute the major proportion of total project costs. This is significantly different for infrastructure projects in other sectors (e.g. transportation or telecommunication) in which the construction and maintenance component are the main cost driver of the project. Figure 9 shows a cost breakdown of a sample hospital PPP project: operating expenses i.e. clinical, laboratory, pharmacy, and medical services constitute 57% of total project cost, while facility maintenance and construction costs only amount to 10%, respectively. This project cost structure therefore limits the potential of private sector efficiency gains in the design and construction phase of the project, while significantly shifting the importance to service provision. (Hellowell, 2012)

Figure 9 - Cost breakdown for sample hospital Public-Private Partnership project
(International Finance Corporation, 2011)



(6) **Variability of technology and organizational configuration over time:** In the field of health infrastructure, technologies are rapidly evolving hence changing healthcare service delivery over time. New technologies can result in changes of diagnostic and treatment processes, thereby altering the number of inpatients* vs. outpatients*, the length of a stay in a hospital or even the variety of services provided by doctors and nurses. These shifts add an additional layer of uncertainty and therefore risk to the PPP. This is especially true, as the cost of health infrastructure projects mainly comprises of the costs of operations (OPEX) – not construction (CAPEX).

While for a non-health PPP infrastructure project an optimal partnership contract, which could persist throughout the entire lifetime of the project, exists in theory, this is not possible for health infrastructure projects. That is the case, as weak measurability as well as variability of outputs, combined with changes in treatments and technology inherent in the project, necessarily lead to incomplete PPP contracts. This complication paired with the considerable importance of operating costs, requires both parties to build strong contract management capabilities in order to engage in active discussions and renegotiations of key performance indicators (KPI) throughout the life cycle of the PPP. These imperfect contract conditions moreover create opportunities for the private party to push for additional business while not being exposed to competitive market pressure. That is true, as contract renegotiation down the road allows the well-informed private party to create conditions that force the public party – if not well prepared for it – into a fait accompli thereby requiring price premiums or disturbances in healthcare delivery. For this reason, the government has to build strong contract management capabilities that allow for robust competences in anticipating and assessing all possible future strategies by the private party in order to prevent potentially negative strategic moves. (International Finance Corporation, 2011; McKee, Edwards, & Atunc, 2006)

4.4. Public-Private Integrated Partnerships

Public-Private Integrated Partnerships (PPIP) are a framework developed by the Global Health Group, which increasingly finds its application around the world (The Global Health Group & University of California, 2010). The model is based on the Alzira Hospital in Valencia (Spain) and is hence often referred to as "Alzira model". PPIPs are a special sub-group of PPPs and constitute long-term, diligently structured and planned relationships between the public and private sector in order to provide sustainable and high quality healthcare services. Examples of PPIPs around the world constitute the Joondalup Hospital in Perth (Australia) the Polokwane Hospital Complex's Renal Dialysis Unit in Polokwane (South Africa) and the Braga Hospital (Portugal).

PPIPs are distinguished from other PPPs in the health infrastructure sector in a way that they not only help governments to co-finance, design, build and operate a public health facility, but that they provide for both non-clinical and clinical services. A PPIP therefore, constitutes a full service package – ranging from curative, preventive and diagnostic services, to non-clinical services such as medical transport or facilities management. As the private party is designing, co-financing, building, operating and delivering clinical services this model is often referred as a "DBOD" model. Another key attribute that sets PPIPs apart from PPPs, constitutes the fact that the ownership of the health assets strictly remains with the government during all phases of the project. The reason for this point is that the partnership is specifically designed to achieve public healthcare policy goals – including the accessibility of the facility to the poor. This equity of access is especially important for low-income populations, who may not have had prior access to high quality health services.

PPIPs share with classical forms of PPPs in health infrastructure provision, that they transfer significant risk to the private party, such as meeting quality KPIs as well as being responsible for cost and time overruns. Moreover, PPIPs constitute long-term, shared investment obligations between public and private sector in order to have sufficient time to develop well-balanced and sustainable processes and regulation for both parties.

Governments and private parties collaborate in PPIPs in order to provide high quality care for everyone under the umbrella of cost neutrality: patients using the new health service do not face changes in out-of-pocket payments and in some cases even the government does not have to commit to higher payments than before. Furthermore, PPIPs allow governments to provide for equally accessible healthcare facilities, while facing predictable and capped total project costs. This fosters stable healthcare expenditures and helps governments to not only spread the cost of the project over its lifetime, but also to efficiently carry out annual budget planning. PPIPs moreover have the potential to reform entire national healthcare systems, by providing for transparent and challenging KPIs, while strictly monitoring and regulating them. (Sekhri, Feachem, & Ni, 2011; The Global Health Group & University of California, 2009)

5. Case Study – The Queen 'Mamohato Hospital PPP in Lesotho

"The motivation for the project lies in the need to address the health problems of Lesotho. The challenge for me was to get a modern facility that will reduce the number of patients being referred to South Africa and that would also attract and motivate doctors and health professionals to work here in Lesotho."

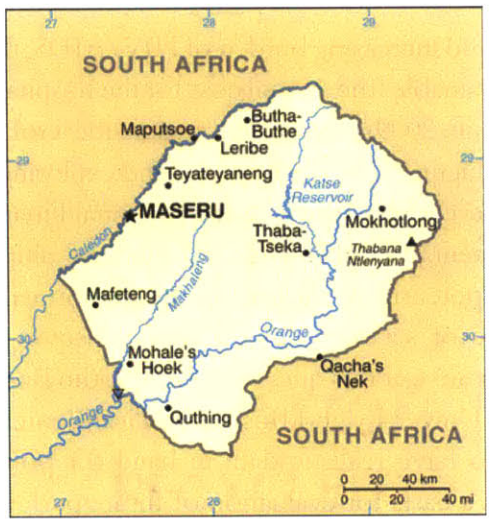
— **Timothy Thahane**

Lesotho's Minister of Finance and Development Planning and a Member of the Nation's Senate

5.1. The Kingdom of Lesotho

The Kingdom Lesotho is a developing country on the African continent and is geographically surrounded by South-Africa (please see Figure 10). In 2014, the country had a population of 2.1 million of which 59% were living below the poverty line of US$1.90 per day. Lesotho's capital is Maseru, which is located in the West of the country and has a population of around 270 thousand people.

Figure 10 - Map of the Kingdom of Lesotho
(University of Texas, 2016)



The country faces large income inequalities having a Gini coefficient* of 52.5 – one of the highest worldwide, thereby ranking only 162 out of 187 countries on the United Nations Human Development Index. The average GDP per capita was US$1,034 and total GDP amounted to US$2.2 billion with an average annual growth rate of 4.6%. The main economic activities of the country are the sale of water to South Africa, agriculture, mining and garment manufacturing. (The World Bank Group, 2016b)

5.2. The Lesotho New Hospital PPP project

Lesotho has experienced a severe health crisis since the 1990s. Around 30% of the adults are estimated to be infected by HIV – the 2nd highest prevalence worldwide. The disease had severe influences on the health status of the population and reversed the health improvements achieved in the 1980s. This becomes clear when comparing the life expectancy at birth of 59.6 years in 1991 to 43.5 years in 2004 – the lowest since 1960. Infant mortality, under five mortality, and maternal mortality rates were clearly on the rise (nearly every ninth child dies before their fifth birthday) as was mortality from tuberculosis and non-communicable diseases.

In order to overcome this crisis, the Government of Lesotho (GoL) implemented a health sector reform program in the late 1990s. This reform in its first phase aimed at strengthening the Ministry of Health (MoH) to develop and implement a health sector program and to enlarge the national health capacity, in order to tackle the HIV / AIDS pandemic. The second phase of the reform, focused on replacing the 100-year old Queen Elizabeth II Hospital in Maseru (QE II) by a new referral hospital. The QE II functioned as a national referral hospital, as well as a district hospital for the Maseru region. The hospital was found to be in very bad shape, with services being not available and hygiene standards being largely ignored. Poor management systems and a lack of employees aggravated this situation and while between 1995 and 2000 operational budgets increased by 50%, service volumes and quality decreased. The importance of the QE II for the GoL becomes clear, when one takes a look of its costs: in 2006 / 2007 the hospital consumed around 40% of MoH's budget. (GPOBA, 2013)

Given the economic slowdown and increasing burden of HIV/AIDS, the significant hospital spending for QE II was considered unsustainable (the annual cost for the hospital had increased from 80 million Maloti[5] in 2004 to 185 million in 2009), for which reason the GoL had to explore new ways of healthcare provision. After conducting a feasibility study and exploring other options for the project, the government decided to request advice from the International Finance Corporation (IFC) in 2005, regarding the design and implementation of the new hospital and ultimately decided to proceed with a PPIP. In order to evaluate the potential of the project the government followed the question: "How much more quality and volume of services can the private sector provide for the same level of expenditure at QE II?" To better answer this question, the Lesotho Boston Health Alliance (LeBoHA) – a collaboration of the Boston University and Boston Medical Center activities in Lesotho – carried out a baseline study in order to have realistic data in hand for potential bidders to prepare their competitive bids and to provide a basis for evaluation of future performance[6]. (Downs, Montagu, da Rita, Brashers, & Feachem, 2013)

The Lesotho New Hospital PPP project consisted of designing and constructing a new 425-bed hospital (the Queen 'Mamohato Memorial Hospital) – of which 390 were public beds and 35 were private beds – as well as a new attached gateway clinic on the same site. Furthermore, the GoL decided

[5] Official Exchange rate US$1/M6.46 (2004) and US$1/M15.24 (March 2016) – Source: XE.COM INC.

[6] Collection of data for baseline study: April 2006 to March 2007

to refurbish and upgrade two existing, and construct one new semi-urban filter clinic that would provide for primary healthcare services. Combined the hospital and filter clinics would constitute a new health district that supports integrated care provision to enhance efficiency and to nationally expand healthcare access. Moreover, this project should establish the grassroots to strengthen the entire health system of Lesotho, and if successful as a greenfield project, could provide a template for similar undertakings throughout the African continent.

5.3. The main objectives of the Lesotho New Hospital PPP project

One primary reason to undertake the project as a PPP was the fact that the GoL could tap the financial resources of the private sector. This method hence prevented the GoL from lifting the entire construction cost of the project alone, while sharing the financial and operational risks of the health complex with the private sector. Moreover, as a result of fixed periodical payments to the private sector, the PPP allowed the GoL to spread the project cost over the project lifetime, thereby giving the GoL better predictability for payments from the government's health budget.

By bringing in the private sector, the GoL moreover tried to leverage the experience and technological know-how of the private sector in order to provide for better quality of health services and to increase the volumes of healthcare provision to the people of Lesotho. This goal included the reduction of the average length of a stay at the referral hospital, as well as better out-patient care and improved transportation services. Intensive and sustained project management, as well as efficiency gains in service provision were seen as the main drivers for making the project less costly and more sustainable, thereby increasing the compensation and education of staff members, while providing all services under the umbrella of cost neutrality for the patient – meaning that there would be no increases in out-of-pocket costs.

More efficient management of the health facilities, as well as streamlined regulation and monitoring processes by the MoH constituted another key objective of the PPP. For this reason, the GoL decided to introduce the IFC and other third parties – such as the Boston University which helped in carrying out the baseline and endline study of the PPP – to the project in order to establish challenging but achievable performance indicators for the private sector and to help to develop contract management processes.

Local Economic Empowerment (LEE) / Local Economic Development (LED) are considered additional critical success factors of the project. For this reason, the GoL set the objective to relocate the former QE II staff to the new health facilities. Additionally, the MoH was committed to provide for clinical training to its own employees but also other health professionals in the country, while introducing local entrepreneurs and promoting female empowerment.

Besides the mentioned goals above, the Lesotho New Hospital PPP project was expected to function as a starting point to reform the entire health sector of Lesotho and to drive economic growth. By introducing a state of the art healthcare complex in the capital Maseru, the GoL expected positive

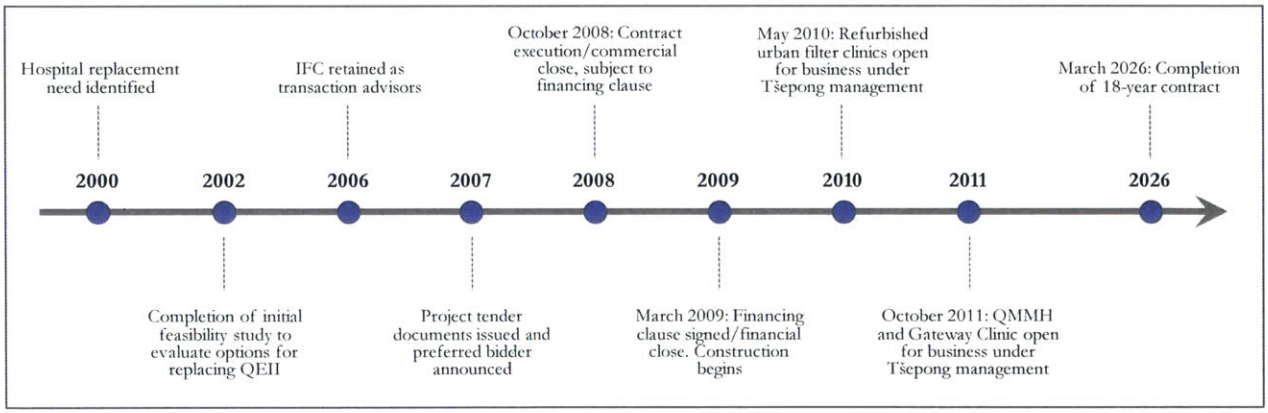
spillover effects to other health facilities in Lesotho. Moreover, if implemented successfully the greenfield project would provide for a best practice example on the African continent, thereby attracting increased foreign investment to the healthcare sector of Lesotho. (The Global Health Group & University of California, 2010)

5.4. Project timeline and stakeholder overview

In order to find the right private partner for the Lesotho New Hospital PPP project, the GoL with the support of the IFC carried out a competitive tender process in early 2007. Based on this process, the government selected Tšepong – a consortium and SPV of South African healthcare provider Netcare – to design and build, partially finance, and fully operate the new referral hospital, as well as to renovate two existing filter clinics and to build a new filter clinic. The final contract between the GoL and Tšepong was signed on October 1st, 2008 and totaled more than M2.2 billion (US$256.8 million)[7] over its 18-year lifetime. All important milestones can be found in the project overview timeline in Figure 11.

Figure 11 - The timeline of the Lesotho New Hospital PPP

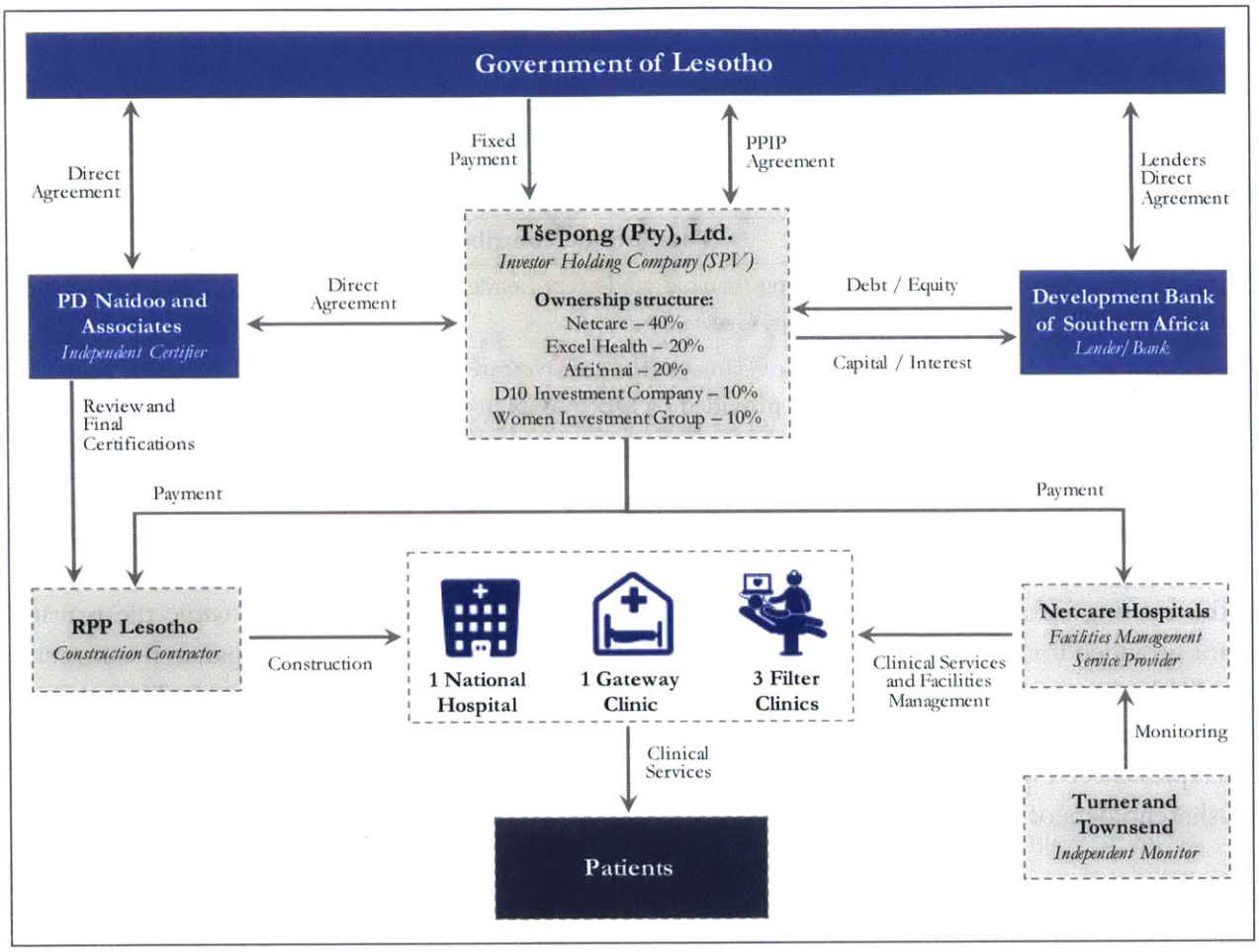
(Downs et al., 2013)



The operation of the facilities required Tšepong (the SPV) to provide for both clinical and non-clinical services. While Netcare owned 40% of Tšepong, the remaining 60% were owned by a group of equity shareholders (Excel Health (20%), a group of doctors from Lesotho; Afri'nnai (20%), a South African health provider; Women Investment Group (10%), a local investment company for Basotho woman; and D10 Investments (10%), the investment arm of the local Chamber of Commerce), many of whom were also sub-contracted to provided services to the hospital. Figure 12 provides an overview of the PPP and the interrelations between the stakeholders.

[7] Computed based on net present value from financial close based on a 9.5% discount rate (Downs et al., 2013)

Figure 12 - The setup of the Lesotho New Hospital PPP
(The Global Health Group & University of California, 2010)



Both capital and operating expenditure were combined into a single periodic payment from the GoL to the SPV, Tšepong (The Global Health Group & University of California, 2009).

5.5. The contractual design

5.5.1. Project capital expenditure

The construction of the health complex was funded jointly by the public sector (37.7%) and the private sector (62.3%). The public funds were used at the beginning of the project in order to reduce the future capital unitary payment to be paid to Tšepong and hence to reduce government expenditure over the future course of the Lesotho New Hospital PPP project.

Table 4 - Lesotho New Hospital PPP project capital expenditure
(Downs et al., 2013)

Sponsor	Classification of capital investment	Investment (in m)	in %
Government of Lesotho	Initial capital payment	M400 (US$47.5)	*31.0%*
Government of Lesotho	Additional expenditure for improvements	M86 (US$10.2)	*6.7%*
	Total public contribution	**M486 (US$57.7)**	***37.7%***
Development Bank of Southern Africa	Loan to Tšepong (backed via Direct Lenders Agreement from GoL)	M800 (US$94.9)	*62.0%*
Tšepong	Equity capital investment (for non-Netcare partners: loans provided by DBSA & Netcare)	M4 (US$0.474)	*0.3%*
	Total private contribution	**M804 (US$95.3)**	***62.3%***

As shown in Table 4, the total project capital expenditure amounted to M1,290 million (US$154 million), which was used to finance the construction of the new health facilities and the refurbishments of the existing infrastructure assets. The public sector contributed M486 million, while the private sector provided for M804 million. The latter payment predominantly consisted of a loan in the amount of M800 million from the Development Bank of Southern Africa (DBSA), which carried an interest rate of approximately 9.5% p.a. and which was assured through a Direct Lenders Agreement by the GoL (please see Figure 12). The remaining M4.0 million constituted an equity capital investment by the shareholders of Tšepong. (Downs et al., 2013)

5.5.2. Project operating expenditure

PPPs are output driven contracts that require the public party to make unitary and periodic payments in exchange for the services provided by the private party. As the government often regulates the price of the users of the infrastructure asset, the private party can predominantly realize efficiency gains on the cost side of its operations. For this reason, financial information about the operating expenditure is rarely publicly disclosed by the private party and during the time this thesis was written, no operational expenditure was published by Tšepong. As the project was implemented under the principle of cost neutrality for both the government and patients, the cost of operating the new health complex was estimated based on the operating cost of the QE II, which in 2009 amounted to M135 million. (Downs et al., 2013)

5.5.3. Unitary service payment

In order to repay the DBSA loan and to finance the operating expenses of the health complex, Tšepong receives an annual unitary payment from the GoL. The payment is based on the estimated cost of Tšepong to provide health services for 310,000 outpatients and 20,000 inpatients per year. The contact furthermore included minimum annual service provision of 258,000 outpatients and 16,500

inpatients. As specified in the PPP contract, the unitary payment by the GoL amounts to M255.6 million p.a. (US$30.3 million). As this payment of the GoL constitutes more than 90% of the total revenue stream for Tšepong, political risks play a significant role in the project. (Downs et al., 2013)

Once the maximum number of out- or inpatients covered by the contract is reached, the GoL is required to pay Tšepong an excess coverage rate of M50 (US$4.72) per outpatient and M8,326 ($786) per inpatient[8]. The payments are set on April 2007 – the base date of the contract – and are escalated yearly based on an inflation index. (Marriott, 2014)

As indicated in the Lesotho New Hospital PPP project contract the unitary payment is to be regularly adjusted for inflation via an inflation index. Furthermore, it includes penalties – resulting in deductions from the fixed payment – for not attaining the defined performance indicators of service provision set by the MoH. The compliance of Tšepong with the defined KPIs was assessed quarterly / annually based on independent monitor reports.

Considering that the operating cost component of the unitary service payment amounts to approximately M135 million p.a. (see section above), the remaining M110 million reflect the capital outlay required for hospital construction and clinics refurbishment – in addition to the M484 million provided at the start of the PPP project. (Downs et al., 2013)

The Global Partnership for Output-Based Aid (GPOBA) – a global partnership program in the World Bank Group – provided an output based grant for service delivery to the GoL of US$6.25 million. The grant was payable over the first five years of the project in order to supplement the unitary service payment of the GoL to Tšepong and to bridge operating expenses during the period when the filter clinics were refurbished and the hospital was still under construction (May 2010 - October 2011). In the Implementation Completion and Results Report issued by the World Bank in 2013 it is stated that: "The objective for the US$6.25 million (US$3.44 million towards the filter clinics and $2.81 million to the hospital) in GPOBA funds was to expand the number and type of key services available to patients, acting as a top-up payment to allow additional volume for critical services." In order to reduce the risk of the grant, the GoL requested a Partial Risk Guarantee from the World Bank – in order to secure the continuity of health service provision – if GPOBA should fail to make the specified payment. (GPOBA, 2013)

5.5.4. Construction and refurbishment

For the construction and renovation of the health facilities, Tšepong subcontracted RPP Lesotho, a South African construction company. The construction of the new Queen 'Mamohato Memorial Hospital (QMMH) started in March 2009 and was carried out on a site just outside the capital of Maseru. At the same time the renovations and construction of the filter clinics began. In both cases the construction was completed ahead of schedule, with the hospital opening in October 2011 and

[8] US$ conversion given 2007 price levels, excluding VAT and annual inflation.

the filter clinics in May 2010. The construction was reviewed and certified by the independent certifier PD Naidoo and Associates. RPP further outsourced some of the construction tasks to local Lesotho corporations, but was limited by their amount of expertise.

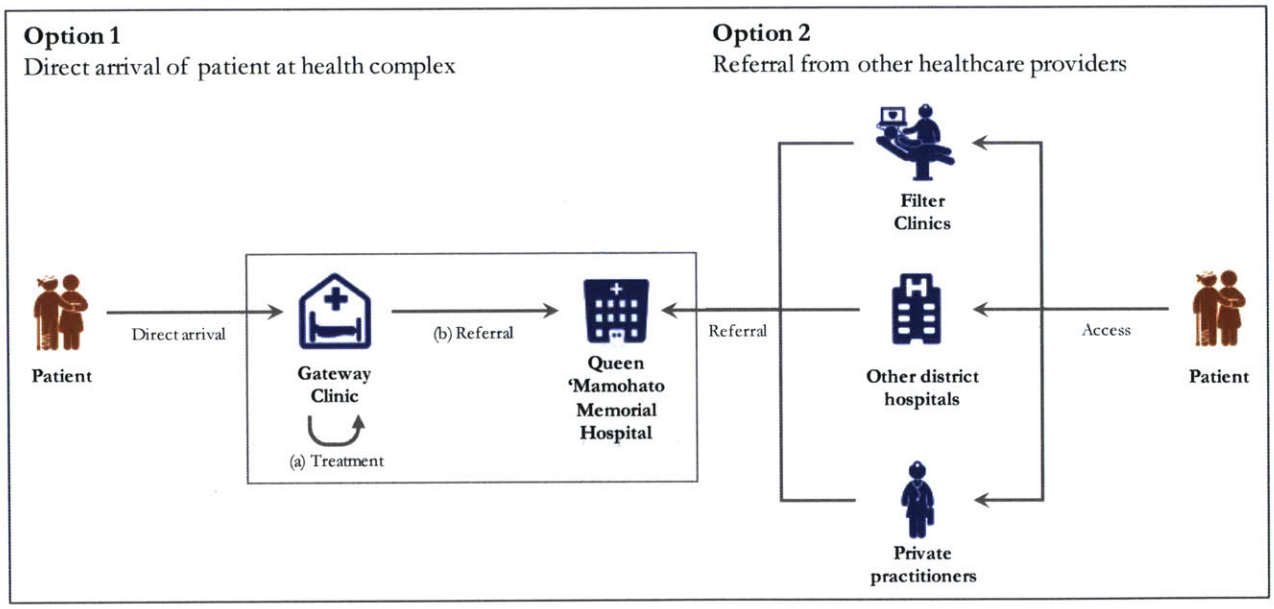
As commonly applied in infrastructure PPPs, Tšepong did not receive any unitary payments by the GoL until the construction of the QMMH was completed and hence assumed all risk for cost- and time-overruns. In order to manage this risk, Tšepong passed it on to the subcontracted construction firm, RPP Lesotho, to incentivize on-time and on-cost completion. (Downs et al., 2013)

5.5.5. Operation of the health facilities

Through the PPP contract, Tšepong became responsible for the delivery of all clinical and non-clinical services provided to its patients. For this purpose, Tšepong entered into a subcontract with Netcare Hospitals, a fully owned subsidiary of Netcare Ltd. Netcare Hospitals was required to provide all clinical services and facilities management, while its quality of service provision was independently assessed and monitored by Turner and Townsend, a globally operating project and cost management consultancy firm (please refer to Figure 12).

The clinical service provision includes the tasks of recruitment of physicians, nurses and other specialists, as well as the provision of all medical equipment and all pharmaceutical products required. Moreover, Tšepong became responsible for maintaining, re-equipping and operating the three filter clinics, which served to free-up hospital capacity as a result of treating less severe cases. (International Finance Corporation, 2011)

Figure 13 - The patient service flow chart for new referral hospital



Patients who are arriving for hospital services at the QMMH directly, must first be assessed in the onsite gateway clinic in order to be referred to the QMMH. Please see Figure 13 for an illustration of the flow of patients. The QMMH hospital would furthermore be accessible for patients by referral from one of the filter clinics or other district hospitals. This setup was developed to provide for correct and cost-effective patient allocation, as well as for ways to manage the demand of the referral hospital. (Downs et al., 2013)

5.5.6. Performance indicators

As typical with partnership projects between the public and private sector, The Lesotho New Hospital PPP includes performance evaluation and monitoring systems, related to non-clinical, but also clinical service provision. As described in Chapter 4.3 establishing these KPIs is a very difficult task in the field of health infrastructure provision, as health outputs are very difficult to measure and highly variable due to rapid changes in health technologies and knowledge. For this reason, the applied performance indicators were established using a combination of the insights generated by the baseline study and information provided by the IFC, which had reviewed hundreds of comparable contracts and held extensive discussions with experts in the field. These established performance indicators were defined across a range of topics and areas clustered into different categories. Please see Table 5 for an overview of the KPIs which were included in the final concession contract.

Table 5 - Overview of performance indicators specified in concession contract
(Lee, 2013)

Clinical	
A1	Emergency surgery times
A2	Infection control measures
A3	Prevention of mother to child transmission
A4	New-born protocol
A5	Decubitus ulcer rate
A6	Myocardial infarction treatment times
A7	Laboratory Services
A8	Medical Records: Availability
A9	Med. Records: Accuracy & Completeness
Patient Volume	
B1	Outpatient visits
B2	Inpatient Admissions
Patient satisfaction	
C1	Patient & family satisfaction
Local Empowerment	
D1	Local Equity
D2	Local Management Control
D3	Local Subcontracting
D4	Local Community Development
Equipment	
E1	Equipment Audit

Facilities	
F1	Estate & Maintenance
F2	Cleaning Service
F3	Catering Service (Patient & Non-Patient)
F4	Waste Management & Disposal Service
F5	Security Service
F6	Help Desk
F7	CSSD
F8	Mortuary Services
F9	Linen & Laundry
F10	Patient Transport
F11	Management Services
Information Management & Technology	
G1	IM&T System Uptime
G2	Systems
Staff	
H1	Staff Certification
H2	Staff Training: Registrars
H3	Staff Training: Consultants
H4	Staff Training: Nurses

In order to receive the full unitary payment by the government, Tšepong has to comply with all performance indicators specified in the contract. For more detailed information regarding the contractually specified KPIs and KPI measurement criteria please refer to Appendix III and IV of this thesis.

Non-compliance with the established KPIs has the consequence of deductions of the service payment in percent, while a relative importance was given to clinical over facilities performance indicators. For example, noncompliance with the KPI "Emergency Surgery Times" – a clinical indicator – carried the penalty of 1.0% deduction in the unitary payment, while noncompliance with the KPI "Cleaning Service" – a facilities indicator – carries the penalty of 0.25% deduction in the unitary payment. Depending on the performance indicators, the measurement was carried out either annually or quarterly. The total amount that could be deducted from the unitary payment per period was capped at eight percent. (Coelho & O'Farrell, 2009)

5.5.7. Performance monitoring and certification

With the goal of monitoring and guaranteeing the performance during the construction and service provision phase of the project, two independent monitoring firms were included in the project (please see Figure 12). Both independent monitors were jointly appointed by the GoL and Tšepong.

For the construction stage PD Naidoo and Associates – a South African based consulting and engineering firm – was assigned with the task to review the quality of the clinics refurbishment as well as the hospital construction upon completion by RPP Lesotho. This process allowed the GoL to profit from the technical know-how and project experience of this independent certifier through an unbiased and professional assessment of the buildings in order to examine RPP Lesotho's adherence to the contractual terms. If the completion of the assets were proven to be flawless, PD Naidoo and Associates would then provide for a certification of the buildings. (Downs et al., 2013)

Performance monitoring during the clinical and non-clinical service operation provision phase is carried out by Turner and Townsend, a globally operating consultancy and contract management firm. The firm carries out quarterly and annually audits of the private operators clinical and non-clinical service performance against the contractual KPIs and summarized their findings in reports issued to the GoL and Tšepong. Turner and Townsend would furthermore determine the applicable penalty deduction of the unitary service payment for non-compliance with the performance indicators. (Coelho & O'Farrell, 2009)

The performance reports provided by the independent monitor would be assessed by the Joint Services Committee and the Liaison Committee – committees established by the government and Tšepong with the purpose of supervising and managing the project over its lifetime. These groups comprise of representatives from both the public and private parties and are charged with reviewing the performance of the project operations as well as negotiating changes in contract terms if necessary. (Coelho & O'Farrell, 2009)

As a final mechanism to guarantee service quality as best as possible, Tšepong is required to receive and maintain accreditation of the Council of Health Services Accreditation of Southern Africa for the hospital and filter clinics. Failure to do so can lead to a termination of the PPP agreement. (Downs et al., 2013)

5.5.8. Treatment abroad program

Based on the baseline and feasibility studies, which were established at the beginning of the project in collaboration with the Boston University, certain health services were excluded from the Lesotho New Hospital PPP project[9]. These include, among others, transplants (other than corneal transplants), joint replacements (except for hip replacements), chemo- and radiotherapy, plastic surgery and cosmetic dentistry. For the reason of exclusion of specific services, the Lesotho New Hospital PPP contains a treatment abroad program with referral of patients to South Africa, which is jointly managed by Tšepong and the MoH. Each patient's case has to be assessed and approved by both parties before the patient is referred to Bloemfontein in the neighboring country South Africa. (Downs et al., 2013)

If a patient is referred to Bloemfontein for an excluded service, the MoH of Lesotho pays for the treatment outside of the periodic unitary payment. All other referrals are covered by the unitary payment to Tšepong. This regulation was implemented, to incentivize Tšepong to integrate some of the excluded services in-house. (Vian et al., 2013)

Tšepong and the MoH agreed that if the volume of a certain treatment sent to Bloemfontein reached a critical amount, it could be integrated in the service package provided by the Lesotho New Hospital PPP through future contract renegotiations. (Downs et al., 2013)

[9] During the feasibility and base line studies, the cost and volume of certain services being referred to Bloemfontein, South Africa were examined in order to determine whether it would make sense to develop these treatments locally in the new health facilities in the future. Based on the Lesotho MoH expenditure limits some services were excluded.

5.5.9. Summary of key contract terms and specifications

The table below provides a summary of the major terms and specifications of the Maseru Public-Private Integrated Partnership. (Downs et al., 2013)

Table 6 - Overview of key project contract terms and specifications

General terms	
Type of contract	Public-Private Integrated Partnership
Duration of contract	18 years
Contracted patient volume p.a.	- min. 258,000 outpatients, 16,500 inpatients
	- covered in unitary payment: 310,000 outpatients, 20,000 inpatients
	- treatments above coverage: +M50 per inpatient / +M8,326 per outpatient
Specifications of health facilities	
Number hospital beds	425 (thereof 390 public and 35 private)
Surgical theaters	8 major procedure rooms, 1 minor procedure room
Area of health complex	29,000m²
Affiliated clinics	3 filter clinics (off-site), 1 gateway clinic (on-site)
Financial specifications of PPP contract	
Total CAPEX	M1.29 billion (US$153.1 million)
thereof public funds	M484 million (US$57.7 million) (37.7%)
thereof private funds	M804 million (US$95.4 million) (62.3%)
Unitary payment p.a.	M255.6 million (US$30.3 million)
NPV of project cost (interest 9.5%, 18 years)	>M2.2 billion (US$256.8 million)
Key project stakeholders	
Public sector sponsors	Government of Lesotho
	Development Bank of Southern Africa (provision of loan to Tšepong)
	Global Partnership for Output-Based Aid (grant for service delivery)
Private sector sponsor consortium	Netcare Ltd. (40%)
	Excel Health (20%)
	Afri'nnai (20%)
	Woman Investment Company (10%)
	D10 Investments (10%)
Project certification and monitoring	PD Naidoo and Associates (independent certifier)
	Turner and Townsend (independent monitor)
Subcontractors	Netcare Hospitals (facilities management, clinical services)
	RPP Lesotho (facilities construction and refurbishment)
	Botle Facilities Management (hard facilities management)

5.6. Classification as Public-Private Integrated Partnership

The Lesotho New Hospital PPP project classifies a PPIP and is the first to be carried out in a country on the African continent. All the characteristics specified in 4.4 can be found in the projects characteristics:

- Tšepong delivers both clinical and non-clinical services,
- Tšepong designs, builds and operates the healthcare infrastructure assets
- Tšepong assumes significant risk associated with the health operations
- GoL remains the sole owner of the healthcare assets and is responsible for service quality reviews and monitoring
- GoL health expenses are predictable through fixed unitary service payments
- Project supports GoL with a public policy objective (delivery of enhanced healthcare services to the population of Lesotho – thereby reinforcing local economic development)
- Project is expected to provide for system wide efficiency gains
- Project classifies as long-term investment (18-year lifetime)
- Cost-neutrality for patients is given (no increases in out-of-pocket expenditures)
- Provided health services are accessible for entire population of Lesotho (equity of access)

Specific sub-classifications of PPP projects – such as the PPIP in the field of healthcare infrastructure – are important as they allow policymakers and other interested parties to find alike projects easier, without wasting resources for non-comparable endeavors. Furthermore, a sub-categorization fosters the emergence of specialists in a certain field. Thereby, it can help to develop both best practices and standardized approaches, as well as to prepare for common mistakes.

Many PPPs in developed countries have been classified as a PPIP. In low-income countries however, the Lesotho New Hospital project constitutes a first time PPP endeavor that includes the delivery of clinical services and can therefore serve as a great reference for the health ministers of other countries in the future. Nonetheless, it is important to mention that best practice approaches from the Lesotho project can only be derived over the course of the next years, given the short duration of the healthcare operations to date and hence given the limited availability of data.

5.7. The impacts of the project to date

Note: Publicly available information about the Lesotho New Hospital PPP project is very limited. There are no annual financial reports made public and therefore the main sources of information used for this chapter constitute the baseline and endline study carried out by the LeBoHA, and the report "A dangerous diversion" issued by Oxfam in 2014.

In May 2010 the urban filter clinics were refurbished and opened for operations under Tšepong. One year and five months later, in October 2011, the construction of the QMMH and the gateway clinic were finalized and operational. The planning process of the entire project had taken more than a decade and involved a large number of stakeholders. The Lesotho New Hospital PPP project

represents the largest health services procurement in the history of Lesotho and constitutes the first PPIP project in a low-income country. Could the project live-up to its high expectations and provide real value for the money of the GoL? What could be the lessons learned over the course of the project?

5.7.1. Analysis of capacities and delivered quality of care

In the light of analyzing the performance of the Lesotho New Hospital PPP project after completion, LeBoHA carried out an endline study between February and May 2013 – 17 months after the hospital had started its operations and two years after the opening of the filter clinics. The acquired information during the endline study was then used to compare the performance of the new hospital complex (QMMH), with the performance of the old hospital complex (QE II)[10]. This comparison also had the objective of identifying unmet needs or areas for improvement and to derive lessons learned from the project. (Vian et al., 2013) Table 7 shows a summary of key performance statistics.

Table 7 - Overview of baseline vs. endline key performance statistics
(Vian et al., 2013)

Indicator	Government-managed (QEII)	PPP managed (QMMH)	Δ
Capacity			
Total beds	417	414	*-1%*
Hospital beds	409	390	*-5%*
Filter clinic beds	8	24	*200%*
Total staff members in network	642	882	*37%*
Clinical staff members	345	563	*63%*
Nonclinical staff members	297	319	*7%*
Utilization			
Inpatient admissions (hospital)	15,465	23,341	*51%*
Inpatient Days (hospital)	91,808	116,648	*27%*
Outpatient Visits (incl. filter clinics)	165,584	374,669	*126%*
Deliveries (incl. filter clinics)	5,116	7,431	*45%*
Average length-of-stay (in days)	5.94	5.00	*-16%*
Hospital occupancy	61%	82%	*33%*
Patient outcome			
Death Rate (incl. filter clinics)	12.0%	7.1%	*-41%*
Maternity death rate (incl. filter clinics)	0.24%	0.21%	*-10%*
Pediatric pneumonia death rate (hospital)	34.4%	11.9%	*-65%*
Stillbirth rate (hospital)	4.0%	3.1%	*-22%*
Survival of very low birth weight infants	n.a.	69.8%	-
Patient satisfaction rate (incl. filter clinics)	70.7%	86%	*22%*

The data shows that, while the number of beds has remained fairly stable (-1% in total beds), the number of both inpatient admissions (+51%) and outpatients visits (+126%) has increased drastically, far above the contractual servicing rate included in the unitary service payment of 20,000 inpatients

[10] The QMMH hospital complex refers to the Queen 'Mamohato Memorial hospital, the gateway clinic, and the three filter clinics, while the QE II hospital complex refers to the Queen Elizabeth II hospital and the filter clinics.

and 310,000 outpatients. Even if the average length of a stay in the hospital decreased from 5.94 days to 5.00 days (-16%), this could not offset the increase in the number of visitors. As a result, hospital occupancy increased by +33% to 82%.

Total death rates of the health complex decreased by 41% from 12.0% to 7.1%, resulting from reductions in maternity death rates (-10%), pediatric pneumonia death rate (-65%) and still birth rate (-22%). Moreover, the measurements for the endline study included the performance indicator of "survival of very low birth weight infants", an indicator not previously assessed during the baseline study (69.8%).

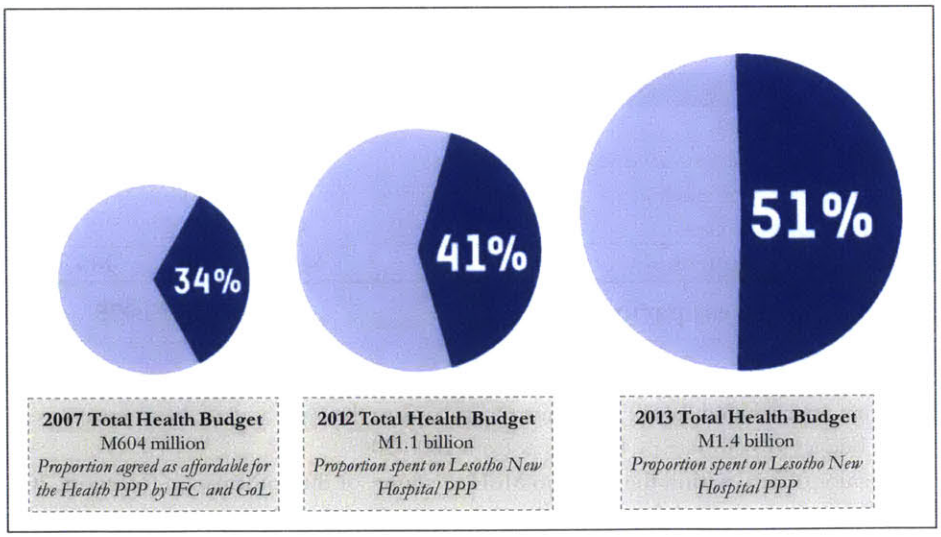
Patient satisfaction measured through both the base- and endline study increased by +22% from 71% in the QE II complex to 86% in the QMMH complex. (Vian et al., 2013)

5.7.2. Annual costs of the project for the Government of Lesotho

As described above, there is only limited information publicly available about the project. Therefore, the accessible cost information about the project is very nontransparent and it is not possible to break down the total costs entirely into their single cost drivers in order to assess the payment billed by Tšepong to the GoL.

Given the principle of cost neutrality of the project for the GoL (the total cost for the government does not exceed the cost of operating the old hospital), the contractual unitary payment set in the 2008 contract amounted to M255.6 million (US$30.3) for capital repayments and operating expenses. The contract allowed for annual upward adjustments pegged to an inflation index and specified downwards adjustments in form of performance penalties.

Figure 14 - The costs of the PPP in relation to Lesotho's health budget 2007 - 2013
(Marriott, 2014)



For the year 2012, the total cost billed to the GoL by Tšepong rose significantly and amounted M413.7 million excl. VAT and corporate tax[11]. When compared to the cost for the old QE II hospital complex[12], this figure constitutes additional costs of between +95% (best estimate) and +185% (conservative estimate). (Vian et al., 2013)

Figures provided by Oxfam describe the total cost of the PPIP to the GoL in the year 2013 to amount to around M714 million[13]. It is mentioned, that this number constitutes between 3 and 4.6 times the cost of the old QE II hospital complex and that this number consumes as much as 51 percent of the Lesotho's total health budget (please see Figure 14). The data suggests, that even though Lesotho's health budget has increased significantly over the years, the cost of the PPIP became a much greater proportion of the total healthcare cost. This places a significant burden on the budget of the GoL and might render the project unsustainable in the long-run. (Marriott, 2014)

5.8. The main reasons contributing to increases in costs for the project

There were several factors contributing to the considerable increases in cost of the PPIP. Again a detailed analysis of the respective reasons for these cost increases is difficult as a result of limited publicly available data and information. The main drivers for the cost escalation constitute payments for patient excess demand, referrals to Bloemfontein, interest fees and penalties for late payments, shortfalls in payments carried out from the previous year, transportation costs as well as poor management and oversight (Marriott, 2014).

5.8.1. Excess demand

One reason for the noteworthy increase the in the cost of the PPIP constituted the excess demand over the contractually specified service levels of 20,000 inpatients and 310,000 outpatients. Table 8 provides an overview of the projected excess costs for the GoL.

Table 8 - Overview of projected excess demand payment in 2012
(Vian et al., 2013)

Item	Inpatients	Outpatients
Actual patients treated	23,341	374,669
Contractually specified service level	20,000	310,000
Number of patients in excess	3,341	64,669
Cost per patient in excess	M12,263.05	M73.64
Projected excess payment	M40,970,850	M4,762,225
Total projected excess payment	**M45,733,075**	

[11] VAT and corporate tax are excluded, as tax payments revert back to the GoL and are hence net zero.

[12] Adjusted by average budget growth rate of 13.7% p.a. from 2000-2007

[13] Oxfam mentions a senior official within the Lesotho MoH as source of this information (Marriott, 2014).

Given its great ability to attract patients, the hospital received 17% more inpatients and 21% more outpatients than forecasted and factored into the unitary payment, in 2012. This excess demand was estimated to have resulted in a total additional payment of M45.7 million by the GoL to Tšepong[14]. (Vian et al., 2013)

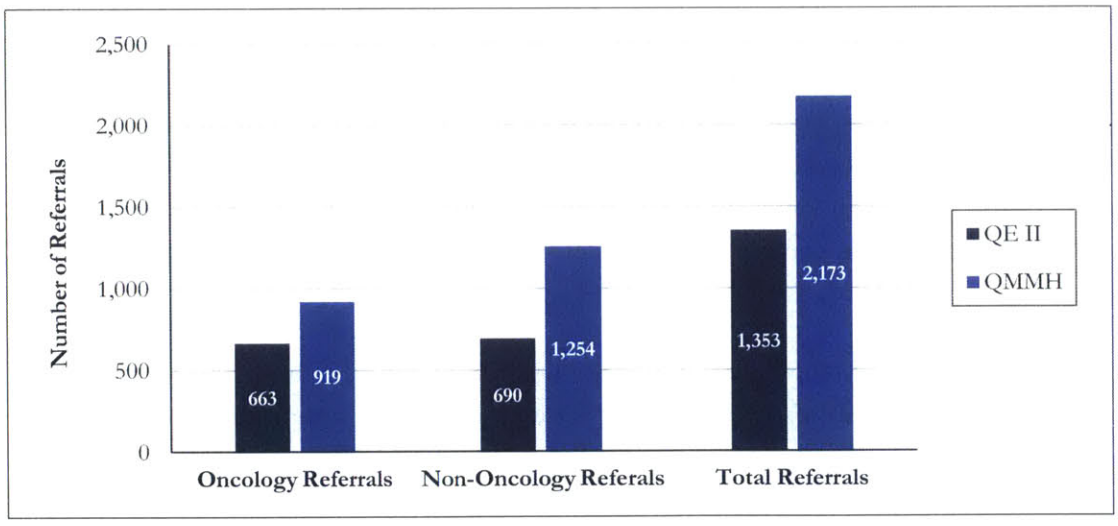
5.8.2. Cost escalations during preferred bidder stage

Given the goal of cost neutrality of the PPP for the GoL the annual unitary service fee agreed on by the Tšepong during the bidding process had been fixed at M180.4 million – an amount agreed to be affordable by the GoL and the IFC. Yet, once the consortium was selected as the preferred bidder, it succeeded in negotiating a 42% increase in the unitary service payment to M255 million. This rise was a direct result of the MoH deciding to add the gateway clinic to the PPIP package, as well as Tšepong facing less favorable financing conditions for the deal than previously assumed. (Marriott, 2014).

5.8.3. Patient referrals to Bloemfontein

By bringing in the private sector, the GoL intended to decrease the expensive referrals of patients to Bloemfontein (please see Chapter 5.5.8). When compared to the previously assessed referral data in the baseline study, the total number of patients being referred to Bloemfontein, South Africa has increased by 60.6% from 1,353 patients to 2,173 patients in 2012 (please see Figure 15). While oncology referrals have increased by 38.6%, the number of non-oncology referrals has risen by more than 80% from 690 to 1,254 referrals.

Figure 15 - Unique referrals of patients to Bloemfontein in 2012
(Vian et al., 2013)



In the endline study of the LeBoHA, the authors argue that given the short time frame since the opening of the QMMH, the increases in the number of referrals cannot be interpreted yet as a trend

[14] In the endline study it is not specified, whether the projected excess payment is including VAT and corporate taxes.

and requires further assessment. The authors point out that the increases in referrals could stem from a growth in absolute numbers of patients treated at QMMH (no relative numbers were provided) and from not yet fully utilized capabilities at QMMH due to the ongoing recruiting process of specialists. Moreover, the authors discuss the possibility of increased referrals as a result of improved diagnostic abilities of QMMH staff. (Vian et al., 2013)

5.8.4. Late payment charges and default penalties

As a result of increases in the amount charged by Tšepong, the GoL has failed to pay its monthly fees for several months. As specified in the PPIP contract, penalties apply for every late payment by the GoL, which resulted in an estimated US$750,000 of late payment charges by April 2014. The late payments moreover had an impact on Tšepong's ability to pay, which resulted in a default of the loan provided by the DBSA since October 2011. (Marriott, 2014)

5.9. Lessons learned from the Lesotho New Hospital PPP project

The following section will critically discuss the outcomes of the partnership to date in order to derive best practice approaches for similar projects in the field of health infrastructure in the future – especially in developing countries. It is important to mention that the new hospital complex has only been operational for less than five years and, therefore, the available information – on which this analysis is based – might include start-up inefficiencies in the partnership of Tšepong and the GoL. Nonetheless, to date both parties, as typical for PPPs of this duration, should have developed the necessary skillsets required for a smooth and sustainable operation of the health facilities.

5.9.1. Demand forecasting is key

Forecasting the right demand is crucial for the future success and sustainability of any infrastructure project. Given the great proportion of OPEX to the total lifetime cost in health infrastructure projects, however, making a reliable estimate about future demand becomes even more important. While PPP project planners generally overestimate the demand for an infrastructure asset, it the opposite was the case for the Lesotho New Hospital PPP. The public and private parties considerably underestimated the future need for the health complex, thereby significantly increasing the total cost billed by Tšepong as a result of excess payments.

Future PPIP projects in developing countries can learn from the Lesotho case: Demand forecasting during the preparation phase of a PPIP project is one of the most important tasks for the project's success. Though being a complex and resource intensive undertaking – which is intensified in low-income regions around the world – it does pay off in the long run and it is equally important for both the public and private party involved. In cases where the government does not have sufficient expertise and resources to determine the future demand, independent advisors with substantial regional expertise, might be best suited for the task.

Moreover, in order to alleviate the burden of incorrect demand forecasts, governments should consider deriving an exhaustive list of multiple possible scenarios to guard the PPIP undertaking from unwanted outcomes. For this purpose, any scenario has to trigger specific pre-negotiated contract clauses such as the amount of the unitary service payment billable or changes in the required performance indicators.

5.9.2. The constancy of the unitary service payments is crucial

Taking the overview perspective – in order to align the main objectives – during the contracting phase of a PPP is highly important. The main goal of the PPIP undertaking was to provide advanced and equitable healthcare access to its citizens by introducing clinical and non-clinical private sector expertise under the principle of cost neutrality. Furthermore, the PPIP had the objective to increase budget planning certainty for the MoH and to remove variation in healthcare cost, through the unitary payment to the private partner.

Regardless of the exact figures publicly available, the Lesotho New Hospital PPIP project has failed to accomplish the principle of cost neutrality. A contract, which allows for additional payments for unforeseen events that double the actual cost charged to the GoL is irresponsible and should not have been signed by either party involved in the project.

A PPP is a partnership and both parties should develop an open and honest business relationship with each other. Wherever one party assumes a certain risk it should be fairly compensated for it by the other party. How could a contract be signed that limits the performance penalties levied on Tšepong at eight percent, while the risk of cost overruns is absorbed by the GoL in the absence of a cost ceiling?

Future PPP projects in the health sector, especially in developing countries where there is limited flexibility in financial budgets, have to ensure the steadiness of unitary payments to the private sector under all circumstances. This is particularly true in the light of proportionally large OPEX for health infrastructure services. Stable costs levied on the public sector would allow health infrastructure projects to be more sustainable and allow governments to attain higher health budget planning certainty.

5.9.3. One diamond hospital does not reform a health sector

Undoubtedly, the PPIP has increased the quality of healthcare provision to the people of Lesotho. Nonetheless, it is questionable whether there could have been a better value for money of the MoH. Analyses by independent monitors could have verified whether the GoL had been better off investing less money in the state-of-the-art QMMH in the capital and more money into primary health facilities in the more rural areas of the country. If the hospital proves to serve predominantly the wealthier society living in Maseru, whereas sick patients from poor villages outside the capital cannot afford the travel to seek care at the new hospital, then the GoL will have missed its goal of providing equitable healthcare to all people of Lesotho.

If implemented well, PPPs have the strength to reform entire sectors (please see Chapter 2.3.6). The GoL should have better analyzed the implications from creating a PPIP in the capital that provides a service quality far above the average throughout the country – it could have anticipated the significant increase in the demand for the new health complex. While it is necessary for a country to have specialists care for severely ill patients, the GoL should have considered constructing a smaller leading health complex in Maseru and to spread more money over the entire country in order to significantly boost the average quality of healthcare provision. For example, The Christian Health Association of Lesotho operates about 40 percent of the countries health facilities – predominantly in rural areas – while costing the GoL only around a quarter of the QMMH (Marriott, 2014; The World Bank Group, 2010). Increasing the governmental contribution to this organization, might have led to a better VfM. Moreover, this approach would have allowed the GoL to gradually and organically grow the healthcare sector, thereby reforming the entire sector step-by-step and diversifying the risk of unfruitful investment.

5.9.4. The necessity for Local Economic Empowerment

Developing countries are often less socially and politically stable than developed countries. For this reason, it is crucial for governments in these countries to introduce local economic empowerment measures in PPP projects in order to reduce unemployment and poverty in the region. This buy-in of the population helps to increase awareness of the project and fosters higher acceptance rates of the infrastructure endeavor among the people.

In 2011, in an interview with the IFC, Dr. Victor Litlhakanyane, the Chief Operating Officer of Primary Care Partnerships and Diagnostics of Netcare Limited, described the LEE for the Lesotho PPIP as follows (International Finance Corporation, 2011):

> "[..], we have managed to have a bigger impact on local economic development than we thought. The curtains and the bed screens at the clinics were sewn by local women in Lesotho. Local artifacts and photographs in the clinic were done by local Lesothos. That has been a very positive impact indeed."

He furthermore said:

> "The most difficult part has been access to health professionals. Most of our doctors are foreign nationals. Lesotho has lost many of its doctors to South Africa and the rest of the world, so we are hoping that this project will attract doctors back to Lesotho."

Short-term and one-time employment opportunities to sew curtains and bed screens, as well as purchasing artifacts and photographs from local people cannot be considered LED. For the project to have greater implications on the local economy of Lesotho, core positions in healthcare provision have to be filled with local practitioners and nurses and not predominantly with specialists from South Africa. If these human resources are not available at the moment the PPIP project is structured, it

might make sense to postpone such an endeavor between the public and private sector, in order develop the required human capital upfront – at least partially.

Betting on Lesotho nationals trained as doctors to return from South Africa and the rest of a world seems to be a gamble that is too risky in the light of the necessity for improved healthcare provision in Lesotho. This risk is only slightly reduced by the fact that Tšepong is obliged to provide for training and education of locals over the lifetime of the PPIP, as well as by the fact that prior QE II employees were guaranteed an interview with Tšepong for further employment at QMMH.

5.9.5. The need for publicly available and transparent data

A private firm has the right not to publicly disclose all information about its business activities in order to protect its competitiveness in the market. Often even the shareholders of a private firm have only limited available data at hand in order to assess their investments' performance. When engaging with the public sector in a PPP, this right however, has to become subordinate to the right of the public population in order to monitor and to assess how their taxpayer money is spent. This is true, as private shareholders can freely choose to invest in or to divest of a company. A nation on the other hand is a lot less flexible in choosing or walking away from their governments and hence their governments decisions. Therefore, the availability of publicly accessible data in PPP projects has to be significantly improved. This is especially true for information regarding the cost and performance of a PPP.

This lesson learned is in line with the recommendation from the author of the Oxfam report, which reads as follows (Marriott, 2014):

> "Tšepong should publish a full financial statement and explanation of costs to date invoiced to the Government of Lesotho. This should include a full explanation for services that are not yet provided that are included in the original PPP contract and any additional services agreed with government and invoiced for since that time."

Greater availability of data not only allows for higher quality analyses of the project outcomes but facilitates third parties to provide for unbiased and equitable investigations.

5.9.6. Costs have to be evaluated in the perspective of service quality

There is no doubt, that the PPIP has raised the bar for delivered quality of care in Lesotho. The new hospital complex treats significantly more patients and many services are being provided with higher quality than previously offered in the QE II hospital. Nonetheless, it is questionable, whether the PPIP has been able to to provide real VfM to the people of Lesotho.

The process of assessing the increases in healthcare quality after the implementation of the PPIP is highly subjective – especially under the consideration of the money spent. For this reason, future PPIP projects in the health infrastructure sector should have clearly contractually specified cost benefit

indicators in order to critically evaluate the performance of the PPIP. These cost benefit indicators can be derived from comparable and best practice projects.

6. Evaluation and critical discussion of findings

"P3s are a tool, and like any tool they can be used well or badly."

— Michael D. LaFaive

Director of the Morey Fiscal Policy Initiative for the
Mackinac Center for Public Policy

The guiding question of this thesis is: Are PPPs are a viable option for health infrastructure projects in developing countries? The subject introduces challenges from three different sub-areas: (a) PPPs, (b) developing countries, and (c) health infrastructure. In order to answer the research question, its different components have been analyzed step-by-step throughout this thesis. In this chapter, the gathered information is merged and their implications on the viability and sustainability of health infrastructure PPP projects in developing countries are discussed.

Throughout the preceding chapters there have surfaced several critical areas that render the implementation and management of PPP projects in the field of health infrastructure in developing countries very challenging. Please refer to Table 9 for a summary of the main criteria found. The right column, describes the respective criteria's effect on the public sector, if engaging in PPP projects in developing countries.

When analyzing these different effects on the public sector, it is important to notice that some of the criteria reinforce each other when being pooled in health infrastructure PPP projects in developing countries. For example, the fact that the public sector is the primary purchaser of outputs introduces significant political risk to the revenue streams of the project. This risk is further exacerbated in developing countries, where there is a higher presence of political instability.

There are multiple other factors influencing the decision of a government in a developing country, whether to carry out a health infrastructure project as a PPP or to use other approaches such as public procurement. From the analysis of the Lesotho New Hospital PPP project, we learned that PPPs in health infrastructure in low-income countries have the potential to result in unpredictable and negative outcomes for both the public and private sector if not managed effectively. This can be seen by the main shortcoming of the case: surges in costs of the project as a result of various drivers, but especially as a result of weakly forecasted demand. Moreover, there were multiple other factors, which risk the sustainability of the project, such as unsatisfactory LEE, low measurability of service quality and insufficient transparency of financial and operational data. Besides, given the nature of healthcare service provision, it is very difficult to measure the efficiency gains realized by the private party, as well as to quantify them. This task becomes even more complicated, when one tries to establish cost-benefit ratios in order to generate comparability among similar projects.

Table 9 - Key criteria complicating health infrastructure PPPs in developing countries

Criterion		Effect on public sector
PPP related	Unavoidability of incompleteness of PPP contracts	Strong capabilities and experience necessary for renegotiations during the lifetime of the project
	Large project size	Long time and significant amount of resources needed to structure PPP project
	Monitoring and Regulation capabilities	Robust monitoring and regulation competences needed to manage PPP project
Healthcare related	Public sector is primary purchaser of output (a)	Higher risk through non-diversification of revenue streams and dependency on solvency of single party
	Public sector is primary purchaser of output (b)	Introduces significant political risks to revenue streams of concessionaire (e.g. creeping expropriation)
	Highly difficult to measure outputs i.e. patient's health	Complicates determination and management of KPIs, and renders service quality nontransparent
	Great variability of outputs over time	Introduces high amount of uncertainty project requirements and performance indicators
	OPEX is main proportion of total cost	Limitation of efficiency gains during construction and design phase and greater importance on service provision, which is difficult to monitor and regulate
	High evolvement of technology and organizational configuration	Additional layer of risk, which is reinforced by the fact that OPEX is the main driver of total project cost
Developing countries related	Underdevelopment of administrative and regulatory bodies	Make it difficult for government to manage project without the support from third party
	Limited financial resources	Introduce financial uncertainty and can jeopardize project sustainability
	Higher levels of corruption and lack of transparency in contract awarding phase	Can lead in the selection of non-optimal private sector participant, hence reducing infrastructure service quality and VfM for taxpayer
	Conflicting aims of government	Increases project complexity and risk for private party
	Lack of bidders	Weak competition and hence potentially limited efficiency gains
	Misalignment of public authorities	Weak oversight and regulation of government, leading to weak enforcement of service quality
	Preferential treatment of incumbent service providers	Decreases competitiveness and hence threatens public acceptance and popularity of project
	Inexperience in tariff settings, absence of independent regulators and artificially low past tariffs	Lack of public understanding for and high inflexibility of price adjustments introduces risk
	Political instability and commitment	Increased probability of renegotiations and creeping expropriations threaten project
	Higher financial uncertainty such as volatile exchange or interest rates	Reduces investment appetite of foreign investors; can risk financing (e.g. default on loan service payments)

The analysis has shown, that PPP infrastructure projects in developing countries inherit significant risks, which heavily influence the sustainability and success of these undertakings. PPPs are highly complex commitments between the public and private sector, which require a strong and stable political system as well as robust management capabilities by the government. As misallocations of risk can be fatal, it is currently not recommended that governments in developing countries pursue this model, but rather explore different options of health infrastructure provision such as traditional public procurement.

The main limitation of this analysis constitutes is the sample size. One case study – the Lesotho New Hospital PPP – was analyzed. At the time this thesis was developed, there existed only one comparable PPP project in another developing country worldwide – the Cross River State hospital in Nigeria (International Finance Corporation, 2008). The hospital was scheduled to open in 2015, but unfortunately there is limited information about the project publicly available and hence it is even uncertain whether the project was completed[15]. It is therefore not possible to date to compare the performance of the Lesotho New Hospital PPP with other similar projects. However, the model has been relatively successful in developed countries, such as Australia, Portugal, Romania, South Africa, and Spain (The Global Health Group & University of California, 2010). This relatively higher success in these countries, is a result of both public and private parties having a greater range of experience with PPPs in general. Moreover, these countries do not face the above mentioned developing country related obstacles (please see Table 9) and can hence better deploy their resources to efficiently structure and manage a PPP, as well as to address problems that arise over the lifetime of the health infrastructure asset.

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[15] It might be possible that current political tensions and threats of terrorism as well as the Ebola crisis in 2014 have negatively influenced the PPIP undertaking.

7. Conclusion and recommendations

"I am convinced that governments alone cannot tackle global development challenges. Partnerships with the private sector are crucial to achieving sustainable development."

— Ban Ki-moon

United Nations Secretary General

This thesis has been developed to assess whether PPP projects are a worthwhile option for developing countries when providing for health infrastructure. In order to answer this research question, a comprehensive literature research has been carried out and the findings have been discussed with experts in the infrastructure sector.

In the second chapter of this thesis, a general understanding of the fundamental aspects of PPP projects was developed. Next, the importance of PPPs for developing countries was discussed and the forces and obstacles that influence PPP projects in these regions were analyzed. In the fourth chapter, the different fields of application for PPPs in the health sector were examined and several unique aspects were derived, which arise when the PPP scheme is implemented in the field of health infrastructure. In the fifth chapter, a case study analysis of the Lesotho New Hospital PPP undertaking was carried out and general lessons learned from the project were generated.

In the last section of this thesis, the findings from the previous chapters were integrated. The analysis has shown that health infrastructure PPPs are highly complex undertakings, which require large amounts of resources as well as robust experience and know-how from both the private and public sector. The numerous hurdles for health infrastructure PPPs in developing countries – which even exacerbate as a result of mutual reinforcement – show, how difficult it is for governments to successfully engage and manage these kind of projects. As a result, the conclusion of this thesis is that health infrastructure PPP projects in developing countries are not the ideal choice for governments in these regions. Therefore, governments are advised to explore different ways of infrastructure provision that best suit their needs and that can be most efficiently managed, while limiting downside risks. However, these considerations will always need to factor in private sector participation.

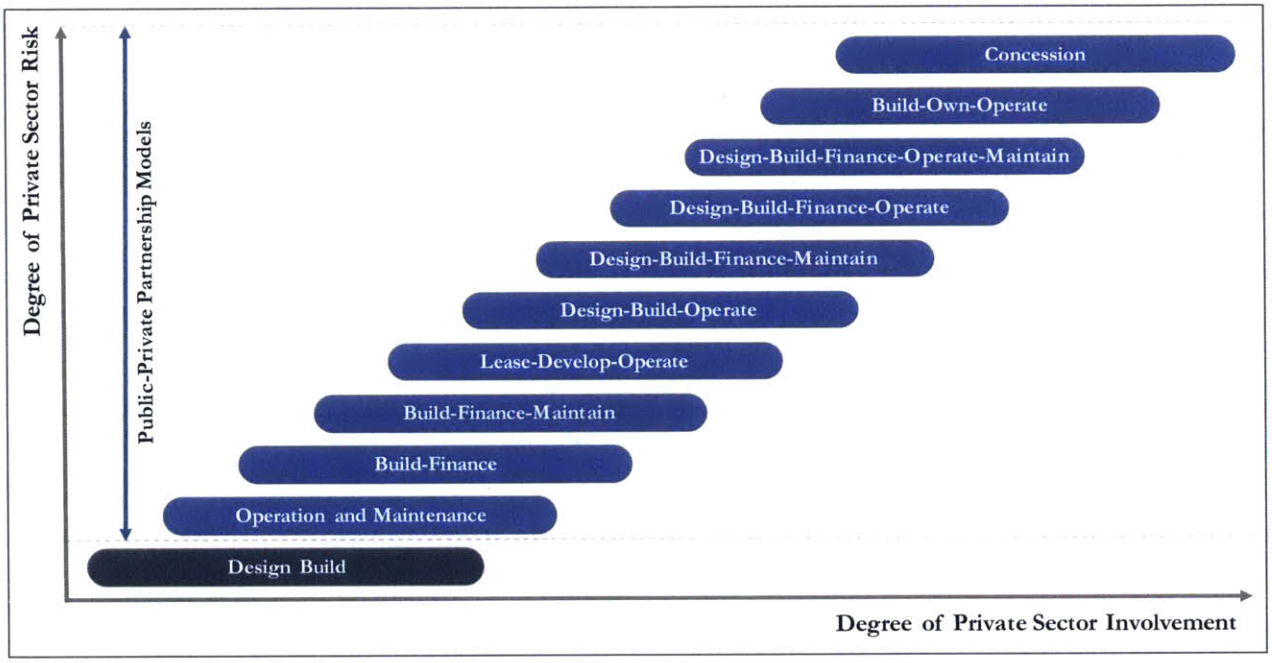
However, PPPs for health infrastructure should not be off the table entirely. It is recommended that governments in developing countries organically build their healthcare PPP capacities step-by-step. This can be achieved by (a) carrying out small-apportioned PPP projects in the field of health that are easy to manage and (b) undertaking less complex PPP projects outside the field of health to develop general PPP capabilities. Thereby it is important to constantly collect extensive data for future references and best practices. While doing so, governments can acquire the required expertise and capabilities for ambitious PPIP projects in the future.

Health infrastructure PPPs in developing countries are still in the fledgling stage. Future experience with and examination of these PPPs can generate new insights, best practices, and potentially increase the attractiveness of the model for developing countries. Therefore, governments around the world in these countries need to commit to open and transparent discussions and engage with international development organizations in order to continuously challenge and advance the PPIP model. This will allow the public sector to build the required capacities to effectively evaluate the advantages and disadvantages of PPIP projects and to provide value for the money of their people.

Appendix I – Classification of PPP projects by contract type

There exist different terminologies for PPP projects. Please see Figure 16 for an overview of commonly used notations, mapped by their respective degree of private sector involvement and private sector risk absorption. Note that the list is not exhaustive, as the terms are individually used around the world and their boundaries are not clearly definable. There exist a number of additional terminologies, such as Design-Build-Operate-Maintain (DBOM), which result from combinations of the functions that the private sector is carrying out. These terminologies can furthermore vary by the type of asset or service involved and bundle various functions into one project. (National Council for Public-Private Partnerships, 2016; The World Bank Group, 2012)

Figure 16 - Classification of Public-Private Partnerships by type of contract
(The Canadian Council for Public-Private Partnerships, 2016)



Design-Build (DB): Given the public sectors specifications and requirements, the private party develops a design and builds the infrastructure asset. As the remuneration of the private party often is a fixed amount, the risk of cost overruns can be effectively transferred to the private party. Note: This form is not always considered as a PPP and can be classified as a public work contract.

Design-Build-Maintain (DBM): Similar to a DB scheme, except that maintenance is carried out by the private party.

Operation and Maintenance Contract (O&M): The private party operates and maintains the public asset for a contractual fixed period of time. The ownership of the asset remains with the government. Note: This form is not always considered as a PPP and can be classified as a service contract.

Design-Build-Finance-Operate (DBFO): Under this scheme, the private sector designs, constructs, provides for the necessary funding, as well as operates the facility over the specified period of time. This form of PPP is very similar to the BOOT (please see below), and has the advantage for the public sector, that it remains the owner of the infrastructure asset without facing operational risk and payments from users.

Build-Lease-Operate-Transfer (BLOT): The private sector party designs, finances and constructs an infrastructure facility on leased public land against a payment of rent. The private party operates the entity over the period specified of the lease contract and collects user fees. At the end of the lease, the ownership as well as operational responsibility are transferred back to the public party for an initially specified price.

Build-Operate-Transfer (BOT): Include the design, financing and construction of new infrastructure assets by private sector. Thereafter, the private sector operates and maintains the asset for a period of time specified in the PPP contract and is entitled to all revenues from it. Ownership remains with the public sector over the whole time of the contract. At the end of the concession the facility is transferred to the public sector.

Build-Transfer-Operate (BTO): Comprises of the same specifications as a BOT contract, but ownership of the infrastructure asset is transferred to the government once construction is completed and not at the end of the concession.

Build-Own-Operate-Transfer (BOOT): A BOOT project differs from a BOT structure, by the private party owning the infrastructure facility. After the specified period, ownership is transferred to the government.

Build-Own-Operate (BOO): Under this scheme the private sector designs, finances, builds, owns and operates the infrastructure asset. Ownership of the facility is not transferred to the government and any residual value remains with the private party. A regulatory authority assures performance measures specified in the original contract. BOO contracts are often used for telecommunication infrastructures.

Buy-Build-Operate (BBO): A BBO project involves the transfer of an existing infrastructure asset to a private party. This transfer is subject to an upgrade of the facility and subsequent operation of the service. Public interest is exercised through the specifications clarified in the contract at the time of the transfer.

Concession: The term concession is widely used for the description of public infrastructure projects and mostly describes a "user-pays" scheme. Under a concession the private party has the exclusive right to build, operate and maintain an infrastructure facility for a certain period of time, after which the ownership reverts back to the public sector.

Appendix II – List of developing countries

The following countries are considered as developing countries by the International Monetary Fund (International Monetary Fund, 2015).


Afghanistan


Albania


Algeria


Angola


Antigua and Barbuda


Argentina


Armenia


Azerbaijan


Bahamas


Bahrain


Bangladesh


Barbados


Belarus


Belize


Benin


Bhutan


Bolivia


Bosnia and Herzegovina


Botswana


Brazil


Brunei


Bulgaria


Burkina Faso


Burundi


Cambodia


Cameroon


Cape Verde


Central African Republic


Chad


Chile


China


Colombia


Comoros


Democratic Rep. of Congo


Republic of Congo


Costa Rica


Côte d'Ivoire


Croatia


Djibouti


Dominica

Dominican Republic

Ecuador

Egypt

El Salvador

Equatorial Guinea

Eritrea

Ethiopia

Fiji

Gabon

The Gambia

Georgia

Ghana

Grenada

Guatemala


Guinea


Guinea-Bissau


Guyana


Haiti


Honduras


Hungary


India


Indonesia


Iran


Iraq


Jamaica


Jordan


Kazakhstan


Kenya


Kiribati


Kyrgyzstan


Laos


Lebanon


Lesotho


Liberia


Libya


Macedonia


Madagascar


Malawi


Malaysia


Maldives


Mali


Marshall Islands


Mauritania


Mauritius


Mexico


Fed. States of Micronesia


Moldova


Mongolia


Montenegro


Morocco


Mozambique


Myanmar


Namibia


Nepal

Nicaragua

Niger

Nigeria

Oman

Pakistan

Palau

Panama

Papua New Guinea

Paraguay

Peru

Philippines

Poland

Qatar

Romania

Russia

Rwanda

Saint Kitts and Nevis

Saint Lucia

St. Vincent & Grenadines

Samoa

São Tomé and Príncipe

Saudi Arabia

 Senegal

 Serbia

 Seychelles

 Sierra Leone

 Solomon Islands

 Somalia

 South Africa

 South Sudan

 Sri Lanka

 Sudan

 Suriname

 Swaziland

 Syria

 Tajikistan

 Tanzania

 Thailand

 Timor-Leste

 Togo

 Tonga

 Trinidad and Tobago

 Tunisia

 Turkey

 Turkmenistan

 Tuvalu

 Uganda

 Ukraine

 United Arab Emirates

 Uruguay

 Uzbekistan

 Vanuatu

 Venezuela

 Vietnam

 Yemen

 Zambia

 Zimbabwe

Additional developing countries which were not listed by the IMF:

 Cuba

 Nauru

 North Korea

Appendix III – Lesotho PPP initial contract performance indicators

Below is an overview of the contractually specified KPIs of the Lesotho New Hospital PPP. The pre-accreditation target threshold refers to the first two years of operation, whereas the post-accreditation target threshold is applicable after two years of operation. The service failure deduction percentage specifies the respective reduction of the unitary payment from the GoL to Tšepong (Lee, 2013)[16].

Ref	Performance Indicator	Application		Description	Pre-Accreditation Quarterly Target Threshold	Post-Accreditation Quarterly Target Threshold	Service Failure Deduction Percentage
		Hospital	Filter Clinics				
A	**Clinical**						
A1	Emergency surgery times	✔		The time between notification of the operating theatre and the administration of anaesthesia for patients requiring emergency surgery	≤60 minutes in ≥80% of cases	≤60 minutes in 90% of cases	1%
A2	Infection control measures	✔	✔	Compliance with hand washing infection control standards and protocols	≥99% compliance	≥99% compliance	1%
A3	Prevention of Mother to Child transmission	✔	✔	Compliance with national protocol for the Prevention of Mother to Child Transmission (PMTCT)	≥90% compliance	≥90% compliance	1%
A4	Newborns protocol	✔	✔	Compliance with National Government of State protocol for newborns	≥95% compliance	≥95% compliance	1%
A5	Decubitus ulcer rate	✔		Rate of hospital acquired decubitus ulcers (bedsores)	≤10%	≤5%	1%
A6	Myocardial infarction treatment times	✔	✔	Percentage of Patients with provisional or proven diagnosis of myocardial infarction who receive aspirin within 30 minutes of evaluation (locations include casualty, clinics and wards)	≥85% compliance	≥95% compliance	1%

[16] Original source of the information in the cited document: Schedule 14 Performance Indicators, State Government, Schedules to the State Referral Hospital PPP Agreement, 27 October 200xx.

Ref	Performance Indicator	Application		Description	Pre-Accreditation Quarterly Target Threshold	Post-Accreditation Quarterly Target Threshold	Service Failure Deduction Percentage
		Hospital	Filter Clinics				
A7	Laboratory Services	✔	✔	Lab test turnaround time for 6 key lab tests the 8 key lab tests listed in .Paragraph 2.1.7 of Part B of Schedule 13. Turnaround time defined as the time from which the specimen is logged into the lab to the time the test result is reported out from the lab by telephone or lab result slip delivery, either physically or electronically.	≤60 minutes in 90% of cases	≤60 minutes in 99% of cases	0.85%
A8	Medical Records: Availability	✔	✔	Medical records that are available	≥75% of cases	≥90% of cases	1%
A9	Medical Records: Accuracy and Completeness	✔	✔	Medical records that are accurate and complete	≥75% of cases	≥90% of cases	1%
B	**Patient Volume**						
B1	Outpatient visits	✔	✔	Visit = Total ambulatory services provided to a single person in a single day (24 hours)	Depends on bid	Annual Minimum: xxx,xxx outpatients Measured per Contract Year	1%
B2	Inpatient Admissions	✔		Admission = The completion of the full admission procedure and acceptance by the Hospital. The full admission procedure may be defined as the completion of all hospital registration documents including the recording of the Patient's name in the admission registration system.	Depends on bid	Annual Minimum: xx,xx inpatients Measured per COntract Year	1%
B3	Hip Replacements	✔		Total number of hip replacements to be performed by Operator per annum	Depends on bid	Annual number of hip replacements = xxx Measured per financial year	0.5%
C	**Client satisfaction**						
*C1	Patient & family satisfaction	✔	✔	Overall patient & family satisfaction with facilities and services	≥75% satisfaction rate	≥85% satisfaction rate	0.25%

Ref	Performance Indicator	Application		Description	Pre-Accreditation Quarterly Target Threshold	Post-Accreditation Quarterly Target Threshold	Service Failure Deduction Percentage
		Hospital	Filter Clinics				
D	**Local Economic Empowerment**						
D1	Local Equity	✔	✔	Levels of Local Equity in the Operator	Compliance with targets as per LEE Scorecard	Compliance with targets as per LEE Scorecard	0.25%
D2	Local Management Control	✔	✔	Levels of Local Management and Local Women Management, Local Staffing and Skills Development	Compliance with targets as per LEE Scorecard	Compliance with targets as per LEE Scorecard	0.25%
D3	Local Subcontracting	✔	✔	Levels of Project capex / opex spend to Local Enterprises	Compliance with targets as per LEE Scorecard	Compliance with targets as per LEE Scorecard	0.25%
D4	Local Community Development	✔	✔	Achievement annually of Local Community Development targets and commitments	Compliance with targets as per LEE Scorecard	Compliance with targets as per LEE Scorecard	0.25%
E	**Equipment**						
E1	Equipment Audit	✔	✔	Compliance with Service Standards	≥95% compliance	≥95% compliance	1%
F	**Facilities Management**						
F1	Estate & Maintenance	✔	✔	Compliance with Service Standards	≥80% compliance	≥80% compliance	0.4%
F2	Cleaning Service	✔	✔	Compliance with Service Standards	≥80% compliance	≥80% compliance	0.25%
F3	Catering Service (Patient & Non-Patient)	✔	✔	Compliance with Service Standards	≥80% compliance	≥80% compliance	0.25%
F4	Waste Management & Disposal Service	✔	✔	Compliance with Service Standards	≥80% compliance	≥80% compliance	0.05%
F5	Security Service	✔	✔	Compliance with Service Standards	≥80% compliance	≥80% compliance	0.05%
F6	Help Desk	✔	✔	Compliance with Service Standards	≥90% compliance	≥90% compliance	0.05%
F7	CSSD	✔	✔	Compliance with Service Standards	≥95% compliance	≥95% compliance	0.05%
F8	Mortuary Services	✔		Compliance with Service Standards	≥95% compliance	≥95% compliance	0.05%

Ref	Performance Indicator	Application		Description	Pre-Accreditation Quarterly Target Threshold	Post-Accreditation Quarterly Target Threshold	Service Failure Deduction Percentage
		Hospital	Filter Clinics				
F9	Linen & Laundry	✔	✔	Compliance with Service Standards	≥85% compliance	≥85% compliance	0.25%
F10	Patient Transport	✔	✔	Compliance with Service Standards	≥90% compliance	≥90% compliance	0.05%
F11	Management Services	✔	✔	Compliance with Service Standards	≥80% compliance	≥80% compliance	0.4%
G	**Information Management & Technology (IM&T)**						
G1	IM&T System Uptime	✔	✔	System uptime based on a three month average period	≥99% over 3 months	≥99% over 3 months	0.2%
G2	Systems	✔	✔	User satisfaction surveys	≥80% satisfaction rate	≥80% satisfaction rate	0.2%
H	**Staff Certification and Training**						
H1	Staff Certification	✔	✔	Compliance with Service Standards	≥80% compliance	≥90% compliance	0.5%
H2	Staff Training: Registrars	✔	✔	Compliance with Service Standards	≥80% compliance	≥90% compliance	0.3%
H3	Staff Training: Consultants	✔	✔	Compliance with Service Standards	≥80% compliance	≥90% compliance	0.3%
H4	Staff Training: Nurses	✔	✔	Compliance with Service Standards	≥80% compliance	≥90% compliance	0.3%

Appendix IV – Lesotho PPP initial contract performance measurement criteria

Below you find an overview of the contractually specified KPI measurement criteria and the respective measurement period (quarterly or annually) of the Lesotho New Hospital PPIP (Lee, 2013)[17].

Ref	Performance Indicator	Measurement Criteria	Measurement Period
A	**Clinical**		
A1	Emergency surgery times	Compliance with Schedule 13, Part B Section 2.1.1. Measured quarterly by random examination of surgery patients' charts. Chart sampling n≥10	Quarterly
A2	Infection control measures	Compliance with Schedule 13, Part B Section 2.1.2. Measured quarterly by unannounced: (i) inspections of hand washing stations, which may be fixed (i.e. sinks) or mobile (including bedside) proximate to the patient, 100% of which must have appropriate soap, water and/or hand sterilization solution and paper towels; and (ii) observation of doctors and nurses for compliance with 100% hand washing and glove changing (as applicable) between each patient. Observations will be for n≥100 drawn from multiple wards and patient services throughout the Facilities, including both morning and evening shifts.	Quarterly
A3	Prevention of Mother to Child transmission	Compliance with Schedule 13, Part B Section 2.1.3. Measured quarterly by random examination of charts for women admitted who have given birth, without regard to HIV status, for compliance with the applicable intra-partum protocol based on the charted status of mother and child. Quarterly chart sampling n≥100, with deliveries at the Filter Clinics measured in proportion to their share of total deliveries at the Filter Clinics and Hospital.	Quarterly
A4	Newborns protocol	Compliance with Schedule 13, Part B Section 2.1.4. Measured quarterly by random examination of delivery records at the Filter Clinics and Hospital. Quarterly chart sampling n≥100, with deliveries at the Filter Clinics measured in proportion to their share of total deliveries at the Filter Clinics and Hospital.	Quarterly
A5	Decubitus ulcer rate	Compliance with Schedule 13, Part B Section 2.1.5. Measured quarterly by random examination of charts of all patients with a length of stay>10 days. Quarterly chart sampling n=30 or 100% up to 30. If chart does not include a skin assessment completed upon admission, all decubiti will be assumed to have been acquired in Hospital.	Quarterly
A6	Myocardial infarction treatment times	Compliance with Schedule 13, Part B Section 2.1.6. Measured quarterly by random examination of charts of all patients who have proven or suspected myocardial infarction, whether seen in casualty, wards or clinics. Quarterly chart sampling n=10 or 100% up to 10.	Quarterly

[17] Original source of the information in the cited document: Schedule 14 Performance Indicators, State Government, Schedules to the State Referral Hospital PPP Agreement, 27 October 200xx.

Ref	Performance Indicator	Measurement Criteria	Measurement Period
A7	Laboratory Services	Compliance with Schedule 13, Part B Section 2.1.7. Measured quarterly by examination of stat/emergency tests as documented in laboratory record book, with a 100% sample up to an n=25, with a random sample for n>25.	Quarterly
A8	Medical Records: Availability	Compliance with Schedule 13, Part B Section 2.1.8. Measured quarterly by examination of 100 patient records selected randomly three months after discharge but in proportion to the admissions for each service, with all records being retrievable..	Quarterly
A9	Medical Records: Accuracy and Completeness	Compliance with Schedule 13, Part B Section 2.1.9. Measured quarterly by examination of patient records selected randomly three months after discharge but in proportion to the admissions for each service, with all records having: (i) a complete set of vital signs at least once per day; and, (ii) a physicians note at least once per day, excepting obstetrics (a nurse run service), which must have a nurses note at least once per day, or unless there is a physicians order stating that no note is required due to the patients condition	Quarterly
B	**Patient Volume**		
B1	Outpatient visits	Compliance with Schedule 18 protocols: Annual measurement with minimum of 258,000	Annually
B2	Inpatient Admissions	Compliance with Schedule 18 protocols: Annual measurement with minimum of 16,500	Annually
B3	Hip Replacements	Compliance with Schedule 13 (Service Standards): Annual measurement of 160, with unused budget applied as per Schedule 13	Annually
C	**Client satisfaction**		
C1	Patient & family satisfaction	Determine with reference to results of Operator compliance procedure and help desk records implemented in accordance with the Payment Mechanism and Schedule 13, Section 7.1; sampling n≥30.	Quarterly
D	**Local Economic Empowerment**		
D1	Local Equity	Compliance with Schedule 22, Section A	Quarterly
D2	Local Management Control	Compliance with Schedule 22, Section B	Quarterly
D3	Local Subcontracting	Compliance with Schedule 22, Section C	Quarterly
D4	Local Community Development	Compliance with Schedule 22, Section D	Annually
E	**Equipment**		
E1	Equipment Audit	Compliance with Schedule 13, Part A Section 13.2	Quarterly
F	**Facilities Management**		
F1	Estate & Maintenance	Compliance with Schedule 13, Part A Section 2.1	Quarterly
F2	Cleaning Services	Compliance with Schedule 13, Part A Section 3.2	Quarterly
F3	Catering (Patient & Non-Patient)	Compliance with Schedule 13, Part A Section 4.1	Quarterly
F4	Waste Management & Disposal Services	Compliance with Schedule 13, Part A Section 5.1	Quarterly
F5	Security Services	Compliance with Schedule 13, Part A Section 6.1	Quarterly

Ref	Performance Indicator	Measurement Criteria	Measurement Period
F6	Help Desk	Compliance with Schedule 13, Part A Section 7.1	Quarterly
F7	CSSD	Compliance with Schedule 13, Part A Section 8.1	Quarterly
F8	Mortuary Services	Compliance with Schedule 13, Part A Section 9.1	Quarterly
F9	Linen & Laundry	Compliance with Schedule 13, Part A Section 10.1	Quarterly
F10	Patient Transport	Compliance with Schedule 13, Part A Section 11.1	Quarterly
G	**Information Management & Technology (IM&T)**		
G1	IM&T System Uptime	Compliance with Schedule 13, Part A Section 12.2.2	Quarterly
G2	Systems	Compliance with Schedule 13, Part A Section 12.2.2	Quarterly
H	**Staff Certification and Training**		
H1	Staff Certification	Compliance with Schedule 13, Part B Section 4.1	Annually
H2	Staff Training: Registrars	Compliance with Schedule 13, Part B Section 4.2 (a)	Annually
H3	Staff Training: Consultants	Compliance with Schedule 13, Part B Section 4.2 (b)	Annually
H4	Staff Training: Nurses	Compliance with Schedule 13, Part B Section 4.2 (c)	Annually

Glossary

Note: All defined terms have been marked with an asterisk (*) in the main body of this paper

Concessional debt / financing: Lending extended by creditors at terms that are below market terms with the aim of achieving a certain goal. For example, governments may provide loans at low or zero interest rates, either to provide a benefit to the recipient or to encourage some action by the recipient (such as purchasing goods from the lender's country). It is believed that creditors generally extend concessional lending through loans but the lending could potentially apply to securities, trade credits, or even deposits. (International Monetary Fund, 2004)

Creeping expropriation: A series of acts which, over time, have an expropriatory effect such as squeezing a project by steady increases in taxes, additional regulation, restrictions in access, or other changes in law (Hoffman, 2004).

Escrow agent: An escrow agent (normally a financial institution) is appointed by the project company and the lenders for managing an account called escrow account. The escrow account is set up to hold funds (including project revenues) accrued to the project company. The funds in the account are disbursed by the escrow agent to various parties in accordance with the conditions of the agreements. An escrow account is also used to hold a deposit in trust until certain specified conditions are met. (United Nations ESCAP, 2011)

Gini Index: The Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution. The Gini index measures the area between the Lorenz curve and the hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. A Gini index of zero represents perfect equality and 100 represents perfect inequality. (OECD, 2016)

Health infrastructure: Relates to physical assets, which provide communities, states, and Nations with the capacity to prevent disease, promote health, and prepare for and respond to both acute (emergency) threats and chronic (ongoing) challenges to health (U.S. Department of Health and Human Services, 2016). In this paper the term mainly relates to different kinds of hospitals.

Inpatient: An individual (patient), who stays for one or more nights in a hospital for treatment (Merriam-Webster.com, 2016).

Outpatient: An individual (patient), who receives healthcare services (such as surgery) on an outpatient basis, meaning they do not stay overnight in a hospital or inpatient facility (Merriam-Webster.com, 2016).

Private Finance Initiative: A Private Finance Initiative (PFI) is a public service delivery type of Public-Private Partnership where the responsibility for providing public services is transferred from the public to the private sector for a considerable period of time. PFI, which is considered as a generic classifier for all types of 'construction' PPP, is also a means of using private finance and skills to deliver capital investment projects traditionally provided by the public sector. (Alshawi, 2009)

Private sector: The private sector is the part of the economy, which is run by private individuals or groups, usually as a means of enterprise for profit, and is not controlled by the public sector. In this thesis private sector refers mainly to individuals, companies or conglomerates that are participating in the provision of infrastructure assets and services. *Other forms used in this thesis: private party.*

Public sector: The public sector is the part of the economy concerned with providing various governmental services. In this thesis public sector refers to governments or any other governmental administration that provides infrastructure assets and services. *Other forms used in this thesis: public party.*

Rule of Law: The rule of law means that government decisions are made according to a set of written laws and rules, to be followed by every citizen. The rules are applied consistently, administered by a professional bureaucracy and adjudicated by a fair and transparent judiciary that is adequately compensated. In nearly all cases, courts provide reasons for their decisions based on the law, through some form of due process. (United Nations Development Programme, 2004)

Special Purpose / Project Vehicle: An SPV is a commercial company established under the relevant Act of a country through an agreement (also known as memorandum of association) between the shareholders or sponsors. The shareholders' agreement sets out the basis on which a company is established, giving such details as its name, ownership structure, management control and corporate matters, authorized share capital and the extent of the liabilities of its members. The authorized share capital is the maximum amount of equity capital, measured at par value, that a company is allowed to raise by issuing shares to existing or potential shareholders (or investors). The shareholders of a company may be granted special privileges on matters such as elections to the company's board, the right to purchase new shares issued by the company and the right to share in distribution of the company's income. It is, however, important to mention here that in the event of liquidation of the company, the shareholders' rights to a company's assets are subordinate, or "junior" to the rights of the company's lenders. (United Nations ESCAP, 2011)

Value for Money: Value for money assesses the cost of a product or service against the quality of the provision for a certain group, such as taxpayers.

White Elephant: A white elephant is a possession, which its owner cannot dispose of and whose cost, particularly that of maintenance, is out of proportion to its usefulness. In modern usage, it is an object, scheme, business venture, facility, etc., considered without use or value.

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