

**SOUTH AFRICAN  
PUBLIC PRIVATE PARTNERSHIP (PPP) PROJECTS**

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**SUBMITTED IN FULFILMENT OF THE  
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ENGINEERING, THE BUILT ENVIRONMENT  
AND INFORMATION TECHNOLOGY**

**PROMOTER: PROF JJ SMALLWOOD**

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## **DEDICATION**

This thesis is dedicated to my:

Parents:

- Late James Nyagwachi, 1990, and
- Late Jemima Kerubo, 2007

Wife and Children:

- Maria Ndinda Nyagwachi;
- Anita Nyangaresi Nyagwachi;
- Rebecca Nyangaresi Nyagwachi, and
- Einstein Nyangaresi Nyagwachi

## **ABSTRACT**

The purpose of this thesis is to disseminate research work done towards a higher degree and report on the findings of the research that was conducted relative to South African Public Private Partnership (PPP) projects. The research investigated perceptions of PPP actors on the performance of operational PPP projects.

The aim of the research was to fulfil the requirements for the award of the degree of philosophiae doctor in construction management; contribute to the PPP body of knowledge; contribute further understanding of the performance of PPP projects in South Africa; and develop a systemic model for a sustainable PPP system within the country and beyond. All the aforementioned have been achieved, despite the research limitations as indicated in Chapter 1.

A case study approach was adopted to examine various performance aspects of operational South African PPP projects. The research was a multi-case study design. Each individual case study consisted of a 'whole' study, in which facts were gathered from the selected PPP projects and conclusions drawn on those facts. A web-based questionnaire was used to capture the experiences and perceptions of various actors involved directly, or indirectly in selected PPP projects.

The sample stratum consisted of all operational PPP projects registered in accordance with Treasury Regulations as of December 2005 and other projects that reached financial closure before the Public Finance Management Act of 1999 became effective.

PPPs involve highly complex procurement processes, are relatively new in South Africa and to date have attracted limited investigation to refine our understanding of the operational performance of PPP projects. This is notable, as significant financial and other resources are involved, and the perception exists that service delivery in most parts of the country is poor.

Key empirical evidence from the research indicates that South Africa has developed a robust policy and regulatory framework for PPPs; has an inadequate level of PPP awareness and training; and lacks the project management capacity to facilitate deal flow.

It is suggested that further research be conducted on a yearly basis, preferably every six months, so that trends can be established concerning various aspects of other operational PPPs. Further, it is recommended that the PPP Unit commission sector-specific studies that will conduct further research, to compare research across PPP and non-PPP contracts.

The choice to conduct a multi-case study required extensive resources and time beyond the means available to the researcher. Further, the sensitive nature of PPP projects made it difficult to obtain required data at the first attempt. However, the researcher made several follow up calls and reminders before eventually obtaining the required data from the respondents.

A systemic PPP model has been developed for PPP implementation and management. This model was tested for appropriateness by conducting a further survey on PPP participants attending an international conference on 'Financing of Infrastructure Development in Africa through Public Private Partnerships' staged in August 2007, in the St. George Hotel, Johannesburg, South Africa.

The findings from this research make an invaluable and original contribution to the PPP body of knowledge, provide insight for further research in this important field, refine the understanding of operational PPP projects, and provide direction for policy and decision makers in the public and private sectors, within South Africa and beyond.

**KEYWORDS:** Construction, Projects, Public Private Partnerships.

## DECLARATION

I, Josiah Nyangaresi Nyagwachi do hereby declare that the thesis is my own work and certify that the thesis has not been previously submitted to another university.

Signed:

A handwritten signature in black ink, appearing to read 'Nyagwachi', written over a horizontal line.

Date: 23 January 2008

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## **Contents of Study**

The thesis document is structured as follows:

### **Preliminaries**

This part contains the title page, dedication, abstract, declaration, acknowledgements, list of tables and figures, table of contents, and glossary of terms. executive summary.

### **Chapter 1: Introduction and the Problem Statement**

This chapter contains background information regarding the technological, industrial and organizational setting for the study. It describes and gives a thorough overview of the historical development and current state of PPPs. It gives reasons for selecting the particular topic, the rationale for the study, as well as the statement of the research problem.

### **Chapter 2: Review of related Literature**

This chapter contains a comprehensive review of the literature from various sources including: textbooks; journals; theses; conference papers; reports and contemporary sources. These represent the most authoritative scholarship in the construction industry. The study contains a wide-ranging survey of PPP projects in developed and developing countries with specific focus on the application of the PPP model in the South African context. Current and previous works in related fields of construction are also reviewed.

### **Chapter 3: Research design and methodology**

The case study research design is discussed and the reasons for choosing this particular approach are explained. The advantages and disadvantages of choosing this case study method are also provided. The methodology section includes the research design, population, sample frame and sampling, data collection and analysis procedures that were followed during the study.

#### **Chapter 4:      Presentation and analysis of the data**

This chapter contains the presentation and discussion of data collected and analysed in the study. The chapter also includes the testing of the hypotheses by showing whether the findings of the study support the hypotheses or not.

#### **Chapter 5:      A Systemic Model for Planning and Implementation of PPPs**

This chapter contains the development of a systemic model and introduces a 'systems thinking approach' in the PPP environment. The basis for the evolving of the systemic model is systems theory developed by Forrester in 1961 and popularized by Peter Senge, a senior lecturer at Massachusetts Institute of Technology (MIT). The methods of systems thinking provide the tools for better understanding complex planning and management problems. The systems thinking approach requires a change of mindset from seeing problems as isolated events and their causes and start to looking at issues as systems made up of interacting parts. The model also defines the systemic processes that will be used to implement PPP projects. It clarifies the complexity of elements and causal interrelationships within the PPP system. It then provides suggestions for current and future researchers concerning new discoveries in PPPs.

#### **Chapter 6:      Summary of Findings, Conclusions and Recommendations**

In this chapter, the main conclusions of the study are summarised, discussed and interpreted. Where appropriate, recommendations are made for further research, practice and or implementation

## **LIST OF ACROYNYS**

BEE	Black Economic Empowerment
BIAC	Business and Industry Advisory Committee
BODC	Borough of Dolphin Coast
CNG	Compressed Natural Gas
CFC	Credit Finance Corporation
CPF	Central Processing Facility
CLIFF	Community Led Infrastructure Financing Facility
COSATU	Confederation of South Africa Trade Unions
CPI	Consumer Price Index
DBFO	Design Build Finance Operate
DBFM	Design Build Finance and Maintain
DFID	Department for International Development
ETI	EcoBank Transnational Incorporation
EAIF	Emerging Africa Infrastructure Fund
EBRD	European Bank for Reconstruction and Development
Eol	Expression of Interest
FDI	Foreign Direct Investment
FIDIC	International Federation of Consulting Engineers
GSM	Global System for Mobile Communication
GDP	Gross Domestic Product
GOM	Government of Mozambique
GPOBA	Global Partnership of Output Based Aid
HMC	Heavy Minerals Concentrate
HDPs	Historically Disadvantaged Persons
IDA	International Development Association
IDC	Industrial Development Company
LOC	Letter of Credit
MNTC	Manila North Tollways Corporation
MPDC	Maputo Port Development Corporation
NMMU	Nelson Mandela Metropolitan University
NTPC	Nam Theun Power Company
ODA	Overseas Development Assistance
PPP	Public Private Partnerships
PRC	Peoples Republic of China
PNG	Piped Natural Gas

PAID	Port Autonome International de Djibouti
PSC	Public Sector Comparator
PPIAF	Public Private Infrastructure Advisory Facility
PPPUE	Public Private Partnership for Urban Environment
PIDG	Private Infrastructure Development Group
PE	Port Elizabeth
RSA	Republic of South Africa
SAIIA	South African Institute of International Affairs
SATAWU	South African Trade & Allied Workers Union
SIDA	Swedish International Development Agency
SMEs	Small and Medium Enterprises
SPV	Special Purpose Vehicle
SUF	Slum Upgrading Facility
TRAC	Trans Africa Concessions
TEU	Twenty Foot Equivalent Units
TD	Tunisia Dollar
TL	Tunisia Leasing
TISA	Trade and Investment South Africa
UNDP	United Nations Development Programme
UN	United Nations
USAID	United States Agency for International Development
VPT	Village Pay Telephones
ZAR	South African Rand



## GLOSSARY OF TERMS

**Accountability:** This is the ability of the public to hold to account those responsible for managing the use of public funds in the delivery of services.

**Bidder:** A bidder is one who submits a bid in response to a project brief or to a request for an expression of interest.

**Build, own, and operate (BOO):** This is when a developer is responsible for the design, funding, construction, operation and maintenance of the facility, during the concession period, with no provision for transfer of ownership to the government.

**Build, own, operate, transfer (BOOT):** This is an arrangement whereby a facility is designed, financed, operated and maintained by a concession company. The concessionaire retains ownership until the end of the concession period, after which ownership and operating rights are transferred back to the government.

**Built, operate, transfer (BOT):** This is an agreement where a facility is designed, operated and maintained by the concessionaire, for the period of the concession. Thereafter, legal ownership of the facility may or may not rest with the concession company.

**Bundling:** This refers to the integration in a PPP of functions such as design, construction, financing, operations and maintenance of the facility.

**Business case:** The business case provides an overview of a partnership approach. This is where the project is fully scoped, risks and costs are identified to develop a cost-benefit analysis and test the net benefit of the proposal.

**Concession:** Concession-based approaches are the oldest form of Public Private Partnership, and a variety of arrangements are based on the concept of a fixed-term concession, using various combinations of private sector resources to design, construct, finance, renovate, operate and maintain facilities. Ownership of the facility may remain with the government, or may be transferred to the government on completion, or at the end of the concession period.

**Contracting out:** This is an outsourcing arrangement in which a public agency contracts with an external supplier for the provision of goods and / or services.

**Conventional procurement:** This is a public procurement approach in which a public agency secures the finance directly and pays the contractor as work progresses.

**Core activities:** These consist of operational elements involving the making of key decisions and / or the delivery of services, which may remain with government.

**Default:** The failure of a party to perform a contractual requirement or obligation, including failures to meet deadlines, to perform to a specified standard, to meet a loan repayment or to meet its obligations in relation to an established agreement.

**Design, build, finance (DBF):** A form of PPP that involves the procurement of asset using private finance, without private sector operations and provision of the associated services.

**Design, build, finance and operate (DBFO):** This is the main form of contract in the PFI, whereby the service provider is responsible for the design, construction, financing and operation of an asset.

**Design, build, operate (DBO):** A form of PPP in which the public sector provides finance for a capital investment project, but the providers of the project retain the design and construction, and deliver some or all of the operational elements.

**Discount rate:** The rate used to calculate the present value of future cash flows, usually determined on the basis of the cost of the capital used to fund the investment from which the cash flow is expected.

**Discounted cash flow:** This is a general term of analysis, which discounts a stream of future cash flows, in order to calculate the net present value.

**Expected value:** The weighted average of possible values of a variable, where the weights are the probabilities of cost estimates.

**Internal rate of return (IRR):** This is the discount rate that would give a project a present value of zero.

**Joint Venture (JV):** This is a distinct legal form of PPP arrangement, involving public and private bodies, assuming some form of equity stake in a PPP.

**Key Performance Indicators (KPIs):** These are measures developed under a performance management regime, to indicate how well specified performance targets are being realized.

**Net present value (NPV):** This is the discounted value of a stream of either future costs or benefits, with NPV used to describe the difference between the present value of a stream of costs and a stream of benefits.

**Output specification:** The output specification sets out the range of services that government is seeking to procure and the performance levels required for each of those services.

**Private Finance Initiative (PFI):** A UK programme encompassing arrangements whereby a consortium of private sector partners come together, to provide an asset-based public service under contract to a public body.

**Private party:** This is a private sector entity, which the government contracts in a PPP. Traditionally the private party has been a special purpose vehicle created specifically for the project.

**Probity:** This is uprightness, honesty, proper and ethical conduct and propriety in dealings and is used by government to mean 'good process'.

**Procurement:** This is a component of the commissioning process that deals specifically with purchasing a service from a provider. This occurs once decisions have been taken over what outcomes, or outputs are to be secured and involves the negotiation of contracts.

**Project brief:** The project brief details government's objectives, service delivery requirements, policy and commercial matters, material background information and the process for lodging and evaluating submissions.

**Project Finance:** A way of financing capital projects that depends for its security on the expected cash flow of the project itself, rather than guarantees from the borrower or third parties.

**Public interest test:** An assessment of the impact of the project on effectiveness, accountability and transparency, affected individuals and communities, equity, consumer rights, public access, security and privacy.

**Public Private partnership (PPP):** A risk-sharing relationship based on a shared aspiration between the public sector and one or more partners from the private and or voluntary sectors, to deliver a publicly agreed outcome and or public service.

**Public sector:** Refers to public agencies and enterprises that are financed, owned and controlled.

**Public sector comparator (PSC):** A hypothetical constructed benchmark to assess the value-for-money of conventionally financed procurement in comparison with a privately financed scheme for delivering a publicly funded service.

**Risk Allocation:** The allocation of responsibility for dealing with the consequences of each risk to one of the parties to the contract, or agreeing to deal with the risk through a specified mechanism which may involve sharing the risk.

**Shadow toll:** A payment for road usage made by the government, rather than road users, based on vehicles using a kilometre of the project road, in accordance with a tolling structure.

**Sensitivity analysis:** This is an analysis of the effects on an appraisal, of varying the projected values of important variables.

**Special purpose vehicle (SPV):** An organization that can be established as a distinct legal entity, to bring together the companies involved in a PPP in order to manage the project and share the risks and rewards.

**Unitary payment:** Payment for services delivered by an SPV under PPI- or PPP-type arrangement.

**Value-for-money:** The optimum combination of whole-of-life cycle costs, risks, completion time and quality, in order to meet public requirements.

**Whole-of-life cycle:** Costs associated with the ongoing repair and maintenance of a facility for the term of a facility's economic life.

## CHAPTER 1

### THE PROBLEM AND ITS SETTINGS

#### 1.1 Introduction

This chapter contains background information regarding the technological, industrial and organizational setting for the study. It describes and provides a thorough overview of the historical development, current state, organization and technology underpinning the growth of Public Private Partnerships (PPPs). It presents reasons for selecting the particular topic, the rationale for the study, as well as the statement of the research problem.

#### 1.2 Background

In the recent past, many countries have seen a tremendous increase in cooperation between the public and private sectors for the development and operation of infrastructure. Notable similar approaches are common in Great Britain popularly referred to as Private Finance Initiatives (Patricia *et al.*, 2006). Such PPP arrangements have been driven by limitations in public funds needed to fund desired investments and the need to leverage expertise from the private sector, in order to improve the quality and efficiency of public services (Grimsey & Lewis, 2004).

PPPs are relatively new in South Africa and to date have attracted limited investigation. This is notable, as significant financial and other resources are involved, and according to Khosa (2000), there is the perception that service delivery in most parts of the country is still of a low standard.

This research project aims to further knowledge on the performance of operational South African PPP projects. The objectives of the study are to: examine the performance of operational South African PPP projects; contribute towards the existing PPP body of knowledge, and provide direction for a sustainable PPP system in South Africa and beyond. The results of the study will lead to formal conclusions and recommendations to inform decision-making.

The government of South Africa, as with many other sub-Saharan African countries is under increased pressure to accelerate the development of infrastructure and provide much needed social services to its population. Many people in South Africa do not have access to basic services, such as potable water, sanitation systems, transportation and electricity. Furthermore, many neighbourhoods in urban and rural areas are inadequately supplied with social amenities. According to Mandela (1999), though the situation has improved since 1994, there still remains a lot to be done to meet the ever-increasing demand for service delivery. This situation is worsened by the current skills crisis within the provincial and municipal departments, in various parts of the country.

Limited funding and capacity constraints for infrastructure development and service delivery in South Africa has created a financial and capacity gap. Various PPP initiatives have emerged over the past two decades, to provide assets and services that traditionally have been provided by the public authority.

The involvement of the private sector, in partnership with government, has been advocated as a means of improving the development of infrastructure and service delivery in various sectors. This is largely due to internal pressure arising from increasing levels of unemployment, competing demands for dwindling national resources, escalating crime and the deteriorating state of existing infrastructure. This has compelled many governments to introduce PPP arrangements.

PPP is used as a general term to cover a wide range of agreements or partnerships made between public agencies and private sector entities, in relation to the delivery of services such as water, sanitation, housing or power.

According to Rintala and Root (2005), PPP is an umbrella term for a wide range of procurement methods that are alternatives to traditional procurement. Concession procurement is one of the PPP procurement methods. PPP is just one name for the involvement of the private sector in the delivery of public services (Ramaema, 1997).

PPP infrastructure projects provide a framework that enables both the public and private sectors to work together, to improve public service delivery through the provision of infrastructure and related non-core services. The partnership provides competitive and transparent mechanisms to pursue opportunities that bring together the ideas, experiences and skills of both sectors, to develop innovative solutions to meet the community's needs, expectations and aspirations.

The PPP approach provides an alternative and does not mean privatisation of public services (Savas, 2000). The government continues to deliver core services while contracting out the development and management of infrastructure and non-core services to the private sector. As a result, there is value addition in efficiency and cost effectiveness (Robbins, 2003).

According to Currie (2005), the government of South Africa is facing a rising demand for the acceleration of infrastructure development due to the social and economic transformation process. The prevailing capacity constraints for project implementation means a lot of funding meant for development remains unlocked or unutilised. However, the use of PPPs will not only stimulate growth in the construction sector, but also promote black business equity empowerment enterprises, create employment, provide mandatory skills training, curb the spread of informal settlements and reduce crime rates and poverty.

Lack of infrastructure, or poorly maintained infrastructure, has a negative affect on the economy of any country, and will discourage local and foreign investment. The use of the PPP approach is proposed as one way of solving the problem of the slow implementation of infrastructure development and the provision of social infrastructure in South Africa.

PPPs provide a framework that enables both public and private sectors to work together to improve service delivery in an efficient and cost effective manner. PPPs provide competitive and transparent mechanisms for the chasing up of opportunities that can bring together ideas, experiences and skills that can address the needs, expectations and operations of different communities.

South African government institutions can focus their efforts on the provision of core services and use savings earned to improve or expand other essential services such as health, security and the provision of social infrastructure. Governments are turning to PPP arrangements for the provision of services due to a variety of reasons, which include:

- Lack of capacity of government institutions to deliver a reasonable level of service or to improve service quality;
- Financial weakness of some public agencies;
- Lack of public sector financing capability;
- Inability of public institutions to respond to increasing growth in demand, due to such things as rapid urbanization, and
- Low productivity levels in some public institutions.

Some of the types of contractual arrangements between public and private sector in the provision of utility services are:

- Service contracts;
- Management contracts;
- Lease contracts;
- Concession contracts;
- Design build operate own transfer, and
- Divestiture.

#### 1.2.1 Service Contracts

A service contract is usually for a few years and involves contracting out specific operations and / or maintenance activities to the private sector for an agreed period of time.

### 1.2.2 Management Contracts

Management contracts normally cover a broader scope of operations and maintenance. Under this arrangement, a private firm manages the operations of a state owned enterprise without committing its own investment capital, or accepting full commercial risks.

### 1.2.3 Lease Contracts

Under lease, a private firm operates and maintains a government owned enterprise at its own commercial risk. However, except for agreed maintenance obligations, a leaseholder has no obligation to invest in infrastructure. Lease contracts can vary between 6 and 10 years.

### 1.2.4 Concession Contracts

Under a concession, the private sector operator manages the infrastructure facility at his or her own commercial risk and accepts investment obligations, which may include the construction of a new facility or the expansion of an existing one.

### 1.2.5 DBOT / DBOO

The build operate transfer (BOT) and or build own operate (BOO) arrangement is similar to a concession for the provision of for example, bulk services. BOT contracts are normally used for Greenfield projects, such as a water treatment plant, or a new wastewater treatment plant. For example, the private sector may undertake to construct a new water treatment plant and operate it for a number of years before transferring the facility back to the public sector.

### 1.2.6 Full or Partial Divestiture

Divestiture of utility assets can be partial or complete. In a complete divestiture, as in a concession, the private sector takes on full responsibility for operations, maintenance, and investment in a utility. Unlike a concession, a divestiture transfers ownership of the assets to the private sector.

Infrastructure projects suitable for use of the PPP approach include:

- Roads;
- Bridges;
- Waterways;
- Canals;
- Water / Waste water;
- Sports facilities;

- Schools;
- Hospitals;
- Telecommunication facilities;
- Railways;
- Ports and Harbours;
- Airports / Airfields, and
- Power.

#### 1.2.7 Historical Context of PPPs

PPPs, though relatively new in South Africa, have a long history dating back to the time of concessions, which were used in the nineteenth century to finance infrastructure such as railways and highways in Europe, America, Asia and Africa.

One of the best-known infrastructure projects, under the category of waterworks, was the Suez Canal, which according to Hamilton (1996) was a tremendous financial success until it was nationalized in the mid-1950s. Unfortunately, during the same period, many other large infrastructure projects failed elsewhere in the world, resulting in huge financial losses.

Between 1789 and 1900 large numbers of toll roads were established in the United States. More than 2 000 private corporations were engaged in operating turnpikes in Pennsylvania, New York, Ohio, Michigan and elsewhere, because of the United States government's inability to provide adequate highways.

Italy opened the world's first modern tolled motorway between Milan and the Lakes in 1924. The first modern motorways in France and Italy were constructed in the 1950s and 1960s.

According to Walzer and Jacobs (1998), France enjoys a modern and innovative economic infrastructure. France is also at the forefront of Europe's nuclear power industry and is one of the world's leading producers of nuclear fuels. In transportation, France has a dense network of highways, railroads, and navigable inland waterways. It was the first European country to develop a high-speed railway passenger service, and rapid transit systems. In telecommunications, France has pioneered Mintel, a forerunner of the Internet. Policy framework in the 1960s saw a shift from state intervention to private participation. This led to the creation of four private concession companies at that time.

Spain embarked on its motorway programme in the mid-1960s. As the national budget was considered inadequate to meet the demands of a booming tourist industry, the Spanish government decided to approach the private sector for financing. Hence, the new Spanish



motorway companies were all private entities, although they were subjected to a high degree of state monitoring and control.

The energy crisis of the 1970s led to the collapse of most PPP companies in Italy, Spain and France. In France, the state had to intervene and take over some of the companies, and assimilate them into the public system of infrastructure.

A similar development in Spain, in 1983, led to the collapse of three companies representing about 15 percent of the motorway sector. Changed economic conditions saw the reverse process later in the 1980s. Today, PPP projects in Italy and Spain are profitable, with some of these operating on local stock exchanges.

Table 1: Types of PPP projects by region and type (1984-2005).

PPP Type	East Asia and Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa
Concession	28	13	8	6	0	16
Divestiture	75	192	171	1	15	6
Greenfield project	285	33	279	20	101	32
Management and Lease Contract	3	6	20	0	0	15
Grand Total	391	244	478	27	116	69

Data Source: World Bank and PPIAF, PPI Project database.

Table 1 provides a snapshot of infrastructure projects in low and middle-income countries, by region and by type. Projects include management or lease contracts, concessions, greenfield projects, and divestitures. The database contains projects dating from 1984 to 2005. In sub-Saharan Africa, there are a total of 69 PPP projects, of which 12 (17%) reached financial closure by the end of 2005.

### 1.3 The Problem and Problem Statement

#### 1.3.1 The Problem

There is a lack of infrastructure development and service delivery in many parts of South Africa.

#### 1.3.2 Problem Statement

There is a growing demand in South Africa for the acceleration of infrastructure development and the improvement of service delivery in order to meet the ever-growing needs of its populace.

A large part of the national infrastructure in informal settlements remains undeveloped and inaccessible. According to Rwelamila (2002), dwindling national resources, increasing demand for infrastructure development, capacity constraints and high maintenance costs further aggravate the problem. The above situation pertains to most parts of the country, despite South Africa being rated as having the best-developed infrastructure in Africa (Lemon *et al.*, 2004).

The most highly developed infrastructure and services are mainly found in major urban areas and intercity links, in the form of: impressive skylines; beautiful national monuments; highways and recreational facilities. The historical past has also contributed immensely to the current pathetic situation on infrastructure and service delivery (ANC, 2002; Khosa, 2000).

#### **1.4 Purpose of the Study**

The purpose of this study was to undertake in-depth research of PPP projects in South Africa and to gain a deeper understanding of the operational, and where applicable, maintenance performances of these projects.

#### **1.5 Objective of the Study**

The main objective of this study was to investigate selected operational South African PPP projects that were registered as per Treasury Regulation 16, as on December 2005.

#### **1.6 Research Hypotheses**

In order to guide the investigation and to gather evidence about the lack of infrastructure development and service provision in South Africa, the research was conducted using the following hypotheses:

##### **1.6.1 First Hypothesis**

The low number of PPP projects is due to inadequate project management skills among government accounting officials and other staff, leading to an inability to conceptualise viable PPP projects.

##### **1.6.2 Second Hypothesis**

PPP projects are considered to be costly owing to government budgetary constraints, which result in inadequate subsidies for PPP projects.

### 1.6.3 Third Hypothesis

The levels of investment in PPP projects depend on the public sector's marketing strategy, and the number of government incentives made available to it.

### 1.6.4 Fourth Hypothesis

The PPP model used for procurement is determined by the type and nature of the proposed project, the expected value-for-money gained and the degree of public interest.

### 1.6.5 Fifth Hypothesis

The degree of transfer of responsibilities determines the success or failure of a PPP project.

### 1.6.6 Sixth Hypothesis

Ineffective risk distribution can lead to huge financial losses and renegotiation of PPP contracts.

### 1.6.7 Seventh Hypothesis

The existing South African PPP policy framework and guidelines are adequate and if properly interpreted and applied, will result in the emergence of more PPP projects and thus a growth in infrastructure development.

### 1.6.8 Eighth Hypothesis

Sustained PPP awareness, training and community education is fundamental to the mainstreaming and success of the PPP sector in South Africa.

### 1.6.9 Ninth Hypothesis

The slow implementation of infrastructure development and the provision of social services in South Africa are due to capacity, finance constraints, resulting from inadequate utilisation of the PPP approach in the procurement, development and management of government projects.

## **1.7 Research Approach**

### 1.7.1 Methodology and Sample Stratum

A case study approach was adopted to examine various performance aspects of operational South African PPP projects. The research was a multi-case study design. Each individual case study consisted of a 'whole' study, in which data were gathered from the selected PPP projects and conclusions drawn from this data. A web-based questionnaire was used to capture the experiences and perceptions of various actors involved directly or indirectly in selected PPP projects.

A case study approach was used, as the unit of analysis was operational South African PPP projects. Each case study involved an in-depth examination of a limited number of PPPs, with the primary data collection, taking place over a limited period of time, between November 2006 and February 2007.

The sample stratum consisted of PPP institutions throughout South Africa. The study was limited to operational South African PPP projects registered in accordance with Treasury Regulations as at December 2005 and other projects that reached financial closure before the Public Finance Management Act of 1999 came into effect.

To implement the study, the researcher engaged in the following activities: identifying respondents; developing a mailing list; designing and developing a research instrument; piloting the questionnaire; uploading the questionnaire to the NMMU website; distributing questionnaires; following up non-respondents, and editing and analysing data.

The performance of operational South African PPP projects was investigated using a case study approach. Case studies are appropriate when 'how' or 'why' questions are asked, or when the investigator has little control over events, or when the focus is on a contemporary phenomenon within a real life context (Yin, 2003).

Furthermore, according to Yin (2003), the case study is preferred when two conditions exist: the events to be studied are contemporary, but the behaviours cannot be manipulated. The operational South African PPP projects were investigated in their own real world setting. A real world setting provides access to actual behaviours, but does not provide laboratory controls over behaviour as can be found in laboratory experiments.

A multi-case study design was employed and a cross-case comparison presented. Each case study was treated as a 'whole' study, following replication logic. The operational PPPs were investigated for performance in different institutions and in separate geographical locations. The cases investigated were selected were indicated as having reached financial closure (National Treasury, 2006).

The selection of the PPPs was based upon three criteria: the stage in the implementation process; the sector, and the potential willingness to participate in the study. The study began after piloting the instrument in November 2006, and ended in February 2007.

The multi-case study design allows for comparative analyses between cases, and provides tactics to address issues of validity and reliability. As recommended by Yin (2003), validity was addressed by employing multiple sources of evidence to corroborate findings. A theoretical framework was used to identify significant aspects of the case, as well as define boundaries for data collection.

Data collection was achieved using the following research methods: interviews; questionnaires, and document analysis. Interviews were conducted with several individuals who had direct responsibility for the operational activities of the PPP implementation. A self-administered questionnaire, comprising questions directly related to the categories of relevant data, was used to collect data. The primary sources of documentation reviewed included: reports; manuals, and internal documentation.

Reliability was addressed through replication. The same case study protocol was used and followed the analytical framework defined by theoretical propositions and corresponding categories of data. The propositions and categories of relevant data are presented in the findings.

A case study approach was used, because the emphasis was on an in-depth study of the PPP projects in the sample area. The study investigated registered South African PPP projects within various public institutions in their natural settings.

The case studies were selected using non-probabilistic methods. The sectors addressed included:

- Power generation, transmission, distribution, and renewable energy;
- Transport infrastructure, sector-roads, bridges, ports, airports, and rail transport systems;
- Telecommunications sector-wireless networks, and rural telephone systems;
- Water and waste water sector-bulk water supply, water distribution, and sewerage treatment;
- Urban services sector-solid waste management;
- Social infrastructure, sector-health, education, and security;
- Sports and recreation sector, and
- Tourism sector-eco-tourism and nature reserves.

The logic was that whichever case was selected from within any of the listed categories for PPP projects, the findings were likely to apply both nationally and internationally.

Cases were selected from the sample frame obtained from the National Treasury (2005) PPP Unit database. This involved little travel, fewer expenses and was the least difficult when it came to gaining access to the required data, because an accessible website existed. The assumption in the case selection process was that the desired number of case studies, with adequate data, would be available within the target study area.

#### 1.7.2 Selection of Case Studies

The National Treasury PPP Unit database for 2006 contained a comprehensive and updated list of PPP projects. The database was used to select the case studies to be investigated. The unit of analysis was the selected PPP projects' project managers. The projects investigated included:

- N4 Toll Road from Witbank to Maputo;
- N3 Toll Road from Johannesburg to Durban;
- Head Office Accommodation for Department of Trade and Industry (DTI) in Tshwane;
- Morapeng Complex in Johannesburg;
- Soweto Tourism Information Centre;
- Prison contracts in South Africa;
- Fleet management in Northern Cape;
- Inkosi Albert Luthuli Hospital in KwaZulu–Natal;
- Chapman's Peak Drive Toll Road in Western Cape;
- State Vaccine Institute;
- Humansdorp District Hospital in Eastern Cape;
- Universities and Pelonomi Hospitals co-location in Free State;
- Social Grant Payment System in the Department of Social Development in the Free State;
- Water and Sanitation at Ilembe District;
- Queenstown Water Concession;
- Nelspruit Water Concession;
- Umgeni Water Concession, and
- SanPark Tourism Concessions.

## **1.8 Rationale and Significance**

### **1.8.1 Rationale**

Most governments in both developed and developing countries are faced with difficult economic and political choices with regard to the provision of much-needed physical, social and economic infrastructure to their citizens. PPPs provide a mechanism of leveraging much needed finance and skills from the private sector for development. Such partnering principles also provide a major opportunity in improving project performance (Gerard & Robert, 2005).

PPPs are a fairly new concept of procurement in South Africa and to date there has been little serious investigation into such projects. This is despite the fact that significant amounts of money have been invested in such projects and despite the fact that there have been a number of poor performances by certain recent PPP projects. A thorough literature review revealed that there have been no recorded studies of South African PPP projects up to the present time. Hence, the PPP model of investment is a fairly new concept and little research, if any, has been conducted to gain a deeper understanding of the subject area. At the moment, no recorded studies have been conducted in order to establish key principles concerning PPP development and application in South Africa. There has only been isolated research through government institutions such as the National Treasury in South Africa. However, no systematic research has been undertaken to develop theories concerning PPP projects.

There has been a growing public interest in finding alternative solutions to infrastructure development and service delivery through partnerships with the private sector. However, this requires a more scientific approach in order to identify key issues of concern and then in turn to recommend research-based solutions. The investigation of South African PPP projects led to:

- Deeper insights regarding PPPs in practice;
- Recommendations for PPP best practice;
- Recommendations regarding PPP policy, and
- The development of a systemic model for PPP.

### **1.8.2 Significance**

The findings of the study are likely to result in an enhanced understanding of the issues associated with PPP projects in South Africa, which in turn could result in the following:

- Increased implementation of PPP projects;
- Enhanced capacity for service delivery;
- Increased efficiency in the management of PPP projects;

- Accelerated infrastructure development;
- Provision of improved social services;
- Improvement in the quality of infrastructure services;
- Development of a comprehensive database of PPP projects;
- Development of clear guidelines for PPPs;
- Increased funding / finance from the private sector;
- Knowledge transfer to South Africa from neighbouring, African and developing countries;
- Contributions to the related body of knowledge;
- Enhanced value-for-money for PPPs, and
- Generation of more business opportunities for South African businesses.

## **1.9 Limitations and Assumptions**

### **1.9.1 Limitations of the Study**

- The investigation only covered operational limited case studies;
- Existing data, more especially archived data was not easily accessible;
- Due to the level of PPP development in South Africa, responses were only possible from PPP and non-PPP actors representing operational PPPs;
- The PPP model of procurement is a fairly new concept in South Africa thus limiting the amount and variety of data that was available, and
- The study covered only non-monetary aspects of PPPs.

The factors that determine whether a project delivers value-for-money varies by type of project and by sector. A study carried out in the by the UK Department of Environment (2000) indicated that value-for-money assessment comprised of two key elements:

- Monetary comparison, and
- Non-monetary comparison.

Monetary comparison represents a comparison of the cost of the preferred PPP tender with the cost of traditional public sector procurement and expressed in terms of discounted cash flows, over the life of the contract. Non-monetary comparison involves all the factors that are difficult to quantify in monetary terms, but which are considered valuable to the state and to the general public. Some examples of non-monetary comparisons include:



- Speed of service delivery;
- Quality of service;
- Reliability;
- Risk transfer;
- Duration of contracts;
- Competition, and
- Private sector management skills.

#### 1.9.2 Assumptions of the Study

- PPP projects are undertaken in South Africa and Africa;
- Data would easily be available, and
- Response rates would be high.

#### 1.10 Delimitation of the Study

The research was conducted in South Africa, the southernmost country in Africa. It is bordered on the north by Namibia, Botswana, Zimbabwe, Mozambique, and Swaziland. On the east and southern coasts it is bordered by the Indian Ocean and on the west by the Atlantic Ocean.

#### 1.11 References and Appendices

An alphabetical list of references has been provided. The references are in accordance with the Harvard referencing convention.

## **CHAPTER 2**

### **2. REVIEW OF RELATED LITERATURE**

#### **2.1 Introduction**

This chapter contains a comprehensive review of the literature pertaining to PPPs. The literature was obtained from various sources in the field of construction management. There is a focus on the broad theme of physical infrastructure development that uses PPPs as a vehicle for investment and method for service delivery. A summary of the review is provided at the end of the chapter. This chapter contains a review of related literature regarding:

- PPP concepts;
- The need for accelerated infrastructure development;
- Constitutional, legislative, and institutional frameworks;
- The development of a PPP;
- Experiences of international and local PPPs;
- Funding and support of PPP programmes;
- Traditional procurement systems and standard forms of contract;
- The future and sustainability of PPPs, and
- Recent trends in PPP investments in developing countries.

The study was a wide-ranging case study of PPP projects in developed and developing countries, with specific focus on the development of a PPP model of procurement, in a South African context. Emerging and operational PPP projects were also reviewed to provide more insights. The review covered the historical context of PPPs and the successes realized for various projects in different countries that used PPP techniques. It looked at how the PPP has been used as an investment vehicle and a method for providing public services that were traditionally provided by the public sector and which governments were now unable to fund from constrained capital resources.

The review of related literature was based on the case study approach Mouton (2000). This was done in order to focus and conduct an in-depth study of selected projects. The following categories of literature were accessed during the survey of the literature:

- Scholarly journals;
- Conference papers;
- Textbooks;

- Government documents;
- Theses and dissertations, and
- Magazines.

PPP literature falls into three broad categories: engineering practitioner material, academic literature, and government policy documents (Grimsey & Lewis, 2004).

The Internet was also used as a means to access online sources, but not as a source in itself, because of the unreliability of the information posted on it. However, when a source posted on the Internet included authentic author details, this material was cited in order to report on recent developments relevant to PPPs and in the context of the wider world. Appropriate acknowledgement of sources has been done through a comprehensive reference list provided at the end of the thesis.

## **2.2 Public Private Partnerships (PPPs) in Infrastructure**

### **2.2.1 Overview**

Partnership projects bring public and private parties together for long-term mutual benefit. Partnerships focus on ensuring improved services to the community through the provision of better infrastructure. According to a recent study in Greece, PPPs should not only be about financing of capital investments, but should include technology transfer and a broad range of private sector expertise (Roumboutsos, 2007).

### **2.2.2 What is a PPP?**

According to the Organization for Economic Cooperation and Development (OECD), PPPs refer to any form of agreement or partnership between public and private parties (OECD, 2000). They should not be confused with privatisation, where the management and the ownership of infrastructure are transferred to the private sector.

A PPP can also be described as collaboration between public and private sectors, in order to provide significant public infrastructure, or other facilities and services. However, risk allocation is ceded to the party, either government or private sector, which is best able to manage it. PPPs are a critical aspect of a nation's innovation and strategy system (Link, 2006). Figure 1 presents a generic structure for PPPs.

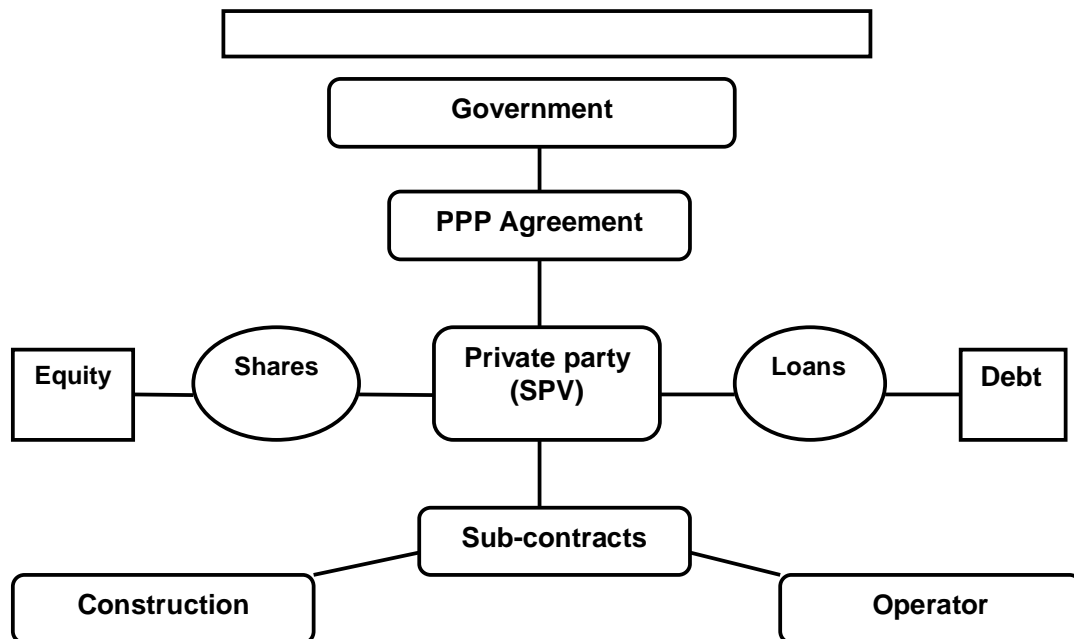


Figure 1: Generic Structure for PPPs

Source: South African National Treasury

PPPs bring together public and private sector institutions on the one hand and development agencies such as the New Partnership For Africa's Development (NEPAD), OECD, United States Agency for International Development (USAID), on the other hand. All parties, including society in general, share the success of a PPP partnership project. Table 2 presents the main types of private sector participation in infrastructure development.

A PPP provides opportunities for development corporations to harness private enterprise as a means towards economic and social development of their host countries. A PPP ideally integrates the public sector, the private sectors and all community stakeholders. In this way they can all benefit by pooling their resources and sharing responsibilities. This is done in order to develop and implement a project that is technically sound, financially viable, environmentally acceptable and affordable to all users.

Certain elements common to PPP parties are:

- The belief that a partnership will be more effective than a stand alone approach;
- A joint definition of the problem and a shared solution;
- The commitment of resources by all partners, and
- Shared risks and rewards.

A wide range of approaches for involving the private sector in improving the performance of various infrastructure systems exists. Some options keep the operations and ownership in public hands, but involve the private sector in the design and construction of the infrastructure. Other options involve private actors in the management, operation and / or the financing of assets. Osborne (2000) explores some theoretical and policy issues concerning PPP options. PPPs involve different degrees of private and public sector responsibilities for service delivery. The photo below represents a model of the largest PPP project ever to be undertaken in Africa. The Gautrain PPP project reached financial closure in May, 2006 and the first parts of the system are scheduled for completion in June 2010, in readiness for the World Cup 2010 (National Treasury, 2006).



Figure 2: Gautrain Model Photo

Source: National Treasury, 2006, South Africa.

Table 2: Main types of PPPs and their use

<b>Design &amp; Construction</b>	<b>Financing</b>	<b>Operation &amp; Maintenance</b>	<b>Customer Relationship</b>	<b>Ownership Of assets</b>	<b>Usual name</b>	<b>Duration (years)</b>	<b>Type of payment</b>
Private	Public	Public	Public	Public	D & B contracts	-	Fixed price
Public	Public	Private	Public	Public	O & M contracts	5 - 10	Lump sum or cost plus
Public	Public	Private	Private	Public	Leasing contracts	10-20	User charges
Private	Public	Private	Public	Public	DB & O contracts	15-20	Performance based
Private	Private	Public	Public	Public	DB & F contracts	15	Annuities
Private	Private	Private	Public	Public	BOT or DBFO contracts without commercial risks	20-30	Performance based
Private	Private	Private	Private	Public	Concessions with commercial risks	30-50 Up to 80	User charges Shadow tolls
Private	Private	Private	Public	Private (temporary)	BOOT & BOO	20-30	Performance based
Public / Private	Public / Private	Private	Private	Public / Private	Concession of specialized facilities	15-25	User charges
Public / Private	Public / Private	Public / Private	Public / Private	Public / Private	Joint-venture	Perpetuity	User charges
Private	Private	Private	Private	Private (temporary)	BOOT with commercial risks. Privatization.	20-30 Perpetuity	User charges

Source: Gruber (2003) and OECD Secretariat (2003)

However, in all the various options, the public authority remains responsible for overseeing the development processes and ultimately ensuring that public needs are met (Thomson, 2005). Governments have the final say with regards to the setting up and enforcing of performance standards. Some of the infrastructure and services, which are subject to PPPs, are critical to the growth of an economy. This means that strong regulatory roles and mechanisms need to be put in place in order to ensure that performance standards are met and that the interests of the public are safeguarded. The subject of PPP options is dealt with in greater detail in subsequent sections of the thesis.

### 2.2.3 Brief History of PPPs

PPPs in sectors such as water management have existed for more than a century in some countries. The private sector has long provided goods and services to the public sector (Webb & Pulle, 2002). PPPs, though relatively new in South Africa, have a long history dating back to the time of concessions which were used in the nineteenth century to finance infrastructure such as railways and highways in Europe, America, Asia, and Africa.

One of the best-known infrastructure projects in terms of waterworks is the Suez Canal, which according to Hamilton (1996), was a financial success until it was nationalized in the mid-1950s. Unfortunately, during the same period, many other large infrastructure projects failed elsewhere in the world, resulting in huge financial losses.

Toll roads were established in the United States, where between 1789 and 1900 there were more than 2 000 private corporations operating turnpikes in Pennsylvania, New York, Ohio, Michigan and elsewhere, because of the government's inability to provide adequate highways.

Italy opened the world's first modern tolled motorway between Milan and the Lakes in 1924. The first modern motorways in France and Italy were constructed in the 1950s and 1960s.

Spain embarked on its motorway program in the mid-1960s as the national budget was considered inadequate to meet the demands of a booming tourist industry. The solution adopted was to use the private sector financing. The new Spanish motorway companies were all private entities, although they were subjected to a high degree of state monitoring and control.

The energy crisis of the 1970s led to the collapse of most PPP companies in Italy, Spain, and France. In France, the state had to intervene and take over some of the companies and assimilate them into the public system of infrastructure.

A similar development in Spain in 1983 led to the collapse of three companies representing about 15% of the motorway sector. Changed economic conditions saw the reverse process in the

1980s. Today, PPP projects in Italy and Spain are profitable, with some of them traded and quoted on the local stock exchanges.

#### 2.2.4 Rationale for PPPs

Most governments in both developed and developing countries are faced with difficult economic and political choices with regard to the provision of much-needed physical, social and economic infrastructure to their citizens. PPPs provide a mechanism of leveraging much needed finance and skills from the private sector for development.

#### 2.2.5 Benefits of PPPs

The development of PPPs is part of a general worldwide trend towards increased private sector participation and the structured integration of private sector investment into public infrastructure development (Harris, 2003).

There are a number of benefits associated with PPPs. These include:

- Value-for-money;
- Potential for delivery, particularly suitable for large scale projects;
- Gains from innovation, due to the creativity of the private sector;
- PPPs provide a platform for sector-wide cooperation;
- Financing from the private sector;
- PPPs do not affect government responsibility;
- Capacity building and creation of synergy;
- PPPs can increase the volume of business;
- PPPs attain high efficiency and quality;
- PPPs promote 'competitiveness and fair competition';
- Better risk allocation;
- Whole-of-life costing;
- Innovation, and
- Greater asset utilisation.

PPPs operate at the boundary of the public and private sectors, being neither nationalized nor privatised. Thus, politically, they represent a third way in which governments may deliver certain public services.



All stakeholders should be considered when assessing the potential contribution of PPPs towards social and economic development. These include the following:

- National government institutions;
- Local government departments;
- Local private sectors;
- International donor and lending agencies;
- (Inter) national commercial lenders;
- (Inter) national project investors;
- Project end-users, and
- Trade unions.

PPPs are often considered a 'solution for all problems' by some government institutions. This is a mistaken belief. There must be a sound balance between project finance, risk-taking, and additional cost recovery. PPPs are not for free. Somebody has to pay - either governments or end-users (Anderson, 2003).

The underlying rationale for PPPs is that they may offer value-for-money. According to the, National Treasury (2002) amended regulations, 'value-for-money' means that the use of an institution, or of state property by a private party, in terms of the PPP agreement, results in 'a net benefit' to the institution in terms of cost, price, quality, quantity, risk transfer, or a combination thereof.

The forms that value-for-money can take include:

- Lower construction costs;
- Lower operating costs, and
- Greater efficiency gains.

PPPs often involve a private sector partner, providing a 'bundle' of services, such as the design and construction of a road. Bundling differs from traditional contracting out of services, whereby separate contracts are drawn up to provide value-for-money that cannot be obtained by contracting out services separately. The integration of design, operation and maintenance over the life of an asset, within a single-project finance package, improves performance and reduces whole-of-life costs (OECD, 2000).

## 2.2.6 Advantages and Disadvantages of PPPs

### 2.2.6.1 Advantages

- PPPs are more effective than a standalone approach;
- Collective definition of a problem and a shared solution;
- Commitment of resources by all partners, and
- Shared risks and rewards.

#### 2.2.6.2 Disadvantages

- PPPs have high capital costs;
- Mostly financed with debts over long periods;
- Long pay-back periods;
- Require secure revenue streams, and
- Sensitive to level of risk.

#### 2.2.7 Models of PPPs in Infrastructure Development

In PPPs, the public and private sectors join forces to design, finance, build, manage or maintain infrastructure projects. According to Thomson (2005) and Savas (2000) such partnerships can take many forms, depending upon the exact allocation of risks and responsibilities. These include:

##### 2.2.7.1 Service contracts

The private sector provides a package of specific services to a public institution, but the public sector retains the overall operational responsibility. Service contracts can in practice, take many forms, but two of the most common ones are:

- *Management support.* The private operator supplies the public institution with human and technical resources for a fee. It provides logistical, operational, and financial support for the institution, and
- *Operation and management (O&M).* The private operator is in charge of the daily maintenance of the facilities. It is paid for its services by the public authority according to specific and qualified performance criteria. Unlike management support, the private operator may in some cases take on the responsibility for operating the facilities.

##### 2.2.7.2 Delegated management contracts

In this type of contract, the public sector retains overall ownership of the assets, but delegates the responsibility for the operation of the assets to a private operator, for a definite period of time. Two common models are:

- *Lease agreement.* The private operator manages the facilities for a period usually between 5 and 15 years, and is responsible for maintaining and reviewing the facilities according to the terms of the contract. In this capacity, it takes charge of all personnel and existing assets, but is not responsible for financing new facilities. The public authority remains responsible for all new investment and compliance to existing norms. The private sector operator invoices the end-users directly, and
- *Concession.* The public authority fully entrusts the private operator with the management of services and all necessary investment for a period of 20 years or more. The private operator invoices the end-users directly, with the public authority retaining strict control over service terms, as well as all key decisions related to applicable rates and targets.

#### 2.2.7.3 Construction support.

This is the most wide-ranging form of PPP contract, where the private operator is involved in the design and construction phases of new infrastructure, and carries at least some of the associated risks. Some of the most common forms of construction support have been:

- *Lease Build Operate (LBO):* A private firm is given a long-term lease to develop and operate an expanded facility using its own funds. It recovers its investment, plus a reasonable return over the term of lease and pays a rental fee. The facility remains publicly owned, therefore this arrangement avoids the possible legal problems associated with the private ownership of a facility that was originally publicly financed. The largest public private airport partnership in the USA is that of Stewart Airport, a huge underdeveloped facility located eighty-five miles north of New York City. It is being leased by the state to a British Company for a period of ninety-nine years;
- *Design Build Operate (DBO):* The public authority entrusts the private sector with the design, construction and operation of new facilities, for a fixed period of time, however, they remain the property of the public authority. The private operator takes responsibility for the risks linked to the design and management of the facility. It is paid a fee by the public authority and commits to an overall cost for the facility's construction and operation;
- *Build Transfer Operate (BTO):* A private developer designs, finances, and builds the infrastructure. Once completed, legal ownership is transferred to the sponsoring government agency. The agency then leases the facility back to the developer under a long-term lease. During this time the developer operates the facility and has the opportunity to recover his investment, and earn a reasonable return from user charges and commercial activities;
- *Build Operate Transfer (BOT):* A private developer is awarded a franchise in the form of a concession, to finance, build, own, and operate a facility. Hence, this is sometimes

referred to as build, own, operate, and transfer. The developer collects the user fees for a specified period, after which ownership of the facility reverts back to the public sector. This arrangement is similar to BTO, but may encounter legal, regulatory, and liability issues during the long period of private ownership before the transfer. Nevertheless, this is perhaps the most common form of PPP for building new infrastructure. In contrast to a sale or permanent concession, government retains strategic control over the project;

- *Built Own Operate (BOO)*: A private developer finances, builds, owns, and operates a facility in perpetuity under a franchise, but is subject to regulatory constraints on pricing and operations. The long-term property rights provide a significant financial incentive for capital investment in the facility. Some examples of this model are the private toll roads in Virginia and California; the toll road in China connecting Hong Kong and Macao with Guangzhou; the new terminal at New York's JFK Airport; and the 'Chunnel' under the English Channel. Numerous power projects and ports in the Philippines and Indonesia, are also under public partnerships;
- *Buy Build Operate (BBO)*: An existing public facility is sold to a private partner who renovates or expands it and operates it in perpetuity under a franchise. This is equivalent to divesting a company, which then operates under a franchise. As in the other franchise models, during the negotiations prior to the sale, the public owner can use the franchise agreement to exercise public control over pricing, access, noise, safety, quality and future capacity and expansion;
- *Wraparound Addition (WA)*: A private developer finances and constructs an addition to an existing public facility and then operates the combined facility either for a fixed period, or until costs are recovered and a reasonable return on the invested capital is realized. The developer may own the addition. The objective of this arrangement is to expand the facility, despite the government's lack of resources or expertise, and
- *Rehabilitate Operate Transfer (ROT)*: A private sector developer finances, rehabilitates, maintains and operates a facility for a given period of time, before transferring the facility back to the public entity at no cost. An example of this is the North Luzon Toll Way project in the Philippines.

Thomson (2005) presents the following as possible modes of entry for private sector participation in infrastructure development:

- *Joint ventures*: The public and private sectors jointly finance, own and operate a project to provide infrastructure. Risks and responsibilities are shared according to the division of ownership between the investors and depending on any contractual agreements between or among partners;
- *Greenfield projects*: These involve new projects, usually built and operated by a private operator, which takes on the commercial risk. Political and exchange rate risk can sometimes be shared with the public sector. Such projects can take many forms, but the

most common are BOT and BOO. Others include Built-Own-Operate-Transfer (BOOT), Design-Build-Finance-Operate (DBFO), and Built-Lease-Transfer (BLT), and

- Divestiture or asset sale: State assets are privatised either through public offerings of shares, or through the direct sale of the assets themselves. The state retains responsibilities as the regulator and sometimes as the customer. It might subsidize certain activities, which are socially desirable, but unprofitable for a private company to undertake, such as the provision of services to the poorest segments of society, or to remote regions. Forms of private participation, where the state entirely dissociates itself from a utility, cannot be properly described as PPPs.

These models and their variants can be used to develop new infrastructure, to rehabilitate or expand existing infrastructure, or to improve the performance of existing infrastructure.

## 2.2.8 Current Infrastructure and the Need for Accelerated Development in South Africa

### 2.2.8.1 Background

The need for infrastructure development and accelerated service delivery are clearly articulated in the ANC (1994) policy framework, as articulated in the White Paper (Republic of South Africa, 1994) The policy document provides clear guidelines on priority areas of reconstruction and development so as to address core issues relating to the imbalances of development.

Infrastructure development and service delivery in South Africa is critical for the following reasons:

- It is a catalyst for economic growth;
- It creates an enabling environment for investment;
- It creates employment opportunities;
- It promotes industrial development, and
- It provides much needed social services.

The apartheid era saw selective and discriminative development of infrastructure, limited to certain geographical areas of the old South Africa. Many townships and informal settlements were neglected, because the needs of industry and areas allocated exclusively to whites were the government's priority. The huge gap, due to the historical past, demands corrective action in terms of new, appropriate, and better infrastructure development.

### 2.2.8.2 The White Paper of 1994

The White Paper (Republic of South Africa, 1994) set out clear policy guidelines on the importance of meeting basic needs and building infrastructure in South Africa. This paper saw

the birth of the Reconstruction and Redevelopment Programme (RDP). The RDP was based on the notion that reconstruction and development was part of an integrated process. The programme broadly addressed major issues such as:

- Reconstruction;
- Redistribution, and
- Reconciliation.

According to the policy paper, the infrastructure programme was aimed at providing access to modern and effective services such as:

- Electricity;
- Water;
- Telecommunications;
- Transport;
- Health;
- Education;
- Training, and
- Housing.

The broad area of this study is in infrastructure development and service delivery, but focused specifically on South African PPP projects.

There is an urgent need to develop infrastructure and provide social services, especially in the former homelands and other disadvantaged rural areas with the aim of eradicating poverty, through:

- The elimination of social backlogs in access roads, schools, clinics, water and sanitation;
- The leveraging of economic growth through access roads and improving the road, rail and air networks in the country, and
- The promotion of labour-intensive and community-based construction methods for job creation.

#### *2.2.8.3 Overview of ANC Policy on Infrastructure*

Since 1994, the ANC (2002) has formulated policies to provide an integrated, holistic approach to infrastructure development and service delivery. One of the major tasks undertaken during this period was the carrying out of a survey to determine infrastructure and service delivery needs in

South Africa. The survey investigated the conditions of South Africa's social and physical infrastructure, the maintenance thereof, and an assessment of future needs. The study also addressed issues concerning implementation agencies and the role of different partners in development. The findings indicated that there was a backlog of infrastructure development, worth about R170 billion, across all sectors. Though efforts have been made to reduce the backlog, a lot of work still needs to be done.

### 2.2.9 Housing

South Africa has a rapidly increasing and urbanising society and a large housing backlog, due to very low rates of formal housing provision.

Table 3: Projected monthly household income distribution

No.	Income Category (R)	%	Population (millions)
1	0 - 800	39.7	3.30
2	>800 ≤ 1 500	29.0	2.41
3	>1 500 ≤2 500	11.8	0.98
4	>2 500 ≤ 3 500	5.6	0.46
5	> 3 500	13.9	1.15

*Data Source:* New Housing Policy and Strategy for South Africa (1994)

## 2.3 Perceptions of South Africans Regarding Service Delivery

### 2.3.1 Introduction

According to Khosa (2000), there have been significant achievements in service delivery in South Africa. In 1998, a national survey targeting 2 200 adults was conducted during the months of February and December. The results of the survey were compared with the situation as it was in 1994, at the dawn of the new era of democracy. The data from these surveys provided an overall perspective of service delivery at the national level. It also attempted to provide an assessment of the perceptions of South Africans regarding the change in infrastructure service delivery since 1994. The results of the various sectors were as follows:

#### 2.3.1.1 Running Water

Table 4 depicts the perceptions of South Africans relative to the delivery of running water.

Table 4: Delivery of running water

Perception	February 1998 (%)	December 1998 (%)
Improvement	25.0	35.0
Same	48.0	50.0
Worsened	24.0	14.0

Uncertain	2.0	1.0
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*Data Source:* Empowerment through Service Delivery (2000)

During the survey of December 1998, 35% of South Africans generally felt that the provision of running water had improved in their areas compared to 14% who felt that this had worsened since 1994. There was a 10% increase for those who perceived that there was an improvement between February 1998 to December 1998. These figures suggest that the delivery had been extended to a substantial proportion of the population during the period February and December 1998. During the same period, the number of people who had indicated a decline in the delivery of running water reduced by 10%.

This survey confirms the data obtained from Mandela (1999), which indicates that in 1994, 30% of all South Africans lacked access to a safe supply of running water, whereas by February 1999, only 20% lacked access to safe running water.

#### 2.3.1.2 Electricity

Table 5 depicts the perceptions of South Africans relative to the delivery of electricity.

Table 5: Electricity delivery

Perception	February 1998 (%)	December 1998 (%)
Improvement	35.0	41.0
Same	42.0	41.0
Worsened	22.0	16.0
Uncertain	1.0	1.0

*Data Source:* Empowerment through Service Delivery, 2000.

More people perceived that there had been an improvement rather than a deterioration in the provision of electricity in their areas. The number of respondents that indicated a decline in the service delivery of electricity reduced by 6% in absolute terms between February and December 1998.

#### 2.3.1.3 Housing

Table 6 depicts the perceptions of South Africans relative to the delivery of housing.

Table 6: Housing delivery

Perception	February 1998 (%)	December 1998 (%)
Improvement	12.0	22.0
Same	50.0	38.0
Worsened	35.0	35.0
Uncertain	4.0	6.0

*Data Source:* Empowerment through Service Delivery, 2000.



Data collected from the February and December 1998 surveys indicates that the percentage of people who perceived that there was an improvement in access to affordable housing increased by 10% in absolute terms between February and December 1998.

#### 2.3.1.4 Healthcare

Table 7 depicts the perceptions of South Africans relative to the delivery of healthcare.

Table 7: Healthcare delivery

Perception	February 1998 (%)	December 1998 (%)
Improvement	27.0	36.0
Same	43.0	32.0
Worsened	28.0	30.0
Uncertain	2.0	2.0

*Data Source:* Empowerment through Service Delivery, 2000.

The survey indicates that the percentage of people who perceived that the provision of healthcare services had improved rose by 9% between February 1998 and December 1998. 32% indicated the situation had remained the same, representing a decrease of 11% in absolute terms. Those who felt the situation had worsened increased from 28% to 30%.

#### 2.3.1.4 Roads and Drainage

Table 8 depicts the perceptions of South Africans relative to the delivery of roads and drainage.

Table 8: Roads and drainage

Perception	February 1998 (%)	December 1998 (%)
Improvement	22.0	26.0
Same	42.0	38.0
Worsened	31.0	35.0
Uncertain	4.0	1.0

*Data Source:* Empowerment through Service Delivery, 2000.

Significant numbers of respondents believed there had been a deterioration in the provision of roads and street drainage. The December 1998 HSRC survey revealed that about 26% of South Africans indicated that they perceived an improvement in the provision of tarred roads and street drainage in their areas, compared with more than 35% in absolute terms who felt the situation had worsened. The percentage of people who indicated that they perceived an improvement increased marginally from 22% in February 1998, to 26% in December 1998. The study also revealed a marginal increase from 31% in February to 35% in December, for those who perceived the situation had worsened.

#### 2.3.1.5 Waterborne Sewerage

Table 9 depicts the perceptions of South Africans relative to the delivery of waterborne sewerage.

Table 9: Delivery of waterborne sewerage

<b>Perception</b>	<b>February 1998 (%)</b>	<b>December 1998 (%)</b>
Improvement	14.0	22.0
Same	51.0	53.0
Worsened	29.0	21.0
Uncertain	6.0	5.0

*Data Source:* Empowerment through Service Delivery, 2000.

When comparing the February 1998 and December 1998 data sets, the proportion of those indicating improvement of waterborne sewerage delivery increased from 14% to 22%, while those indicating the situation had worsened dropped from 29% to 21%.

#### 2.3.1.6 Public Transport

Table 10 depicts the perceptions of South Africans relative to the delivery of public transport.

Table 10: Delivery of public transport

<b>Perception</b>	<b>February 1998 (%)</b>	<b>December 1998 (%)</b>
Improvement	29.0	33.0
Same	46.0	36.0
Worsened	20.0	23.0
Uncertain	5.0	7.0

*Data Source:* Empowerment through Service Delivery, 2000.

The results of the study indicated that 33% perceived that public transport had improved, as compared to 29% in February 1998.

#### 2.3.1.7 Waste Removal

Table 11 depicts the perceptions of South Africans relative to the delivery of waste removal.

Table 11: Delivery of waste removal

<b>Perception</b>	<b>February 1998 (%)</b>	<b>December 1998 (%)</b>
Improvement	19.0	27.0
Same	50.0	45.0
Worsened	24.0	23.0
Uncertain	7.0	5.0

*Data Source:* Empowerment through Service Delivery, 2000.

Data from the December 1998 HSRC survey revealed that 21% of the people felt there had been a significant improvement in waste collection. 1% of the people perceived the situation had worsened between February 1998 and December 1998 – a small decrease.

### 2.3.1.8 Telephone services

Table 12 depicts the perceptions of South Africans relative to the delivery of telephones.

Table 12: Delivery of telephones

Perception	February 1998 (%)	December 1998 (%)
Improvement	21.0	21.0
Same	53.0	44.0
Worsened	22.0	32.0
Uncertain	3.0	2.0

*Data Source:* Empowerment through Service Delivery, 2000.

The survey further revealed that 21% of the people indicated a perceived improvement in the delivery of local police services. There were proportionally more people dissatisfied with the provision of local police services in December 1998 than in February 1998.

## 2.4 Constitutional, Legislative and Institutional Frameworks

### 2.4.1 Introduction

According to Farrington (2000), over the past 5 years the debate relating to PPPs has focused on:

- The potential contribution of various forms of PPPs to sustain social / economic progress;
- The need to create PPP knowledge and facilities within various government organizations;
- The possibility of identifying promising PPP structures and opportunities;
- The requirements for implementing PPP structures;
- The possibility of extending PPPs to smaller, regional and poverty-focused projects, and
- The management of expectations concerning PPPs.

However, Ramaema (1997) cited the following reasons for seeking the involvement of the private sector in the delivery of public services. It would result in the:

- Injection of technical / managerial expertise into the sector, and transfer of technological innovations;
- Improvement in the economic efficiency of the sector, in terms of both operating, performance and use of capital investment;

- Injection of large-scale investment capital into the sector, or the creation of access to private capital markets;
- Reduction in the level of public subsidies to the sector, and / or the reduction of these subsidies from the groups currently served to the poor and those not currently served;
- Distancing of the public sector from short-term political intervention in the operation of a 'utility' and a reduction of opportunities for intervention by powerful vested interests;
- Public sector that is more responsive to consumer needs and preferences, and
- Supplementing capacity, currently not available in the public sector.

Building modern infrastructure for any country requires all sectors of the economy to play a key role. Governments should not presume that either the private or the public sector could deliver projects more efficiently or effectively than the other. Governments, more especially in developing countries, have to develop suitable investment models to realize their infrastructure development objectives. These models involve partnerships between the public and private sectors, under which decisions can be made on merit and outcomes are based on public benefits obtained. According to a research initiative in the USA, a framework has been developed that measures the effectiveness of PPPs both at programme and project levels (Garvin, 2007).

Prior to a decision to commit to major infrastructure projects, the government authority will normally prepare a full cost benefit analysis and business plan for the potential project. This will include taking full account of the value of public land that is being committed to the project. The evaluation of infrastructure proposals will also receive independent verification of financing arrangements and a full assessment of risk.

Where there is private sector involvement in major public infrastructure projects, contractors will be chosen through a rigorous and transparent system of public tendering. The public interest in any infrastructure development must be fully protected by ensuring that work is awarded to private contractors through a public tender process, under which there are clear and enforceable performance arrangements. This requires public release of tender specifications and disclosure of financial risks accepted by the state.

Governments normally allow for community inputs into infrastructure development through appropriate planning mechanisms. In all infrastructure developments, the government will protect the public interest through strong third party rights, fair appeals processes, effective conflict resolution, and transparency.

PPPs are focused on creating partnerships between the government and private businesses, in which improved value-for-money is achieved by utilising the innovation capabilities and skills of both parties. This is done in order to deliver performance improvements and efficiency savings. PPP policies, where they exist, provide high-level frameworks. Perez (2004) reviews current

trends in transport partnerships and provides detailed case studies of three recent partnership projects: the M1 / M15 Motorway in Western Hungary, the Vasco da Gama Bridge in Lisbon, and the Bangkok Mass Transit System in the capital of Thailand.

## **2.5 Key Issues in Decision-making**

As mentioned earlier, PPPs refer to the collaboration between public and private entities to realize public projects and objectives. These are arranged so that tasks, responsibilities and risks are optimally allocated among the partners. Over the last 20 years, PPPs have been increasingly recognized as a viable option for realizing development objectives. The United Nations (UN) and the World Bank are increasingly working with private sector organizations, including for-profit companies, corporations, business organizations and private foundations (Bull & McNeill, 2006). The International Journal of Public Private Partnerships (2006) provides more insights into PPP issues. Articles authored by leading practitioners, consultants, and academics convey the latest thinking and findings regarding PPP practice and implementation.

The following issues have often been raised:

- PPPs are particularly useful for implementing large-scale projects, primarily based on contractual relations between public and private entities, mostly through design-build-finance and operate / maintain - DBFO or DBFM type contracts;
- PPPs are an instrument for generating private sector creativity, which may contribute to the cost coverage and thus speed up the implementation of various socially desirable projects;
- PPPs are a structure in which public and private entities cooperate, preferably in a separate legal entity, which can be applied in various sectors of the economy, and
- PPPs do not affect public responsibility. Government stays responsible. Under public responsibility, firms are invited to provide services either to government or directly to the public.

When assessing the potential contribution of PPPs to social and economic development, a strategy is needed for the:

- Policy formulation;
- Project preparation, and
- Project implementation.

The relevant stakeholders, who must be consulted include:

- Sponsoring government entity (National);
- Local government;
- Local private sector;
- International donors and lenders;
- (Inter) national commercial lenders;
- (Inter) national project investors;
- End-users, and
- Trade unions.

## 2.6 Policy and Guidelines

Collaborative working and partnering between the public and private sectors has been fairly standard practice, in some form or other, for over 100 years. Countries such as China have promulgated legislation to regulate participation of foreign enterprises in the Chinese construction industry (Lam & Chen, 2004). However, the profile of PPPs has risen comparatively recently (Cartledge, 2006). South African PPP projects are governed by two key Acts, the Public Finance Management Act (PFMA), and the Municipal Finance Management Act (MFMA)..

### 2.6.1 The Public Finance Management Act, 1999 No. 1 of 1999

The South African PPPs' policy was introduced in 1999 and contains details of the framework for establishing partnerships to deliver public infrastructure and related services. The South African National Treasury's PPP Manual is a best practice guide for PPP practitioners. The manual consists of several modules, with each module of the PPP manual being issued as a National Treasury PPP practice note in terms of the PFMA. The manual should be read in conjunction with Standardised PPP provisions, issued as National Treasury PPP Practice, Note Number 01 of 2004.

The PPP Manual and Standardised PPP provisions are the National Treasury's founding PPP guidance documents. Building on these, the National Treasury's PPP Unit has been developing specialised Sectoral Toolkits for PPPs, which will tailor the founding guidance to particular Sectoral conditions, based on cumulative PPP experience in South Africa (National Treasury, 2005).

#### 2.6.1.1 Module 1: South African Regulation of PPPs

This module was issued as National Treasury PPP Practice, Note Number 02 of 2004, regulation 16 of the Public Finance Management Act, 1999 (PFMA) and is the regulation governing PPPs in South Africa. This module takes the user through the components of the regulation and explains

how they apply to the distinct phases of the PPP project cycle, from inception to the management of the PPP agreement.

#### *2.6.1.2 Module 2: Code of Good Practice for BEE in PPPs*

The National Treasury PPP Practice Note, Number 03, of 2004 module, is an exact reproduction of the Code, and is the National Treasury's official framework for black economic empowerment (BEE) in PPPs, which was issued in terms of the Broad-based Black Economic Empowerment Act, (BBBEE Act) (Republic of South Africa, 2003). The Code is relevant in all phases of a PPP. It describes the policy framework, how to apply BEE policy in the typical structure of a PPP and how to apply PPP BEE policy in each phase of the PPP project cycle. The Code includes the PPP BEE Balanced Scorecard.

#### *2.6.1.3 Module 3: PPP Inception*

The National Treasury PPP Practice Note, Number 04, of 2004 module, details the various stages of inception. This involves the institution registering the project with the relevant treasury, the appointment of a project officer, the attracting of a transaction advisor, the receiving and evaluating of transaction advisor bids, and the finalising and signing of the contract with the transaction advisor. The module outlines the procurement steps, which need to be followed and explains how to apply the Code of Good Practice for BEE in PPPs in procuring the transaction advisor.

#### *2.6.1.4 Module 4: PPP Feasibility Study*

This module was issued as National Treasury PPP Practice Note, Number 05, of 2004. The feasibility study is the second phase of the PPP project cycle. The feasibility study is undertaken to help the institution determine whether conventional public sector procurement, or a PPP, is the best choice for the proposed project. The module presents and explains the core concepts of affordability, risk and value-for-money. Users are taken through the following stages of the feasibility study process:

- Needs analysis;
- Options analysis;
- Project due diligence;
- Value assessment;
- Economic valuation;
- Procurement plan, and
- Feasibility study report for Treasury approval.

#### *2.6.1.5 Module 5: PPP Procurement*

This module was issued as National Treasury PPP Practice Note, Number 06, of 2004. It covers the third phase of the PPP project cycle, and it details the procurement processes of a PPP, which include the following stages:

- Pre-qualification;
- Request for proposals (RFPs);
- Best and final offer, where appropriate;
- Negotiations, and
- Financial closure.

The module establishes best practice as it has been developed in National Treasury-regulated PPPs to date. Users are given guidance on how to produce documentation necessary for the three treasury approvals.

#### *2.6.1.6 Module 6: Managing the PPP Agreement*

This module was issued as National Treasury PPP Practice Note, Number 07, of 2004. The fourth phase of the PPP project cycle continues throughout the project term. This module is intended to help the institution to put effective mechanisms in place to manage the implementation of the PPP agreement, once it is signed. It is primarily aimed at the project officer, who is responsible for preparing and implementing the PPP management plan. The module details the key aspects of PPP agreement management, which include:

- The institution's roles and responsibilities;
- The approach to PPP agreement management;
- Partnership management;
- Service delivery management;
- PPP agreement administration, and
- Key challenges and tasks of the PPP management agreement.

#### *2.6.1.7 Module 7: Auditing PPPs*

This module was issued as National Treasury PPP Practice Note, Number 08, of 2004. It describes the powers and functions of the Auditor-General, and the scope of financial, performance, and forensic audits. It explains how this applies to PPPs, particularly in relation to



the management of the PPP agreement. It also outlines the role of the institution's internal audit in PPP projects.

#### 2.6.2 The Municipal Finance Management Act No.56 of 2003

The Municipal Finance Management Act (Republic of South Africa, 2003) took effect on 01 July 2004. It aims to modernise municipalities' budget and financial management practices and maximise their capacity to deliver services. The Act focuses on outputs, outcomes, and measurable objectives, and includes a clear framework for municipal PPPs. This approach is very similar to the emerging unified public procurement approach to PPP in Europe, which has resulted in many positive effects on PPP development (Widen & Olander, 2007).

Municipalities in South Africa face enormous challenges in the delivery of public services and infrastructure (PPP Quarterly, 2004). Despite the considerable achievements of the last 12 years, large backlogs still remain. Correctly structured PPPs are necessary for addressing some of these service delivery needs. The MFMA prescribes that PPPs must provide value-for-money, they must present an appropriate allocation of risks between the contracting parties, and they must be affordable in terms of current and projected budgets. It requires that a PPP regulatory framework be developed and prescribed by the National Treasury. It also requires that municipalities conduct feasibility studies before finalising PPP contracts, and that the National Treasury may assist them to do so. A municipality's accounting officer is specifically required to formally solicit the views and recommendations of the National Treasury, along with other relevant departments, once the feasibility study has been completed.

According to the PPP Quarterly (2004), a Municipal Desk has been created in the National Treasury's PPP Unit to help municipalities to meet the MFMA requirements and to ensure that the National Treasury fulfils its PPP MFMA obligations. The desk is supposed to develop a clear policy framework and provide hands-on technical assistance in preparing feasibility studies and developing procurement and contract management skills, so as to ensure sustainable municipal partnerships. These developments are in conformity with the research objectives of creating a sustainable PPP system in South Africa. Generally, when a PPP policy is being conceived, the following must be addressed:

- Government support of PPPs to enhance levels of funding, or for more efficient project implementation. PPPs are often considered a 'solution for all', whereas the most successful projects are based on a sound balance between project finance, risk-taking and additional cost recovery. PPPs are not for free. Either the government or the end-user must pay, and
- The extent to which legislation and the institutional setting is supportive of PPP implementation, determines government reforms on taxes, foreign investment, economic

ownership and labour regulations. Tables 13, 14 and 15 illustrate various investment incentives, investment promotion agencies (IPAs) and legal and regulatory frameworks in a number of African countries.

Table 13: PPP Investment Incentives

Item	Country	Incentives
1	Egypt	Provides 5-year corporate tax holiday
2	Zambia	Allows duty free imports of raw materials
3	Senegal	Exempts value-added tax on local goods
5	Namibia	Permits write-off of plant, machinery, and equipment in 3 years
6	Ghana	Completely waives customs duties on capital equipment
7	Mauritius	Offers high-level incentives through EPZs
8	Mozambique	Offers high-level incentives through EPZs

*Data source:* African Development Bank (2003)

Table 14: Investment Promotion Agencies (IPAs)

Item	Country	Name of IPA
1	Kenya	Kenya Investment Promotion Centre
2	Mozambique	Mozambique Centre for Investment Promotion
3	Namibia	Namibia Investment Centre
5	Tunisia	Tunisia Foreign investment Promotion Agency
6	Senegal	Senegal National Agency For Investment
7	Nigeria	Nigeria Investment Promotion Commission
8	South Africa	Trade and Investment South Africa (TISA)

*Data source:* African Development Bank (2003)

Table 15: Legal and Regulatory Framework

Item	Country	Name of Investment Promotion Agency
1	Uganda	Investment Code (1991)
2	Ethiopia	Revised 1992 Investment Code
3	Namibia	Foreign Investment Act (1990)
5	Ghana	Investment Promotion Centre Act (1994)
6	Tanzania	New Investment Act 1997
7	Tunisia	Investment Incentives Code (1994)
8	Egypt	Investment Incentives and Guarantees Law (1997)
9	Sudan	Investment Act (1999)

*Data source:* African Development Bank (2003)

- PPP legislation simplifies investment procedures and provides incentives and attractive conditions to foreign investors. The legislation also guarantees the repatriation of profits and dividends, assures legal stability, and prohibits nationalisation and expropriation without compensation;
- The extent to which central and local governments are prepared to reduce their control over the operational stages of the project. PPP implementation requires governments to define the level of detail for project control. Private sector agencies also need to be convinced that governments will honour what is agreed upon in the contract. Ideally, if the government changes policy, then it should pay, but in reality, part of the cost often falls on the private sector;
- The extent to which governments will adjust standard procurement procedures. There must be a well-defined procurement process, where it is made clear under what conditions the government will close a PPP deal;
- Local private sector buying into the concept and preparedness to invest. During the PPP policy stage it may be required actively to promote:
  - Awareness;
  - Understanding, and
  - Skills among local entrepreneurs;
- The international lending institutions and commercial banks involved in developing the policy concepts. Their involvement will reassure the private sector;
- Local consumers and trade unions buying into the concept. Too often these are not included in policy formulation. This causes unnecessary concerns and obstruction as the project moves to the preparation stage. Acceptable estimates of local willingness to pay need to be made;
- Whether the government is likely to develop a sustainable PPP process through, for example, for the development of a PPP core of expertise, culture, and spirit. Setting up a specific PPP taskforce, department, or public enterprise may be considered. These may involve various ministries and possibly private entities;
- The sectors in which PPPs are most likely to occur. The emphasis is on infrastructure and primary services such as motorways, ports, energy, and water. But other services such as universities, hospitals, and education might also be considered, and
- Is standardization an objective in itself? It is often argued that only when a market for PPPs is established do the real benefits emerge for governments and end-users. If so, a long-term view and a concerned flow of projects, investments and effort are required from all stakeholders.

## **2.7 Project Preparation: Turning Abstract Ideas into Projects**

Relevant issues to be considered may include:

- Will the building of a portfolio of projects in each sector increase market interest, strengthen the learning process and stimulate standardization?
- How are projects prioritised? Does the government take the initiative, or is the private sector invited to do so? Experience in developing countries, shows that projects with significant end-user contributions, are the most likely to succeed;
- How, and how far do political perspectives influence the prioritisation of projects? Does this result in the selection of over ambitious, but under-funded projects?
- How adequately are outputs specified? What can be done to improve their specification?
- What are the options for ring-fencing a project? Although the scope of the project is at the core of the government's competence, a more open interaction with international lending institutions and the local private sector will probably add to the project's viability;
- Are the public stakeholders competing or cooperating? All too often, it is the lack of agreement between the various levels of government that delay or obstruct a project, rather than the interaction between public and private sectors;
- To what extent do PPPs require additional measures on cost recovery? PPPs are often considered a cheap source of money for realizing projects. The necessary public budgetary resources, including financial compensation for the risks transferred to the private sector, are often underestimated. What will be the role of user-payments?
- Are the end-users involved in project preparation? PPPs often lead to contractual agreements between government and other institutions. Some of these institutions are large and project preparation often centres on the needs and wishes of a sponsoring government, rather than those of the end-users.

## **2.8 Project Implementation: Getting it done**

The following should be considered at this stage:

- A PPP deal often aims at a long-term commitment between sponsors and the winning consortium. To facilitate contracts as fully as possible, the most important stakeholders should be equipped with the requisite skills. This is often neglected. If stakeholders are in it for the duration, they benefit from each other's professionalism;
- Should the government aim for private participation as soon as possible in the project preparation stage, or to keep things moving quickly, should the government invite private participation only when the broad project outline has been defined?
- Should the government rely on the procurement process, or should it focus on applying such instruments as the Public Sector Comparator (PSC)? Where there is enough competition, it is important to use standard procurement processes, but the quality of consortia needs to be assessed during the pre-qualification stage, to make sure whether they are likely to be reliable partners;

- Should government aim for a complete risk transfer or retain key risk categories? For example, it is frequently argued that traffic risk for toll roads should be transferred to private partners. Equally, the risk transfer has recently led to various bankruptcies and project rescheduling. If government goes this route, will it still have to give certain financial guarantees?
- Should government participate in a project implementation entity? In other words, should the government aim for typical joint ventures, or do contractual arrangements suffice? It is often argued that a true partnership requires the government to participate. On the other hand, government participation may increase risks for both private and public partners.

The continuous growth of PPPs in developed and developing countries means that PPPs are here to stay. However, experience shows the importance of well-balanced implementation. Lawther (2000) provides an in-depth case study of a successful PPP for the Orange County Expressway Authority's experience in toll road operations in Florida, USA. Donor agencies can make a difference in ensuring successful PPP policy making, project preparation and implementation.

## **2.9 Nature of Partnership Projects**

Partnerships entered into under the PPP policy, where it exists, can take a wide variety of forms. Partnerships between the public and private sectors, to fulfil public functions are on the increase at every level of government in the US, with western industrialised nations having almost thirty years experience with public private policy frameworks (Rosenau, 2000). However, PPP projects generally have a number of common features:

- Outputs are clearly defined including measurable performance standards;
- The government only makes payments upon delivery of the specified services, to the required standards;
- A relatively long-term commitment, with the term depending upon the nature of the project;
- One or more private parties, fully accountable to the government for the delivery of the specified services;
- Risk allocation between the parties being clear and enforceable, with consequential financial outcomes;
- Clear articulation of the government's responsibilities with respect to the monitoring of outcomes, and
- Inclusion of mechanisms for delivering ongoing value-for-money services throughout the life of the project.

The clear specification of required outputs, allows bidders to compete in devising creative means of delivering those outputs, with a view to reducing costs. Thus, government will limit detailed specification of inputs, such as the design of infrastructure, or of the means by which outputs are to be generated.

Likewise, the government will be open to solutions by which proponents may derive other additional benefit or revenue from the infrastructure, subject to value-for-money and public interest tests.

### 2.9.1 Objectives

According to the European Commission (2003), and Walzer and Jacobs (1998) a government will develop a PPP under a defined policy framework with the following objectives in mind:

- To maximize the level of infrastructure spending through a responsible use of the resources of both the public and private sectors;
- To ensure that infrastructure and related ancillary services are provided in accordance with best practice, and where appropriate, to relevant international standards;
- To promote growth and creation of employment opportunities;
- To deliver significantly improved services to the community;
- To encourage innovation in the provision of infrastructure and related ancillary services;
- To maximise the social and economic returns from government expenditure;
- To pass on the benefits of PPPs to customers, businesses and end-users;
- To clearly articulate accountabilities for outcomes, and
- To promote industry development, investment, recruitment, skills development, and technology transfer.

### 2.9.2 Principles

Ghobadian, Galleary, O'Regan, and Viney (2004) review several core issues behind the debate on principles governing PPPs. In designing PPPs with the above objectives in mind, the following principles should guide government's approach:

- Projects should focus on the specification of the end result rather than the means of delivery;
- Projects to be delivered within the PPP policy framework must, prior to the formal involvement of the private sectors, have the government's approval;
- The allocation of risk and the commercial framework of the partnership model utilised, should deliver the best outcomes for the government;

- Performance measures should be established to ensure that the quality of services delivered meet the needs of the community and that the outcomes of the project are transparent;
- Private participation is to be subject to competitive tendering processes, consistent with the government's general goods and services procurement policies;
- There should be an emphasis on transparency and disclosure of the processes and outcomes, acknowledging the need to protect commercial confidentiality, where appropriate;
- The conduct of the public sector should always be such that confidence in the probity of the partnership model and the way in which it is implemented, is able to be maintained at all times;
- Standardized approaches should be used wherever possible, to minimize transaction time and cost, and
- Where appropriate, incentives for all parties should be provided to encourage high level performance.

## **2.10 Public Interest**

Governments should be committed to ensuring that each PPP project is assessed against public interest. The assessment should include the impact of the project on:

- Effectiveness: Is the project effective in meeting the government objectives?
- Accountability and transparency: Do the partnership arrangements ensure that the community will be well informed about the obligations of the government and the private sector partner, and that these can be overseen by other independent auditing agencies?
- Affected individuals and communities: Have those affected been able to contribute effectively at the planning stages, and are their rights protected through fair appeals processes and other conflict resolution mechanisms?
- Equity: Are there adequate arrangements to ensure that disadvantaged groups can effectively use the infrastructure?
- Public access: Are there safeguards that ensure ongoing public access to essential infrastructure?
- Consumer rights: Does the project provide sufficient safeguards for consumers, particularly those for whom the government has a high level of duty of care, and / or are most vulnerable population groups?
- Security: Does the project provide assurance that community health and safety will be secured?
- Privacy: Does the project provide adequate protection of users' rights to privacy?

## **2.11 Value-for-money**

PPP policy should be vigorously pursued where it is likely to deliver better value-for-money than traditional delivery methods. A Public Sector Comparator, which estimates the cost of the most efficient form of public sector delivery, should be constructed to test for value-for-money.

PPPs have a real potential to deliver value-for-money where:

- A government need has been defined in measurable output terms;
- The project is structured to optimise risk allocation, in order to generate the incentives for cost-effective, high quality services;
- There is an identifiable market in the form of bidders prepared to compete for the opportunity to undertake the project;
- There is scope for private sector parties to demonstrate particular skills and / or innovative capacity, and
- The project size justifies the transaction costs and ongoing management costs.

While value-for-money varies between projects, partnership terms should be long enough to enable value-for-money savings to be generated, while not being so long that competitive pressures are reduced. In a recent study (Minato & Charoenpornpattana, 2007) argue that a revenue sharing – scheme must be provided in order to safeguard public interest.

## **2.12 Risk Identification, Allocation and Management**

The principle governing risk transfer is that risk will be allocated to whoever is best able to manage it at the lowest cost, taking into account public interest considerations. This does not mean that all risk is transferred. Beck, Hardcastle and Akintoye (2003) show how current risk management methods can help the complex process of managing procurement through partnerships.

The ability to secure risk transfer on worthwhile terms requires the scope of the project to be drawn up in sufficient detail. There will always be a wide variety of risks associated with potential projects, therefore the structure of a PPP project needs to take into account which party is best able to take responsibility for managing such risks. Risks such as:

- Design and construction risk - to cost, quality and time;
- Commissioning and operating risk;
- Service under-performance risk;
- Industrial relations risk;
- Maintenance risk;



- Technology transfer risk;
- Regulation and legal change risk;
- Planning risk;
- Price risk;
- Taxation risk;
- Residual value risk, and
- Demand, or volume / usage risk.

The general principles guiding risk transfer and management are:

- Whoever is allocated risk must have the freedom to choose how to handle and minimize the risk, and
- Materiality must be considered

### **2.13 Market Interest**

No responsible government agency should waste public or private resources on fruitless bidding rounds. Hence, bids should be invited only when it is clear that there is scope for a private proponent to add value.

Therefore, government departments and agencies should ascertain likely market interest. This can be done by various means, including holding preliminary discussions with an appropriate sample of industry practitioners. Pint (2001) reports on the proceedings of a joint USA – UK conference on privatising military installation assets, operations, and services. The papers presented provided an overview of UK privatisation and outsourcing initiatives, and compared UK and US practices.

### **2.14 Support Structures and Accountability**

Government accountability and support structures, such as approval processes, procurement teams and financing mechanisms should be implemented. The issue of funding support programmes is discussed in subsequent sections.

### **2.15 How to Develop a PPP: South African Context**

#### **2.15.1 Introduction**

The following major steps provide a basic generic guideline as to how an institution can approach developing a PPP. However, there may be circumstances where a public entity may decide to develop a PPP project through a different route. In such cases, it is important to ensure that all

interested parties, particularly bidders, are made aware of the variety of possible PPP approaches and that the varied process is clearly communicated and maintained. According to Grimsey and Lewis (2004), the major stages in a PPP contract are:

- Define service need;
- Appraisal;
- Business case;
- Project development;
- Bidding process;
- Project finalization;
- Final negotiation, and
- Contract management.

#### 2.15.2 Project Inception (Service needs)

##### *2.15.2.1 Objectives, Outputs and Outcomes*

The process of developing a potential PPP project flows from a normal consideration of the needs of a department, or agency in delivering the outputs required by government. A department, such as a municipal council, is responsible for delivering particular outputs in pursuit of outcomes required by government to meet the service needs of the community it serves. For example, in the next three years, the South African government plans to provide the necessary infrastructure in land servicing, such as: roads, water, sewers, hospitals and schools, and other social infrastructure in various municipalities and related ancillary services.

The proper identification of outputs necessary for achieving particular outcomes is of fundamental importance (Payne, 1999). In addition, the proper specification of those objectives of the project that will deliver the outputs is also of great importance. Project objectives must be defined in precise terms, which nevertheless are sufficiently broad to accommodate any changes to definitions of service needs, as they may be refined during the development of the project.

##### *2.15.2.2 Focus on Outputs*

Identifying service needs is part of a normal planning process. However, at this stage the potential to deliver through a PPP structure and the benefits that may accrue should be considered. Until recently, municipalities in developing countries formulated and implemented infrastructure and service projects, utilising budgets handed down from higher levels of government (Plummer, 2002). The PPP approach adds value by focusing on outputs only and not on a prescriptive solution, or defined inputs and so allows a bidder to devise innovative solutions.

To achieve this objective, it is advisable to involve people in the analysis who are accustomed to achieving outputs through service contracts. There is also value in involving private sector parties at an early stage, to identify innovative and cost-effective means of providing outputs. For example, an annual business forum that is setting out a department's strategic objectives and infrastructure challenges may generate alternative ways of defining project objectives.

#### *2.15.2.3 Aggregate needs*

With the focus of moving from the procurement of infrastructure to include the procurement of services, options may arise for the packaging of service needs to achieve greater value-for-money in one contract. Hence, there should be consideration of any potential to aggregate service needs that may, for example, be similar to various locations, or differing at one location. This approach also prompts consideration of and planning for, future service needs, and provides a flexible means of expanding, contracting or enhancing service delivery over time.

### **2.16 Feasibility Study**

#### **2.16.1 Option Identification**

The first step is to consider available options for meeting the service needs. The PPP approach has a range of options for delivering requirements, and has some advantages over more traditional delivery methods. However, it does not suit all needs and other options should be properly considered before a preferred delivery mechanism is accepted. Delivery options available include:

- *Existing asset solutions:* Consideration must be taken whether the existing infrastructure that is held by the department or agency, or by another government body, might be used. This may involve an upgrade or refurbishment to elevate the infrastructure to the required standard, and may result in an expense in the form of revenue foregone, if the asset might otherwise be sold;
- *Non-asset solutions:* Service needs may be met without creating additional assets, through reconfiguring the means of service delivery, developing initiatives to manage demand more effectively, or increasing the use of existing assets by extending the hours of operation, and
- *New asset-based solutions:* New infrastructure may be developed. For example, a new school may be required to meet the increased demand due to high student enrolment, or for other reasons PPPs are typically more suited to asset-based projects, including major refurbishments.

### 2.16.2 PPP as an Option

Once a PPP has been identified as the best procurement route and before a detailed analysis of a potential PPP delivery mechanism can be made, the following criteria should be considered, in order to assess the potential for it to deliver value-for-money services:

- *Scale of the project:* PPP policy guidelines should provide threshold values for projects, below which the PPP approach is unlikely to provide value-for-money. Therefore, below a defined threshold, the likely level of transaction and other costs for both the public and the private parties may make it difficult to achieve value-for-money outputs. However, it may be possible to bundle or aggregate a number of related projects to achieve this threshold;
- *Outputs capable of clear specification:* It must be possible to define the required outputs in clear and measurable terms, around which a payment mechanism can be structured;
- *Opportunities for risk transfer:* Allocation of risk to a private party is a primary driver of value-for-money outputs. Where opportunities for risk allocation to the private party are limited, the potential to deliver value-for-money, compared with a publicly owned asset approach is reduced, and
- *Market capability and appetite:* The project must be a potentially viable commercial venture and there must be a certain level of market interest in the project. Assessment of each of these matters may require preliminary market sounding, including discussions with potential bidders, financiers and advisers. In planning such discussions, measures should be taken to ensure that no potential bidder is disadvantaged and that no improper use is made of the intellectual property of others. All market-sounding activities should be documented in records, to be made available to a probity auditor, if a project is implemented.

### 2.16.3 Reporting on Evaluation Options

The next step is to develop a detailed options report covering the most viable delivery options available to meet the identified needs. The purpose of the report is to identify the advantages and disadvantages of each option and to critically examine the risks and benefits to government. This analysis should be consistent with any infrastructure investment and policy guidelines that apply at the time of the evaluation.

The key issues to be addressed in each PPP option should include:

- *Project overview:* It is necessary to define the project objectives and the outputs being sought. There should be a strong alignment between service need, output specifications, project objectives and the strategic plan of the sponsoring department or agency;

- *Financial impacts:* It is important to include in the options analysis a preliminary view on the cash and accounting impacts of each option. For example, an analysis of a public sector delivery option would show the initial capital expenditure, life cycle maintenance and refurbishment costs and the costs of operation. A PPP option analysis would include a well-informed discussion about the potential level of annual charge to the government by the private party. This analysis of financial impacts will provide a preliminary basis for the development of the Public Sector Comparator (PSC) and assist in identifying the reference project for that;
- *Risk analysis:* It is necessary to discuss the risks to the government in relation to each of the options. The discussion should specifically identify the risks that may be passed to a private party. According to Jin and Doloi (2007), appropriate understanding and quantification of risks is key to decision-making by the PPP project managers;
- *Public interest:* There is a need to set out a preliminary view or policy of the impact of each option, from the point of view of the public. A full public interest test is performed when more reliable data is assembled during the construction of a business case;
- *Affordability:* It is important to consider the ability of the sponsoring department, or agency to fund the project, or to gain additional funding through the state budget development process. This requires at least some preliminary consideration of the annual cost to the government of a PPP solution, and
- *Service delivery impacts:* There is a need to discuss the service delivery issues associated with each option, and include any transitional management issues. For example, if a major redevelopment project is being considered along with refurbishment, or an upgrade project, management issues during the capital works should be addressed.

The options analysis should be supported by a recommendation as to which project and delivery option(s) should be pursued. The outputs that would be delivered under the PPP contract may be described at this time. The description should identify the full range of outputs that would be delivered over the period of the contract.

The options analysis is undertaken by a department or agency, which may also seek technical assistance from the treasury in appraising the options. A recent study by Orr and Brown (2006), explains how China is exploring the potential of using PPPs in the provision of affordable housing.

## **2.17 Business Case**

Developing a business case is the key step in the decision-making process. This is where the project is fully scoped and risks and costs are identified to develop a cost-benefit analysis and test the net benefit of the proposal. An analysis of market capability and appetite provides evidence of the potential for the private sector to add value. Assessment of related impacts allows for the implementation of the Public Interest test and the identification of other issues, of which

government should be aware. The business case provides an opportunity for government to form a view on the particular PPP approach, before significant resources are spent on developing the detailed elements of the project.

#### 2.17.1 Function of the Business Case

The main functions of the business case are:

- To scope the project from an output and cost perspective;
- To confirm the contribution of the project to portfolio and government policy objectives;
- To examine the financial impacts of the project to the government;
- To analyse the costs and benefits associated with the project and demonstrate that it has net benefit;
- To develop an overview of the structure of the proposed arrangements;
- To research and consider the likely level of market interest for the project and whether it represents a commercially viable business opportunity, and
- To demonstrate that the public interest is protected.

#### 2.17.2 Content of the Business Case

The development and contents of a business case are drawn significantly from data gathered and work already done. The generic contents are:

- *Project objective:* The objective of the project and its alignment with the department or agency's strategic plan should be re-affirmed. This consists of a review of the project scope in relation to portfolio policy, wider government policy and future strategic direction. The service need is most likely to have been identified through the strategic planning process, so confirmation of project objectives is often a relatively simple task. However, considerable time may have passed since the project was initiated, and social, economic and political conditions may have changed. Therefore it should be reviewed in the wider social and economic context. The objective and scope should be re-examined at each significant milestone throughout the project development process;
- *Outputs to be delivered:* A description of all elements of the service must be provided. The full range of service outputs and support service outputs that may be included in the project can enhance its value-for-money and should be carefully considered. PPP project managers, with sound experience in the delivery of the outputs required, may assist in identifying all the services necessary to produce those outputs;
- *Project structure:* The project structure may not have been developed in detail at this point;

- *Risk analysis:* The business case should identify all material risks associated with the project, specifying the external and project development risks for the government, and the project risks to be allocated to the private party. It should also include any project transition risks, such as the interest rate or planning risks that may be borne by the government until it is allocated to the private party once contracts are in operation. This is a key area of the business case, as optimal risk allocation is a fundamental driver of value-for-money. The business case needs to explain why government is considered better able to manage, or mitigate the risks allocated to it. It should also include at least a preliminary view regarding the cost to government as a result of the risks, which are to be built into the Public Sector Comparator;
- *Indicative costs and preliminary PSC:* A preliminary net cost-analysis of the capital, maintenance, ancillary services and residual value must be conducted. This will determine the likely funding requirements and will form the basis of the PSC used later, to provide a benchmark for assessing bids. Data gathered and cash flows estimated during the construction of a preliminary PSC, will also help to determine whether the project constitutes a commercially viable business opportunity for a private party;
- *Government commitment required:* Details of the extent of necessary government commitment to the project should be set out. This may vary from full financial and contractual support, to government taking only the role of facilitator or regulator;
- *Cost-benefit analysis:* A full cost-benefit analysis of the potential project should be prepared before making a decision to commit to a major infrastructure project;
- *Market capability and appetite:* The government requires reliable data to determine whether to offer a project to the market as a PPP project, or to deliver it by traditional means. This decision, which is based on practical grounds, necessitates an examination of the following issues:
  - Whether private parties have the capability to deliver the project, and
  - Whether they have the appetite, or motivation, to do so;
- *Proposed performance measurement and payment mechanisms:* There needs to be an outline of outputs to be purchased and the key performance indicators, which will measure performance;
- *Stakeholders:* It is necessary to identify key stakeholders, including other government departments, third parties and the general public. A consultation plan should be included;
- *Employment and local content impacts:* The business case must include an analysis of any relevant employment-related issues and should advise how the PPP policy should be implemented;
- *Public interest:* It is important to test the proposed project against the public interest. This will ensure that public interest issues are properly documented for consideration in the project approval process;
- *Site issues:* Where a physical site is involved, the business case should indicate whether the government intends to specify a preferred site, nominate a definite site, for example

where a service is required by a given local community, or to leave the question of location open to the bidders;

- *Environmental and planning impacts:* There should be an analysis of the impacts on the environment. This should include any potential constraints, management of planning issues and any specific impacts on development, in the area surrounding the preferred or available sites, and
- *Project timetable and resourcing:* An indicative project timetable should show each of the key stages in the process and the estimated time that service delivery should commence. Resources required to deliver a project should also be included.

The business case is prepared and submitted in order to obtain a government endorsement of the project and for funding approval.

## 2.18 Procurement

Following endorsement and funding approval, the project should be further developed, which requires the assembling of resources and the development of project structures, in preparation for making the project available to bidders in the formal market.

### 2.18.1 Assembling Resources – The Project Team

While some resources will have been devoted to developing the business case, a full team is not assembled until the government has endorsed the proposal. Once government approval is achieved, a procurement team is needed to develop and deliver the project. A generic project management structure is as shown in Figure 3.

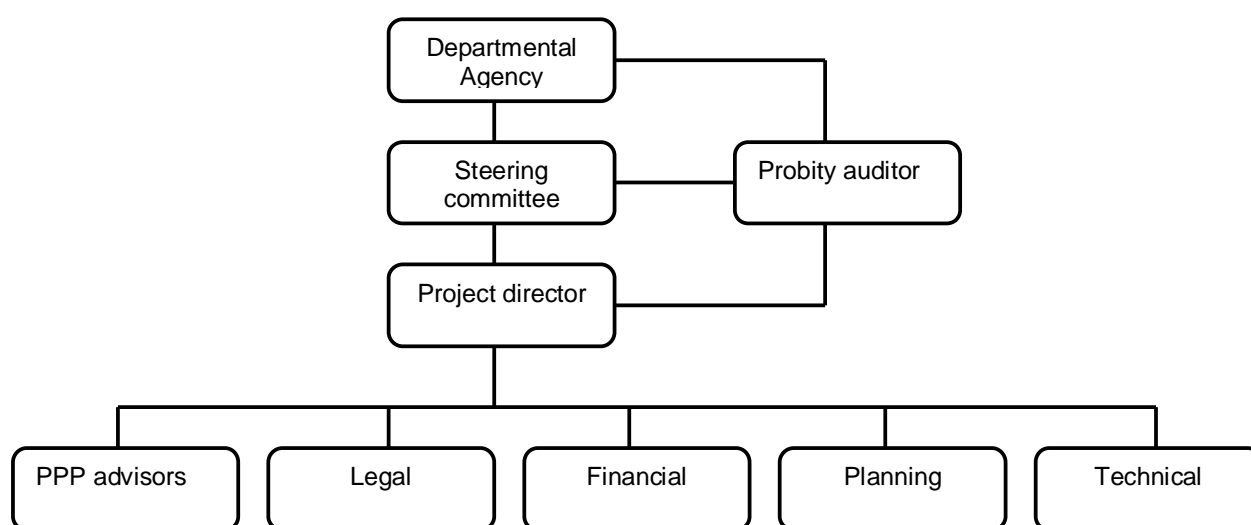


Figure 3: PPP Project Management Structure



The specialist expertise required for the project includes:

- Financial;
- Technical;
- Operational, and
- Legal skills.

The exact skills and experience required vary with the type of project. Internal resources may fill some specialist roles, depending on the availability of the relevant skills and experience within the department, or agency. However, these may be outsourced, including legal and other skills that may also be required. The project director remains responsible for delivering all critical elements of the project.

The specialist roles to be filled include:

- *Steering committee:* This committee is established to direct the development of the project and deal with key issues, including the content of key documentation and the selection of the preferred bidder. The composition of this steering committee is chosen at the discretion of the department or agency. However, the department may consult the National Treasury to contribute knowledge to the handling of commercial, financial and process issues for PPP projects, and to facilitate government approvals. All PPP projects must be developed according to current government objectives and knowledge of the economic environment and social context;
- *Project director:* The role of the project director is critical to the success of the project. This should be a full-time dedicated role, with the overall responsibility for the delivery of the project and management of all members of the procurement team, including external advisers and consultants. The skills of the individual should include project management, well developed commercial skills that are applicable to developing and negotiating contractual arrangements, and knowledge of government processes;
- *Probity auditor:* Bid management demands the use of best practice principles, particularly in government, as the use of public funds should be open to the scrutiny of citizens and parliament. A probity auditor is therefore expected to ensure that a transparent and robust process is followed;
- *Procurement team:*
  - *Business and contract management.* It is critical that the project development phase is completed with considerable input from the senior management of the department, or agency and from other government experts;
  - *Legal.* PPP arrangements involve complex contractual arrangements between government and private providers. For this reason, it is important that the procurement team includes legal expertise. The advisers should have proven experience and a demonstrated track record with PPP projects. The legal

advisers play a key role in: developing the risk allocation matrix; preparing a contract for release with the project brief; structuring the project; analysing departures from the project brief; contracting; and documenting the final contractual requirements;

- *Financial.* The procurement team is likely to require the support from a financial and commercial adviser, to assist with the development of the PSC, the proposed commercial arrangements, risk allocation, bid evaluation, and contract negotiations. The adviser will also be expected to provide continuing advice on likely market support for the project and to consult with industry parties as necessary. The person appointed should have a demonstrated track record in working with government on projects of a similar nature;
- *Planning.* A planning adviser may be required if a preferred site for development has been acquired or identified. An early appointment may help to identify planning policies and other controls that may apply to the infrastructure proposal, as well as any council planning permits that will be required;
- *Technical.* The procurement team will inevitably require technical specialists, due to the need for various kinds of infrastructure development. The skills required depend upon the nature of the project and are likely to include at least design, construction, quantity surveying, and engineering skills. Where other technology is involved, specialist experts may also be included in the team, and
- *Other specialist advice.* Depending on the nature of the project, specialist advice may be needed in areas such as industrial relations and communications.

### 2.18.2 The Project Plan

One of the key initial tasks for the procurement team is to develop a detailed project plan and timetable. This plan needs to take into account all key steps in the process, including consultation, market testing, and the government approval process. Each project requires separate consideration of the timetable appropriate to the transaction. The success of any project requires good upfront planning and working to the plan.

### 2.18.3 Public Sector Comparator

The PSC is developed to a preliminary stage in the business case phase. It is then developed in detail in the project development phase and should be finalised prior to release of the project brief.

The PSC plays a key role in the PPP process and sufficient resources should be allocated to its development to ensure a quality analysis of cash flows and risks. The PSC is the quantitative benchmark against which the value-for-money delivered by private bids is compared.

#### 2.18.4 Consultation Process

It is useful to include private sector consultation during the project development phase. Key advisers, associations, or specific organizations may be contacted to address prime issues such as checking the availability of certain sets of skills in the industry, or organizing a forum of interested parties to provide public input on certain issues.

#### 2.18.5 Bidding Process

This stage involves developing the bid documents, formally engaging the market and identifying preferred bidders. Within this stage, government approval is required before issuing an invitation for expression of interest (Eoi) and issuing of the project brief. Key tasks include:

- Preparing Eoi invitations;
- Seeking approval to issue Eoi;
- Evaluating responses and developing a shortlist;
- Developing a project brief and contract;
- Seeking an approval to issue a project brief;
- Conducting a clarification of sessions, and
- Evaluating bids.

#### 2.18.6 PPP Agreements

There are various formats of contractual documents associated with each project. The contract is a comprehensive document, which clearly defines the obligations and rights of the various parties to the contract.

The structure of PPP contracts differ substantially from standard procurement contracts, because it is not a traditional product supplier / buyer relationship. Under PPP contracts, the parties allocate risks between them and work together in an ongoing relationship, to meet project objectives and are usually more complex than a standard procurement contract.

#### 2.18.7 Contract Management

The construction and implementation phases, when the private party is making its major investment, are critical to the success of the project. While the bidding process is very important, it is the conversion of the contract into the delivery of outputs that is essential to meeting the overall project objectives. Contract management requires particular skills, which need to be

procured before the contract is executed. Timing is important, as both the public and the government are anticipating the delivery of service outputs from the new infrastructure.

## **2.19 PPP Funding and Programmes of Support**

### **2.19.1 Introduction**

Investing in a country's physical infrastructure can contribute to economic growth, improve human welfare and has considerable potential for directly reducing poverty. Yet current investment in the poorer developing countries, whether sourced internally or externally, is insufficient to fund infrastructure needs, leaving hundreds of millions without access to basic services.

Although it appears that in most developing countries the public sector will remain the major provider of infrastructure services, for the foreseeable future. However, an increasing number of these countries are now considering other ways of attracting increased private sector investment. However, the implication of such a change is inhibiting the development of the PPP concept. Even where such private investment is forthcoming, it tends to be biased towards the better-off areas for attraction of increased private sector investment in infrastructure. Public finance has funded most of the infrastructure procured in the UK and several other countries in the last fifty years. The use of private finance instead of public finance is only justified if it provides a more cost effective solution (Smith, 1995).

### **2.19.2 Sources of Project Finance**

Project finance is often provided by a lender in the form of one or more of the following:

- Commercial bank;
- Pension fund;
- Insurance company;
- Institutional investors;
- Large corporations;
- Investment banks;
- Developers;
- Utility subsidiaries;
- Vendors, and
- Contractors.

According to Smith (1995), the Euro Tunnel project consisted of both debt and equity in the ratio of 80:20, which was raised from commercial banks, contractors and public investors.

### 2.19.3 PPP Project Finance

#### 2.19.3.1 Definition

Project finance may be defined as the financing of a particular project on the basis of the projected cash flows and revenue streams of the project. These operate as the source of funds for repayment of the loan (Smith, 1995).

Project finance provides no recourse and if project funds are insufficient to cover debt service, lenders have no claim against the owner beyond the assets of the project. The project is supposed to be self-funding and self-liquidating in terms of financing.

#### 2.19.3.2 Types of PPP Finance

The loan structure of a PPP finance package may be in the form of debt arising from loans and debentures, and, or equity finance:

- *Debt Finance:* The conditions of loan finance depend on the criteria of the lender and the risk level of the project under consideration. The main features that normally have to be agreed upon are the repayment method, the interest rate and the security, and
- *Equity Finance:* This is usually an injection of risk capital into a company, project or venture. Providers of equity are compensated with dividends from profits, if the company or venture is successful, but no returns if the venture is loss making. Equity investors are often committed to the success of a project. Providers of equity fall into two categories, those with an interest in the project, namely contractors, vendors, and operators, and pure equity investors in the form of shareholders. Sources of equity include:
  - Public share issue;
  - Financial institutions such as pension funds;
  - Companies and individuals;
  - Contractors;
  - Suppliers;
  - Operators;
  - Vendors and Government, and
  - International agencies such as the IFC, or European Investment Bank.

### 2.19.4 PPP Investment Constraints

According to Anderson (2003), major constraints to PPP investment in poorer developing countries include:

- An inappropriate enabling environment;
- High up-front costs of project development;
- A shortage of long-term debt, both in hard and local currencies;
- High and uninsurable country risks;
- The need for subsidies if many projects targeted on the poor are to be financially viable at the outset i.e. affordable, and
- The need to strengthen public capacity to negotiate and implement private infrastructure projects.

Allen (2001) identifies the following issues as being impediments to PPP development:

- High bidding cost;
- Refinancing;
- Value-for-money;
- Design;
- Contractual relationships, and
- Concession agreements.

## **2.20 Programmes Designed to Overcome PPP Development**

The Department for International Development (DFID), in partnership with other like-minded donors, has taken the lead in tackling the above issues through various programmes of support (DFID, 2002).

### **2.20.1 Public Private Infrastructure Advisory Facility (PPIAF)**

PPIAF is a multi-donour facility that works with governments of developing countries at central and municipal levels, to improve the enabling environment for private sector involvement in infrastructure services. PPIAF currently has 14 contributing donors and undertakes a broad range of activities, including the development of legislation and regulatory systems, sector reform strategies, training of regulators and assistance with facilitating transactions. DFID has committed £15.3 million to PPIAF, for the period 2003 to 2006.

### **2.20.2. Public Private Partnership for the Urban Environment (PPPUE)**

In 1994, the United Nations Development Programme (UNDP) initiated the PPPUE. This facility provides technical assistance and advisory support for the establishment of partnerships between government, business and civil society organizations, at the municipal level, for the delivery of basic infrastructure services to the urban poor. DFID has committed £3.15 million to this facility.

### 2.20.3 Global Partnership of Output-Based Aid (GPOBA)

If the poor are to receive infrastructure services, and service providers are to receive economic rates for the services provided, it will often be appropriate for services to be subsidized, at least in the early years. Such subsidies should be transparent and accountable. There are many advantages to providing such subsidies at the point of delivery, rather than as a subsidy at the point of supply end. To address these issues, the World Bank, together with DFID support, is implementing a programme to develop, demonstrate and disseminate output-based approaches, so as to support the sustainable delivery of basic infrastructure services. In order to facilitate the scaling-up of the approaches developed, the GPOBA has recently been expanded to include a 'Challenge Fund', which is open for applications on a competitive basis, for the funding of specific subsidy programmes. This will enable private sector suppliers to provide infrastructure services to the poor.

### 2.20.4 Community-Led Infrastructure Financing Facility (CLIFF)

Launched in 2000, CLIFF is a facility providing loans, guarantees, bridge finance and technical assistance, to encourage and support private sector investment in community-led urban regeneration projects. In India, Homeless International is implementing CLIFF under the Cities Alliance programme, initially as a development and demonstration pilot project. DFID has contributed £6.8 million to the pilot programme. The Swedish International Development Agency (SIDA) has provided the country with in-support, and the United States Agency for International Development (USAID) has made available their International Guarantees Programme (IGP).

### 2.20.5 Slum Upgrading facility (SUF)

Urban poverty in developing countries is increasing at an alarming rate. Municipalities, particularly in small and medium towns, are ill-equipped to meet growing infrastructure service and housing needs. There is an urgent need for both private sector and donor grant support for these needs. The SUF, which is managed by UN-Habitat, was designed to help municipalities deliver financially viable infrastructure services and housing projects. They could then access support for these projects from both the public and private sectors. DFID and SIDA have jointly agreed to partner UN-Habitat in developing the facility, by providing US\$0.9 million each for the design phase. They have both agreed in principle, to provide US\$10 million each, through the Cities Alliance, towards developing and piloting SUF, with a view to the establishment of a more substantial longer-term facility.

### 2.20.6 Private Infrastructure Development Group (PIDG)

Switzerland, Sweden and The Netherlands have collaborated in establishing PIDG. The aim of the group is to facilitate and support the mobilization of private sector investment, and engagement in the provision of infrastructure and basic services that support growth and the elimination of poverty. The first project funded through the PIDG Trust, was the Emerging Africa Infrastructure Fund (EAIF) and it was launched in January 2002. . DFID has committed £0.388 million towards the operation of the PIDG for the period 2003 to 2006. This was in addition to support committed to individual programmes funded through the PIDG.

## **2.21 Public Private Partnerships: Global Synthesis**

### **2.21.1 Overview**

This section contains the results of a literature survey and a synthesis of a comprehensive database of infrastructure projects, from around the world that were financed, or delivered through some form of PPP model.

The data used for this study emanated from projects that involved the construction, or development of roads, bridges, tunnels, railroads, airports, seaports, water / wastewater facilities, and buildings. The data concerning these projects was derived from various sources, such as the 2004 International Public Works Financing Projects database, published by Public Works Financing. The publication lists almost 2 100 public use infrastructure projects from around the world. These have been proposed or developed over the past 20 years, using private financing, or delivery as part of a PPP. These financing houses are:

- The Asian Development Bank (ADB);
- The African Development Bank (AfDB);
- European Investment Bank (EIB), and
- The World Bank.

This review lists the principle types of PPP project and their contracting approaches that are used by different regions and countries around the world. The case studies examined are some of the PPP projects planned and / or implemented in developed and developing countries over the last twenty years. These explore some of the key issues raised by PPPs in various sectors including:

- Energy;
- Transport;
- Housing;
- Health;
- Schools;
- Sports;



- Telecommunications;
- Water, and
- Sanitation.

The results provide a valuable reference tool for those interested in developing PPP projects. They demonstrate what other nations have done, or are doing, in the field of PPP development. Table 16 indicates the costs involved with PPP projects that have been planned and funded worldwide between 1985 and 2000.

Table 16: Planned and Funded PPP Projects by Geographical Area.

Geographical Area	Projects		Cost	
	No.	%	US\$B	%
North America	396	18.9	93	10.3
Latin America	474	22.6	125	13.8
Europe	371	17.7	216	23.8
Africa and Mid-East	125	6.0	40	4.4
Asia and Far East	732	34.9	433	47.7
Worldwide	2 098	100.0	907	100.0

*Data source: KPMG LLP, Canadian Forum on Public Procurement, 2001.*

The table shows that PPPs are widely used all over the world, with over 30% of the PPP projects located in Asia and the far East and a mere 6% in Africa.

Table 17: Planned and Funded PPP Projects by Sector.

Sector	Projects	Cost	
	No.	US\$ B	%
Roads and Rail	699	443	33.3
Airports and Sea Ports	280	103	13.4
Water and Wastewater	422	58	20.1
Power	697	303	33.2
Total	2098	907	100.0

*Data source: KPMG LLP, Canadian Forum on Public Procurement, 2001.*

The statistics presented in Table 17 indicate that over 46% of the world's PPP projects were relative to with the transportation sector, compared to 33% relative to the power sector, and 20% relative to the water sector.

## 2.21.2 PPPs in North America

### 2.21.2.1 *Canada*

In Canada, after a lengthy developmental period, in which a variety of obstacles slowed the progress of PPPs, as a form of alternative public sector asset procurement, the situation improved. By mid-March 2005, financial closure was reached on hospital PPPs in the province of British Columbia and Ontario. To date, the majority of projects under PPP consideration are primarily focused on transportation and health care. Geographically, Alberta, Ontario, and British Columbia have been strong proponents of PPP procurement. British Columbia has established 'Partnerships BC', which is similar to 'Partnerships UK', in order to assist with the evaluation of potential projects, including whether or not PPPs offer value-for-money to taxpayers.

## 2.21.3 PPP in Europe

There has been a marked increase in cooperation between public and private sectors within the European Union (EU) with regards to the development and operation of public infrastructure (European Commission, 2003). Such PPP arrangements have been driven by national budgetary constraints, the need for value-for-money, operational efficiencies and greater monetary discipline in infrastructure development. The following overview provides a picture of PPP experiences within a selection of EU countries (Gaurav & Craig, 2005).

### 2.21.3.1 . *United Kingdom*

The British Government launched its PPP development policy in 1992, under the 'Private Finance Initiative'. Since then, the technique has been applied systematically to virtually every area of significant government capital spending in the UK. 'Partnerships UK' was established in 2000, to promote PPP / PFI initiatives. The UK continues to be at the centre of global PPP development (Gaurav & Craig, 2005). Other countries have also adopted the UK's PPP methodologies, with local variations. Commonwealth countries such as Australia and Canada have developed a local framework by drawing on the experiences of PPP in the UK.

### 2.21.3.2 *Bulgaria*

Bulgaria has established a national infrastructure plan that focuses on concession contracts and involves integrating the national railway infrastructure of Bulgaria into the EU inter-modal transport. The Sofia Water and Wastewater Concession Project is the major municipal infrastructure concession in Bulgaria and one of the first water concessions to be financed on a limited recourse basis in Eastern Europe, through a special purpose vehicle. International Water

is the majority shareholder and private sector operator. This 15-year project reached financial closure in the year 2000.

#### 2.21.3.3 Croatia

The Croatian Government has initiated a policy that favours the use of BOT schemes for transport, energy, and water projects. Three of these major schemes are: the Istrian Toll Road, the Lukovo Sugarje power project, and the wastewater treatment plant for Zagreb. New legislation has been designed to facilitate concessions.

#### 2.21.3.4 Czech Republic

After extensive policy consultations, the Czech Republic has established PPP Centrum, a task force to support the public sector. The new PPP Act will amend the current procurement legal framework and will help to facilitate the PPP process.

#### 2.21.3.5 Slovakia

Joint ventures have taken place between public institutions and private parties in the energy, telecommunications, water, and wastewater treatment sectors, mainly as a result of privatisation. The Slovakian government has conducted a feasibility study for its PPP programme, which identified eight motorway sections for possible PPPs. The study has recommended the use of the DBFO model to procure roads.

#### 2.21.3.6 Finland

The Helsinki-Lahti motorway conceived in 1995 and began in 1997, is the first and largest PPP in Finland, involving equity from the UK, Sweden and other local entities.

#### 2.21.3.7 France

France has a long-established tradition of public-private cooperation, using the concession structure. The Prado-carrenage tunnel in Marseille was toll-financed. Three major road projects have been launched under PPPs since 2000: the Millau Viaduct, A19 and A20, cross border projects such as the Perpignon-Figueras high speed link and the Lyon-Turin high speed link. New legislation was introduced for PPP-type projects in France, to promote and support an increase in private sector funding of infrastructure projects (Alexandre *et al.*, 2005). Some degree of political resistance still remains against the PPP concept in general. Therefore, it could take some time before a large demand for PPP transactions emerges.

#### 2.21.3.8 Germany

Germany has no formal PPP programme, although in the past it has involved private sector contractors in road projects such as the Warnow Tunnel in Rostock. Some of the project involved risk transfer to the private sector under a concession framework. A BOT law has been passed in Germany, but specific taxation issues complicate the procurement process. The country is experiencing some problems with its Toll Collect Project, which introduced a national system for truck tolling. According to Standard and Poors (2005), the system is not providing the revenues as expected, due to evasion and people not paying.

#### 2.21.3.9 Greece

Projects completed include Spata Airport and the Athens ring road. The government launched a PPP programme in 2000, as well as a central PPP Unit. Nevertheless, some legal issues still need to be resolved.

#### 2.21.3.10 Hungary

Some transport projects have been developed through the implementation of PPPs, *inter alia*, the M5 BOT project. However, other transport projects have not been realized, or have been transferred to the National Highway Agency, for example the M1 highway. In December 2004, the M6 project, a €470 million concession-based PPP motorway, linking Budapest with the southern part of the country, reached financial closure. There is no government authority specifically assigned to deal with PPPs. However, the government has recently passed a bill allowing the state company that is in charge of road maintenance and toll charging, to act as a public agency for construction contracts for motorways.

#### 2.21.3.11 Ireland

In 1998, a pilot PPP road programme, including three roads and a light rail system, was initiated. The M4 PPP Toll Motorway Project agreement, which was signed in March 2003, is part of a group of 11 projects to be finished during the 2004-2007 period. Toll bridges, government offices and prisons have been designed, built, financed and operated by the private sector. There is a strong commitment to the formal PPP programme. A clear legislative framework is in place, a dedicated PPP unit has been set up and central committees facilitate PPPs.

#### 2.21.3.12 Italy

The Merloni Bill of 1994 and 1998 set the framework for using private sector contractors and later a special PPP task force, UFP, was created and its powers reinforced in 2001. There have been

projects in the water and power sectors, in particular, which involve the private sector on a concession-style basis. However, new PPP projects are discouraged, perhaps due to the administrative complexity associated with the civil code.

Private participation in the financing of public infrastructure projects has been used in Italy for some time now, but the overhaul of the legal framework for PPPs in Italy in 2002 has prompted further development of PPPs. Key development areas are still the traditional road and rail infrastructure. There has been much financing of health care projects and other assets such as parking lots and sporting complexes.

#### *2.21.3.13 Netherlands*

Kennis-centrum PPPs were set up in 1999 and a major pilot project, in the form of a high-speed railway line was started. Subsequent projects include road, railway, harbour, and water projects. The Delfland waste-water treatment plant project was signed in October 2002. Since then, only a few other PPPs have followed. The slow progress has been a result of the critical political environment and lengthy discussions about value-for-money (Gaurav & Craig, 2005).

#### *2.21.3.14 Poland*

The A4 Katowice-Krakow is the first toll highway in Poland. The government is anxious to facilitate PPPs, and two bridges were identified as PPP projects. The legal, accounting and taxation systems of Poland hinder the implementation of PPPs.

#### *2.21.3.15 Portugal*

The Portuguese government passed a PPP Law in August 2003, aimed primarily at ensuring better coordination of PPPs. Portugal started a road programme of 17 concessions in the form of shadow toll roads 10 years ago, which was its first initiative of private financing in public infrastructure. Under the SCUT programme, three toll roads have reached financial closure and one syndicated. Around a dozen other road projects are being implemented, six of which involve shadow tolls. Motorways, railways and museums involving PPPs are also under consideration, although union resistance and constraints on issuing of project bonds hinder implementation. However, there are plans to shift from the shadow toll programme to User-Paid-Tolls (Standard & Poors, 2004).

#### *2.21.3.16 Romania*

Concession-based financing techniques are favoured in Romania. In 2000, the French utility company Vivendi was awarded a 25-year concession to provide water and pipeline rehabilitation

services to Bucharest. This was in the form of a new treatment system and modernizing the existing water system. Commercialisation of road maintenance activities are being investigated and PPPs are being promoted for infrastructure development as part of Romania's preparation for accession to the EU.

#### *2.21.3.17 Slovenia*

An EBRD-assisted PPP is investigating private investment in the maintenance of the national road network. Development of a private finance concession-based highway maintenance scheme is a planned pilot project for PPPs.

#### *2.21.3.18 Spain*

PPPs have a long history in Spain, mainly in the toll road sector. New concession legislation was introduced in 2003, which allows for the delivery of a broader type of public-infrastructure service through PPPs. The government has a road programme using the shadow toll structure. Private sector involvement is being sought in three new railway lines and other initiatives. PPP projects are also planned in the health and waste management sector. However, the legal framework is not supportive, and there is no law to cover concessions.

#### *2.21.3.19 Scotland*

The three former water authorities: East of Scotland Water; West of Scotland Water and North of Scotland Water merged in 2002 to form the Scottish Water Authority (SWA). The three water authorities used PPPs and PFIs to finance their large-scale investment projects. The water authorities entered into contracts worth more than £600 million. Scotland has developed a Private Finance Unit, which acts as a one-stop source of advice and data on PPPs. The PPP unit also publishes regular updates on progress and issues related to PPP projects in Scotland.

#### *2.21.4 PPPs in Australia*

Australian PPPs are progressing well. The birthplace of PPPs in Australia was the state of Victoria, which closely followed both variants of the UK model for PPPs. Thus far, A\$9 billion worth of PPPs have been contracted. The states of Victoria and New South Wales lead the way. Sound PPP legislation has been developed for the state of Victoria, which could be a model for other states.

### 2.21.5 PPPs in Asia

According to the Indo-German Export Promotion Project (IGEP), in 2002 a joint trade promotion programme of the Indian and German Governments entered its second phase of PPP development.

By 2002, there were 236 projects in 60 countries worldwide. Asia tops the list with 74 projects, followed by 58 in Africa, 43 in Latin America, 41 in Eastern Europe and the Balkans, and 20 in the rest of the world. The Asian PPP departments had spent more than €68 million on all these projects. Table 18 presents an overview of some of the projects undertaken in Asia and is followed by a brief profile of the projects listed.

Table 18: Examples of PPP projects in Asia

Project Name	Sector	Country	Duration (Years)	Value (US\$m)	PPP type
North Luzon Toll way	Transport(Roads)	Philippines	25	371	ROT
Kelanitissa Power	Energy (Hydro)	Sri Lanka	20	57	BOOT
Chengdu Water Supply	Water	China		107.6	BOT
Colombo Port Development	Transport (Ports)	Colombo		175.0	BOT
Grameen Telecommunications	Communications	Bangladesh	11	163	
Phu My	Energy(Gas)	Viet Nam	20	480	BOT
Tsinghua Water	Water (Integrated)			20	
Central UP Gas	Energy	India		68	
GMS NAM THEUN 2	Energy	LAO		1 450	
Roshan Cellular	Communications	Afghanistan		35	

*Data Source:* Asian Development Bank

#### 2.21.5.1 Sri Lanka - Colombo Port Development Project

The Colombo Port Expansion Project is Sri Lanka's first transport initiative packaged under a BOT scheme. This project was designed to establish Colombo as a premier transshipment port in Asia, with the capacity to handle one million twenty-foot equivalent units (TEU) by the second half of 2003, from an initial capacity of only 285 000 TEU. This is a critical project given the tremendous rise in trade volumes from Asia, to Europe and the United States. More importantly, it lends support to the growing export industry of Sri Lanka, which generated roughly US\$4.1 billion in revenues in 2001.

Situated along the main shipping highway between Europe and Southeast Asia, Colombo Port is one of the few deep-sea ports on the Indian sub-continent, and is Sri Lanka's largest and one of South Asia's most active. In 1996, Colombo Port ranked twenty-sixth in the world, in terms of container traffic. Being the only transshipment port in South Asia, it derives much of its transshipments cargo from the Indian subcontinent, with volumes increasing rapidly despite the presence of more efficient alternative hub ports like Singapore and Dubai.

The Colombo Port Expansion Project marked the first investment of the Asian Development Bank (ADB) in a private sector infrastructure project. The investment is in line with the ADB's country development strategy for Sri Lanka, which is to promote economic growth and reduce poverty by way of policy and institutional reforms that would, among other intentions, encourage private sector participation, particularly in vital infrastructure projects.

At the outset, the ADB had identified the need for credit guarantees to mobilize commercial financing. Thus, in addition to its direct investment, ADB committed itself to playing the role of catalyst, by way of attracting other international investors and assisting in the structuring of the transaction.

The port expansion project is expected to result in a windfall of benefits not only for Sri Lanka, but also for the entire South Asia region. Foremost is the expected increase in jobs and economic activity in Sri Lanka, as well as additional substantial revenues for the government to spend on social services. For importers and exporters in the entire region, the improved port facilities will result in the reduction of overall transport and logistics costs, as timely and more reliable operations are achieved. Overall, the economy of the entire Indian sub-continent will benefit from expanded and improved transshipment services.

#### *2.21.5.2 Sri Lanka - Kelanitissa Power Project*

The Kelanitissa Power Project was conceived in the face of sluggish economic growth arising from widespread power shortages due to prolonged drought and an overstretched power generation system. The new plant, which is diesel-powered, will reduce the power sector's heavy reliance on hydropower, which is dependent on Sri Lanka's seasonal rainfall. When completed, it will be Sri-Lanka's largest power plant funded by the private sector.

To help finance the required capital for the project, the ADB extended a US\$26 million loan without government guarantee, as well as US \$31 million in political risk guarantees. Packaged as a BOT scheme and bid out on a least-cost generation basis, the power project was awarded to a joint venture of the AES Corporation, a global independent power developer, and Hayleys Limited, a diversified Sri Lankan conglomerate. The joint venture company will construct and operate the plant for twenty years, after which it will hand over its ownership to the government.



The project is a direct offshoot of a power reform programme initiated by the Sri Lankan government to attract private investments in energy generation through BOT and BOOT schemes. The reform allows private developers to build and operate new thermal and mini-hydro power plants, as government maintains control over large hydro plants. Under the programme, the generation, transmission and distribution functions of the government in the energy sector, were decentralized and an independent regulatory agency was formed to oversee the power sector's activities.

Besides increasing power supply through private sector participation, the reform will help eliminate operating inefficiencies in the sector, thereby resulting in lower costs and more reliable services for the consumer. The scheme will also help free up government funds that can then be used to fund basic social services.

Sri Lanka's energy demand is forecast to grow at an average of 7-8% per year between 2001 and 2014. Presently, less than 60% of the population has access to electricity. The project was projected to help increase accessibility to 80% by 2005.

#### *2.21.5.3 Philippines - North Luzon Toll way Project*

The upgrading of the Philippines North Luzon Expressway into a modern toll way system marks a significant phase in the country's national road development programme. The project will be the country's first expressway to be rehabilitated, operated, and maintained by the private sector.

The expressway links Metro Manila, the national capital, to the central and northern provinces of Luzon, the country's largest island. As such, it is one of the Philippines's main road arteries. Expansion and improvement of the road to world standards, is a means to spur on development in other regions and also to decentralize economic activities from congested Metro Manila.

Targeted for completion in 2005, the Manila North Toll Way will be the first toll road in the Philippines that will be constructed employing world-class contractors like Leighton Contractors Asia Limited of Australia, for the civil works, and Egis Projects SA of France, for toll operation equipment and systems. It will be the first toll road in the country to have operational amenities comparable with the best in the world. These include a choice of electronic and manual toll message signs concerning road conditions, overhead monitoring cameras, emergency call boxes every one or two kilometres, emergency parking areas every one to three kilometres, rest areas, 24-hour traffic management, and prompt motorist assistance.

The project is structured under a rehabilitate-operate-transfer (ROT) scheme wherein the toll way will be maintained and operated for a 25-year period and then transferred to the government at no

cost. The Manila North Toll Ways Corporation (MNTC) is tasked to maintain and operate the project until 2030. MNTC is a limited liability company jointly owned by the First Philippine Infrastructure Development Corporation, a major private infrastructure development firm, Egis Projects, a unit of the largest French toll way operator, and the Philippine National Construction Corporation, a government-controlled company that held the original franchise to construct and operate the expressway.

The total cost to upgrade the North Luzon Expressway is estimated at US\$371 and will be the first toll road undertaking that will be financed without government guarantee. The ADB acted as the lead coordinating bank in structuring the debt package for the project. Aside from extending a loan for US\$45 million from its own resources, ADB acted as the lender-of-record on a US\$25 million facility, funded by international commercial banks. This financing scheme was cited in 2001 as being the Asia–Pacific Transport deal of the Year by the Project Finance Corporation. The International Finance Legal Review also named it the Asian Legal Deal of the Year for Project Finance.

#### *2.21.5.4 China - Chengdu Water Supply Project*

The Chengdu Water Supply Project in the People's Republic of China (PRC) is a BOT scheme designed to provide the treated water needs of Chengdu, the capital of Sichuan Province. The project entails the construction of a treatment plant and the laying of a 27-kilometre transmission pipeline to deliver the treated water to the city's homes and industries.

With a population of more than 10 million, Chengdu is one of the PRC's most important industrial and scientific research bases in the southwest. Its industries include electronics, mechanical engineering, metallurgy, chemicals, textiles, aeronautics and space, and nuclear.

The ADB extended a direct loan of US\$26.5 million and was instrumental in structuring the finance for the US\$107.6 million project. Through complementary financing, ADB also made possible, commercial debt funding of US\$21.5 million.

Traditionally funded by the provincial or the central government on a grant basis, water supply projects were opened up to private investment, because of the large investments needed. As the first BOT water supply project in the PRC, the project demonstrated that BOT schemes could be successfully implemented at the municipal level and externally funded without any central government guarantee.

The project is a good example of a PPP. ADB's involvement ensured that transparent competitive bidding was observed, the lowest possible tariff was obtained, and project fundamentals were in place. The project won three international awards in recognition for its

innovative and superior financing structure, which enabled international lenders to take long-term municipal risk in the PRC for the first time.

#### *2.21.5.5 Bangladesh - Grameenphone Telecommunications Project*

The Grameenphone Telecommunication Project was the first significant private investment in telecommunications in Bangladesh. The project was constructed at the time when the country's telecommunication penetration was among the lowest in the world, with only one in 300 persons having access to a phone unit. The Grameenphone project dramatically changed the industry with the construction and operation of a nationwide cellular telephone network using GSM technology. The backbone of the proposed system is 1 800 kilometres of state-of-the-art fibre-optic transmission systems.

The key innovative feature of the project is the inclusion of village pay telephones (VPT), which provides telecommunication services to the rural poor in Bangladesh, for the first time. This project immediately empowered the rural villagers, particularly women, as they were given access to trade and economic opportunities as well as vital social services, not previously available to them.

An impact study, conducted by the University of Bonn, concluded that: 'telephones in rural areas trickle tremendous socio-economic benefits to the villagers, and more so the poor ones (Asian Development Bank, 2004). Among the study's findings were: each village pay telephone unit served 1 500-2 000 people; 15% of the phone users were poor and they accounted for 25% of the phone calls made through VPT; 10% of the calls were for seeking health services, while 35% were for family and personal needs. A major result of the project was the use of VPTs to increase transparency, and consequently real income, via productivity increases and the fair pricing of commodities supplied by villagers.

The project was conferred the Community Award, at the 2002 GSM World Congress in Cannes, France. The Grameenphone project has become an outstanding model of private sector investment, contributing to poverty alleviation and improving the lives of countless people in the rural communities of Bangladesh. The project's success is expected to encourage further private sector participation, both in telecommunications and other physical infrastructure projects.

The ADB played a critical role in providing debt and equity financing, at the time when commercial lending was not available, owing to the perceived risk of the project.

#### *2.21.5.6 Vietnam - Phu My 2.2 Power Project*

The Phu My 2.2 Power Project is a 715-megawatt gas-fired combined cycle power plant, to be constructed as part of the Phu My 2.2 Power Generation Complex, in Va Ria Vung Tau Province in southern Vietnam. It is Vietnam's first privately sponsored power project and it was awarded on a transparent international competitive bidding basis and is largest power project to receive financing to date.

The project represents an environmentally friendly solution to the power supply problem in Vietnam and makes competitively priced power available within a short period of time. The project is a key component of Vietnam's drive to develop its own natural gas reserves for power generation. It aims to reduce the country's dependence on hydropower, which has proven to be unstable, particularly during the dry season. The project will be fuelled from the gas reserves of Nam Con Son Basin and will service the Ho Chi Minh City region. This will enable the areas served by the project to attract investments, which could stimulate economic growth and help reduce poverty. Phu My 2.2 is also a critical component of the government's efforts to provide power to 85 percent of Vietnamese households by 2005. The project is a logical continuation of the strategic objectives of the ADB and the Vietnamese government regarding the power sector, which relies increasingly on market forces and private sector participation to finance its investment requirements.

Developed under the country's first BOT scheme, the project will be handed over to the government of Vietnam at no cost, at the end of the 20-year contract period. The scheme also included a 20-year take-or-pay Power Purchase Agreement, whereby Electricity of Vietnam will purchase the output of the project during the term of the contract. Moreover, the supply of natural gas is assured under a Gas Sales Agreement signed with the Vietnam Oil and Gas Corporation.

The project is owned by Mekong Energy Company Limited, a joint venture between international developers with strong and proven track records worldwide. These include Electricite de France International, Sumitomo Corporation, and Tokyo Electric Power Company International BV.

Completed in an exceptionally short timeframe, this project's multi-tranche financing structure, creatively and effectively used credit enhancements to achieve the volume and tenors needed by the project. The structure included a US\$140 million equity investment, provided by the sponsors and loans equalling US\$240 million from multi-lateral and bi-lateral institutions with commercial lenders benefiting from political and partial risk guarantees. Besides extending a direct loan of up to US\$50 million, ADB negotiated up to US\$25 million of long-term debt for Vietnam, from international commercial lenders. This was achieved through its application of political risk guarantee, where ADB was to serve as guarantor-of-record and would not retain any portion of the risks covered, but passed on all risks to a private insurer. The International Development Association (IDA) of the World Bank (WB) also provided a partial risk guarantee, to mobilize commercial debt of up to US\$75 million. Current market conditions and the lack of a track record

for project finance in Vietnam would not permit commercial debt to be raised on an uncovered basis.

Following financial closing, the project won the Project Finance Deal of the Year Award for 2002 from five international publications. The project was recognized for its innovative financing structure, sound credit, and its strong support from the Vietnamese government. The Phu My 2.2 financing approach has set a clear precedent for other projects to follow.

#### *2.21.5.7 China - Tsinghua Water Project*

The main investor, through joint ventures with various partners, including water supply and / or sewerage utility companies, from various municipalities, will build, rehabilitate, expand, upgrade, privatise and / or operate medium-small-scale water infrastructure facilities. There will be a strong focus on wastewater treatment projects, in various cities of the PRC.

The project will arrange for private sector capital and give municipalities' access to financing in order to expand their wastewater treatment facilities, so as to meet increasing demand for water pollution control, and support the government's development plan with priority being given to the resolution of problems related to water pollution and scarcity of water resources. The project will catalyse medium-small-scale water supply and sewage treatment projects that require substantial investments, but which, on their own, lack the economies of scale necessary to make them attractive for private sector financing. Expansion of these facilities will improve the quality of urban life and public health conditions, arrest environmental degradation, and sustain acceptable levels of economic growth.

#### *2.21.5.8 India - Central Uttar Pradesh Gas Ltd. Project*

This project involves the construction of city gas distribution networks in Kanpur, India, to deliver compressed natural gas (CNG) to vehicles and piped natural gas (PNG) to commercial, industrial and residential users. The project comprises two main components: construction of a limited natural gas distribution network within the city and subsequent customer connections, and establishing of CNG 'mother' filling stations and online filling stations to service cars, buses, taxis and 2-and 3-wheelers, which have been converted to CNG use.

The project will help India meet the demand for energy in thickly populated cities, by diversifying the energy base away from coal and imported oil, through the supply of gaseous fuel. The project would support the government's policy to develop the gas transmission and distribution networks for the supply of environmentally-friendly clean fuel.

The proposed investment in the supply of natural gas to urban areas will contribute directly to two strategies that will achieve the ultimate objective of poverty reduction in India. The project contributes to the first strategy of enhancing economic growth by developing adequate infrastructure development. Where natural gas is provided to small-scale industries, at a cost less than the alternative fuels, this may have an immediate impact on job creation by increasing production and / or attracting energy-intensive industries to the area. The second strategy contributes to human and social development by reducing health-related risks, caused by the use of inferior fuels and air pollution, both within and outside homes. Low-income populations are particularly exposed to transport pollution, due to the proximity of low-income housing and slums to transportation routes. It is also anticipated that a certain amount of skilled and unskilled local labour will be employed during the construction phase.

#### *2.21.5.9 Laos - GMS Theun 2 Hydro project*

Nam Theun 2, a 1,070 MW hydroelectric power project, will be built on the Nam Theun River, a tributary of the Mekong River in central Laos. The project is considered a key component of the ADB's efforts to support the government of Laos's poverty alleviation programme. It will generate foreign revenue for the government from the export of electricity to Thailand and will expand the availability of low-cost electricity within Laos. At the same time, the project will supply Thailand with long-term and competitively priced power, while reducing its dependence on natural gas and oil for its power generation needs. Up to 95% of the electrical energy will be sold to Electricite du Laos, on a take-or-pay basis, under a PPP Agreement. The government will guarantee the performance obligations under a Concession Agreement. At the end of the concession period, the Nam Theun 2 Power Company (NTPC) will transfer the project to the government free-of-charge. The project will be owned and operated by NTPC. NTSC's shareholders comprise Electricite de France International, the Electricity Generating Public Company of Thailand, the Italian-Thai Development Public Company, and the government of Laos.

The ADB chose to support the project, because it wished to back the government of Laos's poverty alleviation efforts. It could do this by generating income of about \$1.7 billion over the life of the project and thus indirectly support the government's poverty reduction programme. It also supports Laos's energy policy, of developing hydropower resources in order to generate foreign revenue from the exportation of power. The project will also help the ADB to implement its Private Sector Operational Strategy and Country Strategy and its Programme for Laos, which promote the private sector to provide competitively priced power and to strengthen its security of supply. The project also promotes regional cooperation, because the project is part of the GMS Master Plan for power generation. Lastly, ADB's involvement in the project ensures that environmental and social issues are adequately addressed.

#### 2.21.5.10 Afghanistan - Roshan Cellular Project

This project will extend a newly established telephone system in Afghanistan, using global systems for mobile communication (GSM) cellular, satellite and radio wave transmission technologies. The system provides common cellular and public call office (PCO) services. The project company also plans to expand roaming agreements with a number of countries and to extend provision of Internet services beyond Kabul. It already has active commercial roaming agreements in place with over 35 countries.

The project will help to: expand the communications infrastructure in Afghanistan in the context of a country where, after 23 years of conflict, there is no functioning fixed line telecommunication service and a barely functioning postal service, poor roads, and the lowest literacy rate in the world, and where families are large and often separated; expand the role of small and medium-sized enterprise service providers, who are subcontractors of Roshan; facilitate the expansion of low-margin PCOs to benefit most sectors of the economy and government, all of which are currently handicapped by barely operational, very expensive modes of communication such as satellite phones, or no means communication whatsoever; benefit agriculture, merchandising, manufacturing, and financial services, as well as health care, education, and security; assist in the process of service expansion and regulatory reform, through sound competition, and foster confidence among potential lenders and investors in private infrastructure and industry financing in Afghanistan.

#### 2.21.6 Public-Private Partnerships in Africa

The table below shows some examples of PPP projects undertaken in Africa. The table is followed by a series of brief profiles of the projects listed.

Table 19: Examples of PPP projects in Africa

Project Name	Sector	Country	Duration (Years)	Value (US\$)	PPP type
Ecobank (ETI)	Finance	Togo		20 m	
Moma	Mining	Mozambique	25	50 m	
Tunisie Leasing	Financial services	Tunisia		8 m	
CFC Bank	Financial services	Kenya		7 m	
Djibouti Bulk Terminal	Infrastructure	Djibouti	30	7.5 m	BOOT

*Data Source:* African Development Bank (2003)

#### *2.21.6.1 Toga - EcoBank (ETI) Project*

This project involves the extension of a regional letter of credit (LOC) of US\$20 million to EcoBank Transnational Incorporation (ETI). The funds will be loaned to ETI's 12 subsidiaries in the West and Central African sub-regions. The subsidiaries will, in turn, lend the funds to their corporate clients and bankable small and medium enterprises (SMEs) with a(n):

- Export income stream;
- Export potential, and
- Strong profitability track record.

Funding will be allocated to SMEs in the local currency, in the manufacturing, agro-business, mining, energy transport, telecommunications, leasing, non-traditional exports, tourism, and services sectors. The proceeds of the LOC will be used to provide medium-to-long term project finance. It will also be used to finance capital equipment, including permanent working capital required to create new production capacities and to increase the capacity utilisation of existing facilities.

Some of the economic benefits likely to accrue from the sub-projects to be financed by the ETI Group include:

- An estimated 8 500 new jobs in the construction, manufacturing, transportation, mining and agro / food processing industries;
- Job opportunities in associated informal sectors in both the rural and urban areas of the sub-regions;
- An estimated US\$95 million in foreign exchange earnings by export oriented enterprises and savings from import substitution enterprises in the sub-regions;
- Transfers of technology, development of local entrepreneurship and technical skills;
- Likely use of raw materials by some of the sub-projects, for example, those in the agro / food processing, manufacturing and construction industries produced in the rural areas and resultant alleviation of poverty in the sub-regions, and
- The sub-projects will contribute to the estimated US\$114 million in revenues, in the form of value-added tax, income and corporation taxes for the governments of the region.

#### *2.21.6.2 Mozambique - Moma Mining Project*

The project involves dredge mining of titanium-bearing sands, the production of heavy minerals concentrate (HMC) in a floating concentrator plant, and the separation of final products in a separation plant. The annual production rate is estimated at about 612 000 tons of ilmenite with



three different grades, along with approximately 12 500 and 24 000 TPA respectively, of zircon and rutile. The titanium oxide comprised of ilmenite and rutile, is mainly used in the pigment, plastic and paper industries, while zircon is mainly used for ceramic production. The project is located in the northeast of Nampula Province in northern Mozambique, some 600 kilometres from Maputo, the capital city.

The project will provide a strong economic impetus and at the same time stimulate industrial growth in Mozambique and will provide significant economic benefits for the country. It will generate export revenues of about US\$75 million per annum, or US\$1.5 billion over the life of the project and will contribute up to 2.4 percent of the annual GDP of Mozambique.

The economic and social benefits are primarily a result of increased employment opportunities during the construction period through contractors, subcontractors and suppliers. During the construction and operation phases, the project will create 1 200 and 436 direct jobs, respectively. Moreover, it is estimated that about 1 500 jobs will be created outside the mining area, due to ancillary and support services required by the project. It will contribute to the expansion of the skills base and the extension of services to one of the poorest districts of the country. Potential socio-economic impacts include local, provincial and national economic benefits as well as the expansion of the national tax base and higher tax revenues for the Mozambican government.

The project is located in a remote and underdeveloped province and will therefore have major social and economic impacts on the local economy. Therefore, the construction of essential infrastructure such as roads, power and water supplies, telecommunications, clinics, schools, an airstrip, a jetty, as well as additional services, will improve the living standards of the people in the vicinity of the project and beyond. The project will also contribute to the transfer of technology and expertise through the training of Mozambicans both on and off the job.

A project of this scope and magnitude will improve the standing of Mozambique as a destination of private foreign investment. The Moma project will demonstrate the effectiveness of the industrial financing strategy in attracting further investment.

#### *2.21.6.3 Tunisia - Tunisie Leasing Project*

In this project, the proposed line of credit is aimed at financing small enterprises through small-scale leases of TD20 000 to TD300 000 maximum. It supports the government's SME promotion policy, which seeks to create 2 500 new enterprises per annum, in the period 2001-2006. Tunisie Leasing (TL) will use the line of credit to finance the procurement of equipment and immovable assets for leasing to SMEs that are operating in the commercial, industrial, agricultural, fishing and service sectors. TL will sign fixed-term contracts with the lessees, in return for a lease

payment. At the end of the lease contract, the lessees will have the option to buy all or part of the leased assets, at an agreed price.

The line of credit taken by TL is a contribution towards the deepening of financial intermediation to benefit small enterprises. These continue to be confronted with the problem of trying to access financial support, owing to constraints of collateral requirements and insufficient equity contributions. In Tunisia, TL's intervention in the financial sector aims to strengthen financial intermediation and to diversify the available services, in order to improve SMEs access to finance.

#### *2.21.6.4 Kenya - CFC Bank Project*

This project involves the provision of a Line of Credit (LOC) to CFC Bank Ltd of Kenya, for lending to its corporate clients. The facility will be mainly used to finance operations structured in the form of term loans and hire purchasing schemes that will be used by its clients, mainly SMEs. CFC Bank funds will be utilised to assist in increasing the productive capacities and the export potential of the sub-borrowers, in various sectors, including manufacturing, agribusiness, tourism, energy, and telecommunication sectors. Hire purchase is a source of medium-term credit, used for the purchase of equipment. Initially, a hire purchase company buys the required equipment and while keeping title to such equipment, makes it available for use by the loanee. Once the loanee has made a series of regularly scheduled payments, he becomes the owner of the equipment.

The proposal is in line with CFC Bank's private sector strategy of intervention in Kenya and with its continent-wide strategy, to promote SME development through its support to local financial intermediaries. During its more than 40 years of existence, CFC has accumulated substantial expertise in financing SMEs. The provision of this LOC should facilitate SME access to longer-term financing, which is currently scarce in Kenya. CFC has presented a strong pipeline of SME projects with expansion plans in sectors such as manufacturing, agribusiness, transport and tourism.

The facility will help to maintain, or create over 1 500 jobs in traditionally labour-intensive sectors, such as floriculture. It is estimated that the projects financed with this LOC will generate foreign exchange of over US\$150 million. The financing of the sub-projects will further enhance the capacity building skills of Kenyans engaged in various sectors of the economy.

#### *2.21.6.5 Ethiopia - Djibouti Bulk Terminal Project*

This project involves the development, design, construction, ownership, operation and maintenance of Bulk Terminal Facilities for Cereals and Fertilizers (Facilities). It is used for storing and processing cereals and fertilizers in bulk, for Ethiopia and the surrounding region. The project includes a concession that grants the right to finance, build, own and operate FBOO,

a Bulk Terminal Project, on an area of 42 000 square meters behind quay 14 and 15, in the Port Autonome International de Djibouti (PAID). The concession lasts for a period of 30 years and at the end of the concession term, the Bulk Terminal is transferred to PAID.

The project has important developmental impacts, as it: adds value to the service sector, the main economic sector; contributes to improving the living conditions of the region; will target local and indigenous companies and subcontractors for the supply of certain components of goods and services valued at US\$5 million; creates business opportunities for about 270 people and increases the vessels turnaround time due to the mechanization of the operation, and provides a reasonable rate of return for its shareholders.

The project has social significance in terms of poverty alleviation. It will result in substantial benefits for the local economy. This will be through the creation of direct and indirect employment, associated with the project's activities, namely: 100 jobs during the construction phase and 270 jobs during operations, in three shifts. The project will provide opportunity of appropriate training and skills development for staff and construction workers. The local communities will benefit from a number of development programmes as far as employment, education and economic / infrastructure development is concerned. The project has also set an example for other countries in the region, which also wish to follow Djibouti's example. Some of these countries have started planning similar projects in order to develop their capabilities. A recent study by Minato and Charoenporpattana (2007) provides details on various forms of option analysis that are required before making investment decisions in PPPs.

#### 2.21.7 South African Public-Private Partnership Projects

Table 20 provides an example of PPP projects undertaken in South Africa before the enactment of the Public Finance Management Act of 1999. Brief project profiles are provided to enhance understanding of the case studies. The selected case studies cover the following sectors:

- Transportation;
- Health;
- Water;
- Tourism;
- Telecommunications;
- Housing;
- Schools;
- Energy;
- Urban services;
- Correctional facilities, and

- Sports.

Table 20: Examples of PPP projects in South Africa

Project Name	Sector	Country
IDC	Financial services	South Africa
SASOL Natural Gas	Oil & Gas	South Africa & Mozambique
Maputo Port	Transport	Mozambique
N4 Toll Road	Transport	South Africa
Prison Contracts	Prisons	South Africa
Dolphin Coast Water	Water	South Africa
Eco-tourism in Kruger	Eco-tourism	South Africa
Nelspruit Concession	Water	South Africa

*Data Source:* African Development Bank and South African Institute of International Affairs (2005)

#### 2.21.7.1 Independent Development Corporation (IDC)

The objective of this programme is to provide the IDC with a commercially and competitively priced LOC. This will encourage and provide a window of opportunity to other public sector financial institutions and private sector banks in South Africa, and in the sub-region to access hard currency loans at affordable interest rates. By endorsing the credit-worthiness of the IDC, the banks are able to play a catalytic role in strengthening the IDC's capability to raise capital from international capital markets, at competitive rates, as well as to foster and encourage the orderly and efficient development of the capital market, regional integration, and a vibrant private sector.

Economic benefits that are likely to accrue from the sub-projects to be financed by the IDC, include an estimated 2 000 new job opportunities in the construction, manufacturing, transportation, mining and agro / food processing industries. Job opportunities in the associated informal sectors in both rural and urban areas in the sub-region are also expected. An estimated US\$90 million in foreign exchange earnings by export-oriented enterprises and savings made from import substitution enterprises are expected. Furthermore, the transfer of technology, development of local entrepreneurship and technical skills are other expected benefits. The impact of the LOC in reducing poverty in the sub-region is expected to have direct results. An estimated 60% of the facility will be used by the IDC to provide financial support to its corporate clients and SMEs, with substantial minority participation by historically disadvantaged persons (HDPs), who are resident in the poorest municipalities of South Africa and the SADC sub-region. About 40% of the LOC would be used to finance cross-border industrial development projects in such sectors as manufacturing, construction, agro-business, transport, and communications, electricity, gas, hotels and restaurants. Some of the beneficiaries will be well-established enterprises with significant minority ownership by HDPs. Part of the LOC would also be utilised

for the expansion of the operations of existing enterprises and for acquisition of shareholdings in other enterprises, as well as enterprises scheduled for privatisation over the period of 2004 to 2007.

#### *2.21.7.2 SASOL Natural Gas Project*

This project involves the development and production of Temane and Pande gasfields, which are located in the north-eastern region of Mozambique. It also involves the construction of a central processing facility and the construction of 860 kilometres of gas pipeline. In addition to this, it will undertake the conversion of Sasol's existing petrochemical plants from coal to natural gas and develop its gas distribution network. The pipeline is designed to deliver 122 MGJ per annum (MGJ/a) without initial compression, of which 120 MGJ/a will be transported to South Africa under gas sales and transportation agreements and about 2 MGJ/a to Mozambique. Funding from the lenders, including banks is sought only for the central processing facility (CPF) and the pipeline components. Sasol will finance the downstream components from its own resources.

The project will provide a strong economic impetus for both countries and contribute to regional economic integration and attainment of NEPAD's goals. The company is strongly committed to investing in Southern Africa in order to achieve further growth. It has embarked on the commercialisation of Mozambican natural gas, construction of new chemical plants and the expansion and / or optimisation of existing production facilities in South Africa. Economic benefits will accrue to the countries in the form of revenues, direct and indirect employment creation, and many other socio-economic benefits.

The increased economic activities resulting from the gas project will create direct and indirect job opportunities in both countries. During construction, 1 208 temporary jobs will be created - 689 for the gas fields and CPF, and 519 for the pipeline, most of these in Mozambique. In addition, new growth is expected from industrial areas where gas will be available and where more jobs will be created.

Capital investment in the gas project will contribute to higher economic growth for both countries, especially for Mozambique. The government of Mozambique will benefit from higher tax revenue earned by companies involved in the gas project, in addition to royalties paid directly to the government. The gas project will contribute substantially to the country's infrastructure, in the form of access roads to pipelines and ancillary infrastructure. This will come in the form of roads to gas fields, potable water supply and the de-mining of the project area, including the pipeline route, and increased exploration activity.

The government will be a direct shareholder of the gas field development and the gas pipeline and hence, will benefit from technology transfer and dividend payments. During the project's

expected 25-year life span, Mozambique is likely to earn about US\$2.1 billion in taxes and royalties, thus increasing the country's GDP by an estimated 10%.

The project has set up a Social Development Fund of US\$6 million, which is designed to provide development assistance to communities within areas in Mozambique that are potentially affected by the project's infrastructure. The fund will be primarily used for the provision of boreholes and clean water, clinics, schools, agriculture gas and electricity supply, and roads for local communities. In addition to these provisions, there will be an allocation of ownership in the project to BEEs.

The project will also have significant economic benefits for South Africa, in the form of increased revenues, the development and diversification of the South African energy network, opportunities for black empowerment and a strategic substitute for coal, which is a bonus for the environment. South Africa is expected to earn about US\$3.2 billion through taxes during the project life. With respect to social development, ZAR10 million of natural gas revenues will be earmarked for the uplifting of South African communities for the years 2002 and 2003. This is in addition to the ZAR75 million that Sasol invests every year, in social and human development projects in South African communities, mostly in the fields of education and training, job creation, culture, healthcare, welfare, and the environment.

#### *2.21.7.3 Port of Maputo in Mozambique*

Based on the lessons learned from the implementation of the N4 Toll Road from Witbank to Maputo, the Mozambican national ports and rails authority formed a joint venture with a private consortium, led by the British Mersey Docks and Harbour Company. The purpose of this project, for the 15-year concession, was to finance, rehabilitate, operate and upgrade the Port of Maputo. The private consortium took control of the port, which consists of the Maputo cargo terminals and the Matola bulk terminals, on April 2003.

The consortium, which owns 51% of the Maputo Port Development Company (MPDC), includes Skanska, a Swedish construction company, Lisont, a Portuguese terminals operator and Gestores, their Mozambican partner. The Mozambican government and CFM own the other 49% of the MPDC.

Financiers for the project include Standard Corporate and Merchant Bank, the Development Bank of Southern Africa, development finance companies of the Netherlands and Sweden, as well as the Nordic Development Fund and Finland's Fnnfund.

Farlam (2005), identified two major lessons learned from this project: a definition of investment obligations for the consortium provided clarity for the public and private partners, and knowledge

of the intricacies and requirements of project finance transactions, which are being applied to the port and rail deal, was gained by the Mozambican government.

#### *2.21.7.4 N4 Toll Road from South Africa to Mozambique*

In 1996 the governments of South Africa and Mozambique signed a 30-year concession for a private consortium, Trans African Concessions (TRAC), to build and operate the N4 Toll Road from Witbank, South Africa to Maputo, Mozambique. After the 30-year period, control and management of the road reverts to the governments of South Africa and Mozambique. The value of the contract was R3 billion at 1996 estimates.

The N4 Toll Road was financed from 20% equity and 80% debt. The three construction companies that are the sponsors of the project have contributed R331 million worth of equity, with the rest of the capital being provided by the SA Infrastructure Fund, Rand Merchant Bank Asset Management and five other investors. The debt investors include South Africa's four major banks: ABSA, Nedcor, Standard Bank and First National Bank, together with the Development Bank of Southern Africa, and the Mine Employees and Officials Pension Fund. The governments of South Africa and Mozambique jointly guarantee the debt of TRAC, and under certain conditions, guarantee the equity as well.

This project, which was the biggest project finance deal of the time, has been faced with a number of challenges. These included lower traffic volumes (initially) than anticipated and user payment risk in Mozambique, as the poorer communities were unable and unwilling to pay high toll fees.

A number of lessons have been learned from the project. It was learnt that user payment risk was reduced through the sharing of risk between a range of partners and through the use of cross-subsidisation and the provision of substantial discounts for regular Mozambican users. It was also learnt that the road spurred further private sector investment in Mozambique, which in turn raised traffic volumes.

#### *2.21.7.5 Prison Contracts in South Africa*

The South African government Departments of Correctional Services and Public Works, faced with a shortage of prison space, adopted the UK model of prisons that are privately built and operated. Bids were invited from the private sector for the design and construction of 11 maximum-security prisons.

In the course of the procurement, the Department of Correctional Services realized it had vastly underestimated the costs involved and reduced the number of prisons down to two (Farlam,

2005). The South African government eventually signed two 25-year concessions for maximum-security prisons in Bloemfontein and Louis Trichardt in 2000. The two winning consortia were responsible for designing, building, financing, operating, and transferring the prisons.

According to the PPP Quarterly (2002), the case of private prisons provides the following good lessons: there is a need for conducting a thorough feasibility study; experienced private sector operators can provide a better quality service at comparable rates to the public sector; overly high specifications at the planning stage have cost implications, and high base interest rates can be avoided in favour of floating rates, or Consumer Price Index (CPI)-linked interest rates.

#### *2.21.7.6 Ilembe Water Concession*

This is a water project in South Africa's KwaZulu-Natal province. The Borough of Dolphin Coast (BODC) signed a 30-year concession contract in 1999, with Siza Water Company (SIZA), of which French multinational SAUR Services has a majority shareholding. Other partners include Metropolitan Life and three local BEE partners as minority shareholders. The contract stipulated that Siza would oversee, manage and implement the provision of water and sanitation services within the then Dolphin Coast municipal boundary.

Due to the recent restructuring of municipal boundaries by local government, the BODC has subsequently been absorbed into a much wider structure, the Ilembe District Municipality, which has a population of approximately 560 000 people. The project area has a population of approximately 45 000 people.

By 2005, when the concession entered its sixth year of operation, it was faced with several challenges in meeting its objectives. This was mainly due to an increased scope of services. Furthermore, Farlam (2005) reports that (SIZA) could not pay its concession fees in 2001. This was partly due to a 20% increase in the cost of water, charged by the bulk supplier, Umgeni Water.

Several lessons can be learned from this case study. There is the need for:

- Capacity building for better performance of PPPs;
- Comprehensive feasibility studies;
- Clear policy guidelines and regulatory frameworks;
- Greater transparency;
- Technology transfer, and
- Control of scope creep.



#### *2.21.7.7 Eco-tourism Concessions in South Africa's Kruger National Park*

In 2001, South Africa National Parks (SANParks) signed a build-operate-transfer (BOT) concession with the Nature Group consortium, for a period of ten years. The consortium, which is comprised of a technical partner, a financial partner and an empowerment partner, has the right to operate the facilities. This includes the right to use, design and construct according to SANPark specifications. In return, Nature Group pays a monthly concession fee equivalent of approximately 13% of its annual turnover.

The projects covered under this concession, which are at various stages, include PPPs in Madikwe in the North West Province, Manyeleti in Limpopo Province, and the Cradle of Humankind Interpretation Centre Complex in Gauteng Province.

Lessons learned from this project included:

- Successful PPPs require sound transaction skills on the part of the public sector partner, as well as an experienced service provider from the private sector;
- The projects were attractive to the private sector, since they represented a good business opportunity;
- Improved quality of service and proper skills assessment of the staff prior to the contract provides better understanding of operational risks, and
- Strong commitment from SANParks, in the form of an intervention plan, saved the concession from potential failure.

### **2.22 The Future and Sustainability of PPPs: Challenges and Issues**

The following summarised points are considered to be the key elements that inhibited the proper implementation of PPPs over the past twenty years (BIAC, 2004). According to Business and Industry Advisory Committee, the major inhibiting factor was the inadequacy of systems to protect lenders and investors from the risks of investing in developing countries. Subramanian and Haider (2004) have examined the landscape and benchmarks of the use of HIV and AIDS PPP programmes.

#### **2.22.1 Politics**

Political will is fundamental to a successful partnership programme. PPPs represent a significant change to the traditional procurement approach, and therefore governments need to build political support to facilitate PPP development and sustainability.

### 2.22.2 Conflicts

Conflicts are normal during project implementation. Formal dispute resolution procedures should be put in place as an alternative to legal procedures and for an efficient and cost effective means of resolving issues that may arise during the contract.

### 2.22.3 Policies and Legislative Frameworks

PPP success and sustainability requires the right business environment. The lack of a transparent legal framework, at all levels, or legal uncertainty, due to non-existent and partial legal frameworks, can impede successful project implementation, as the private operator's ability to operate freely and efficiently is denied. This leads to stalled projects, delays in implementation and sub-optimal results, which ultimately deters future investors. Toolkits promote growth of PPPs (Public-Private Infrastructure Advisory Facility, 2003).

### 2.22.4 Pricing and Cost Recovery

Before PPP tenders are issued, the relevant PPP unit needs to determine, or refine the project's budget. In many cases, this is done by determining what the project would cost if it were built strictly by the public sector. This is done, so as to determine if the PPP will actually save money for the public, realize a significant improvement in service, or cost savings and cost recovery.

### 2.22.5 Technical and Management Capacity

Overseas Development Assistance (ODA) could facilitate Foreign Direct Investment (FDI), by helping developing countries to control and protect the outcomes of FDI investments in their countries. In terms of PPPs, ODA could be used to improve the local skills base in order to meet the demands of foreign investors, by educating and training civil servants in risk mitigation and efficient project monitoring. PPPs are becoming increasingly important in local economic development efforts of many cities (Walzer & Jacobs, 1998).

### 2.22.6 Financing

The financing landscape for private investment in developing countries has changed markedly over the years (Grimsey & Lewis, 2004). Structured project financing provides a vehicle for mobilising equity and debt in infrastructure projects. This is achieved by fashioning the finance needs to the specific project, with risks appropriately apportioned amongst different types of investors - equity holders and debt providers. Governments have many mechanisms for providing public goods and services. Many of these mechanisms involve partnerships with the private or non-profit sector (Forrer *et al.*, 2002).

#### 2.22.7 Risk Management

A key principle of PPPs is that risk should be allocated to the party best able to manage it. The effective allocation of risk has a direct financial impact on the project, as it will result in lower overall project costs and will therefore provide enhanced value-for-money when compared to traditional procurement methods. The allocation of risk should reflect the specific characteristics of the project and the strengths of each party.

#### 2.22.8 Corruption and Lack of Transparency

The more important the project and the more local and international communities involved, the easier it is for corrupt practices to go unnoticed. The escalation of such practices can jeopardize the long-term financial feasibility of the project. Reich (2002) explains how relationships of trust are fostered and sustained in the face of the inevitable conflicts, uncertainties, and risks within a partnership.

#### 2.22.9 Range of PPP Options

There is a broad range of options for involving the private sector in the financing, physical development, and operation of various projects. Traditionally, this has been the domain of the public sector. Many forms of PPPs exist and are continuously being developed to suit project characteristics. The main defining feature is the degree of private control over and involvement in financing. There appears to be no unique model. Each project should define what the most suitable and appropriate requirements are for it. Dewulf and Spiering (2006) provide an overview of developments in PPPs in different countries and address the various characteristics and approaches to PPPs.

#### 2.22.10 Local Empowerment Programmes

Local government empowerment programmes such as the BEE programme need to be properly structured into PPPs. South Africa offers an integrated technical assistance-financing package to black partners in the bidding consortia, who seek to raise funds for the purchase of equity in the private party (PPP Quarterly, 2004).

#### 2.22.11 Affordability

High PPP transaction costs have been identified as a major constraint in the development of PPPs (PPP Quarterly, 2004). Agencies such as the Project Development Facility have intervened to support PPP initiation in various sectors in South Africa.

#### 2.22.12 Unclear Objectives

A good PPP project should have clearly conceptualised objectives, which must be reviewed as a continuous function of the project management team. This will ensure that any threat to them is properly addressed. In order to work successfully with the private sector, public bodies need to be clear about the fundamental principles and objectives behind PPPs.

#### 2.22.13 Misperceptions

The misperceptions that PPPs are a 'cure for all' should be addressed adequately. PPP is not the only method to deliver project financing and realization. It does not provide a 'miracle' solution, or a quick fix, and should only be used where appropriate and where it is able to deliver clear advantages and benefits.

#### 2.22.14 Lack of Information and Poor Communication

Lack of information and poor communication is a key obstacle to PPP growth in most countries. Vast amounts of government information should be made available through electronic networks. Governments should upgrade their ICT infrastructure and tools, and train personnel to promote electronic information dissemination between the public and private sectors.

Extensive use should be made of the worldwide web and online information databases. The provision of all necessary information to all stakeholders will promote transparency and accountability. Government agencies should also make available PPP user manuals through CD ROMS and via toll-free 0800 telephone numbers. Other approaches should include establishing dedicated PPP units and / or centres to promote and manage the PPP process.

#### 2.22.15 Competition

Competition creates an environment that encourages bidders to be innovative in their design solution and efficient in their service delivery. Governments should work with relevant PPP implementing agencies to reform existing laws, so as to remove legal and regulatory impediments to competition, while still safeguarding public interest.

#### 2.22.16 Labour Movement Resistance

Most attempts to finance the building of new East European transport infrastructure by means of toll revenues have been abandoned, or put on hold (Von Hirschhausen, 2002). The legacy of free

infrastructure under state planning has made it difficult to jump immediately to private project financing based on user charges.

The issue of the implementation of the Nelspruit Water Concession project is a good example, whereby the local municipal authorities had to engage in long protracted negotiations with representatives of South African Municipal Workers Union (SAMWU) before eventually undertaking the project. For many years, the Confederation of South African Trade Unions (COSATU) was strongly opposed to municipal service privatisation. In the past, SAMWU said that it rejected PPPs, because it regarded them as a form of privatisation and it was opposed to the idea of public services being delivered for a profit (Niekerk, 1998).

#### 2.22.17 Public Acceptance

A broad public consensus regarding the involvement of the private sector in infrastructure is needed. This applies especially to the implementation of project financing models based on user charges.

#### 2.22.18 Value-for-money

Factors determining value-for-money will obviously vary from project to project and between sectors. Generally, however, PPPs will generate value for improvements in a number of areas, including: reduced life cycle costs; better allocation of risks; faster implementation; improved service quality, and the generation of additional revenue.

#### 2.22.19 Transaction Costs

Packaging and modelling of infrastructure projects involve high transaction and bidding costs. In a review of transaction costs in infrastructure, Klein, So and Shin (1996) contend that these costs amount to between 5% and 10% of total costs. This is a prohibitive factor, since the burdens of these costs are transferred down to the taxpayer. Table 16 below shows projects funded by the Project Development Facility in South Africa (PPP Quarterly, 2004).

Table 21: PPP Projects Supported by PPIAF funding by March 2004.

<b>Project</b>	<b>Value (R )</b>
Northern Cape Office Accommodation	717 060
Free State Department of Health - Trompsburg & Ladybrand Hospitals	1 861 912
KZN Department of Transport - Vukuzakhe Plant Depot	1 081 011
Eastern Cape Department of Health - Pharmaceuticals	3 146 696
Eastern Cape Department of Health – Settlers and Port Alfred Hospitals	496 060
Western Cape Department of Health – Rehabilitation Centre	2 925 000

Total	10 227 739
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*Data Source:* PPP Quarterly, 2004.

#### 2.22.20 Accounting for PPPs

Determining the appropriate accounting treatment of PPPs has proven to be a complicated and controversial issue (Grimsey & Lewis, 2002b). The main problem is: In whose books should the assets covered by a given agreement be reported?

#### 2.22.21 Budgetary Constraints

In infrastructure projects, both capital and operating costs must be considered in developing a benchmark cost. Before a tender is issued, the agency responsible for the PPP needs to determine, or refine the project's budget. In many cases this is done by determining what the project would cost if it were built strictly by the public sector.

#### 2.22.22 Taxation

A sound appreciation of the taxation ramifications is needed in any dealings with private sector entities. There is a need to introduce new tax incentives to spur PPP growth. Measures can include tax holidays, for specified periods, for the private sector investors.

#### 2.22.23 Lack of Incentives

Determining the private sector's willingness to participate depends on whether the risks and rewards inherent in providing the required outputs create a genuine business opportunity for the likely participants. It also depends on whether the banks and financial markets will support the proposal. Given that the responsibility for the design, construction and project management is allocated to the private party, an incentive is needed to keep the project on track and to prevent construction delays and cost overruns.

#### 2.22.24 Consensus Building

Political will is fundamental to a successful partnership programme. PPPs represent a significant change to traditional public procurement and a government needs to build political support before introducing a PPP programme.

#### 2.22.25 Lack of International PPP Standards

There is no international standard framework for PPP investments and similarly, no regionally harmonized framework for PPP in many countries. The absence of an overarching policy framework on investment initiatives in developing countries has led to the development of a multitude of overlapping legislative frameworks. These have been arranged on an ad hoc basis and are often of questionable credibility. As a result, investments are unprotected, as no existing framework has legitimacy over any other.

#### 2.22.26 Lack of Cooperation and Coordination of PPPs

There tends to be a lack of cooperation and coordination of work and responsibilities between investors and local communities. Besides government and other civil organizations, developing countries have many informal practices, such as the black market and informal employment that impact on the way things are undertaken in them. For a project to be successful in such an environment, the private sector must have a clear understanding of the informal frameworks in which it will be operating and how these frameworks will be affected by, and possibly affect the implementation of the project. Informal practices are difficult to document and change, and thus the private operator must cooperate with local entities that are knowledgeable of, and have contacts within the system, to ensure project feasibility. In many cases, these realities have been overlooked and projects have been stalled and even cancelled in the first stages of the concession.

#### 2.22.27 Insufficiency of Judicial Systems

Judicial systems in developing countries are often poorly equipped to handle disputes between foreign investors and host country governments. This is a major impediment to the leveraging of private investment. Capacity building action is essential to help establish clear, stable and reliable judicial systems that can provide security for foreign and local private investments.

#### 2.22.28 Limited Number of PPP Operators

PPPs are a fairly new concept in most developing countries, which means there is a limited number of experienced operators who are in a position to operate the PPP service more cheaply and efficiently.

#### 2.22.29 Inappropriateness of Existing Procurement Systems

The continuing search for maximum value-for-money in construction work has led to focused attention upon the procurement process (Smith *et al.*, 2006). Traditional methods of procurement generally involve employers, or their agents designing the work required, prior to competitive tenders. The success of this approach depends mainly on the ability of the employer to

adequately specify the project requirements. Inaccurate representation of requirements to the tendering contractors, usually leads to disputes. Other factors affecting the procurement process are: the lack of involvement of the contractors in the project design; poor contractor capabilities; lack of ownership by the contractor; inadequate risk-sharing; poor management, and the lack of flexibility to meet changing project circumstances.

#### 2.22.30 Roles of Different Parties

The role and responsibilities of PPP parties change with increased private sector involvement. The most important of these is the transformation of the public sector role from operations to a management and regulatory function. This requires both the development of effective regulatory systems and monitoring practices. The government retains a permanent interest in the delivery of an asset or service. It is ultimately responsible for determining the objectives, seeing that outcomes are delivered to the required standards, providing an enabling environment and ensuring that public interest is safeguarded. The execution of many elements of service delivery is transferred to the private sector. Today, a significant land acquisition is rarely accomplished without at least one private and one public participant (Endicott, 1993).

#### 2.22.31 PPP Knowledge and Dissemination

PPPs require skills that are typically in short supply in public sector organizations in emerging markets. These are skills such as proficiency in writing output specifications, experience in negotiating contracts that underpin a project finance deal, and familiarity with the wide range of financing models used by investment institutions. The restructuring movement, as it unfolds, represents an attempt to reinvent schooling through PPP (Madsen, 1996).

#### 2.22.32 Lack of PPP Institutional Frameworks and Facilities

In many countries there is no legal framework for PPPs. A robust system of commercial laws needs to be in place. Private sector interests have to be protected under existing laws. PPP implementing agencies have to facilitate the involvement of the private sector in infrastructure projects or public utilities. Restrictions on public procurement may adversely affect the implementation of PPPs. Special approval is required for large public procurement contracts (American Chamber of Commerce, 2002).

#### 2.22.33 Safety and Environmental Issues

Safety and environmental issues play a vital role in the successful implementation of PPPs. They often play an essential role in terms of acceptability of PPP projects and therefore need to be carefully addressed by the relevant authorities during public inquiries (Boeuf, 2003).



#### 2.22.34 Management of PPP Projects and Contracts

The capacity and skills of public administrations have to be broadened to manage and negotiate successful PPP projects. Given the lack of project management competence in the development and control of private project financing, the public and private sectors should pool resources. The United Nations (2002) suggested that for PPPs to be promoted and used in the reconstruction of areas such as South East Europe, international government units and departments should be involved in a regional network. This will help to improve the capacity of these governments to facilitate projects.

#### 2.22.35 Inadequate PPP Awareness and Training

The diffusion of PPP policy takes time, with the learning curve varying from sector to sector. It is, therefore, important to conduct a PPP awareness campaign and to train people to implement PPP projects across the various sectors. In South Africa, this awareness takes different forms, ranging from PPP foundation training, to workshops, to internship programmes for transaction advisors.

#### 2.22.36 Poor PPP Project Conceptualisations

The range of risks that could possibly jeopardise a project's feasibility is amplified when investing in developing countries. This is due to the uncertainty linked to unpredictable political, economic and environmental shocks. In all too many cases, investors refuse to get involved, realizing the tremendous risk and the time and effort needed to get legislation changed during the preparation of a given project. Furthermore, the problem of poor project conceptualisation is aggravated by inadequate risk assessments and poor feasibility studies.

#### 2.22.37 Poor PPP Project Implementation

Poor PPP project implementation can result from an inappropriate use of project management methodology over the course of the PPP life cycle. It can also be a result of slow deal flow, lack of transparency, poorly drafted PPP agreements, and inexperienced PPP Project Officers.

### **2.23 Traditional Procurement Systems and Standard Forms of Conditions of Contract**

#### 2.23.1 Overview

Traditional methods of procurement generally involve employers, or their agents designing or specifying in detail, the work required prior to competitive tenders being invited (Morledge *et al.*,

2006). The employer subsequently chooses those tenders that appear to represent the best value-for-money, and then enter into some kind of contract for the construction work.

The contractual relationship that results from this traditional process is essentially that of supplier and customer. The employer decides in detail what he / she wants and the contractor simply constructs the work as designed. To be successful, the method depends upon the employers being able to specify their requirements in sufficient detail for the contractor to accurately price the work.

## 2.23.2 Standard Forms of Conditions of Contract

Certain industries and major engineering and building institutions, such as the International Federation of Consulting Engineers (FIDIC) and the Construction Industry Development Board (CIDB) have developed standard conditions of contract. Use of these standard conditions gives greater certainty in operation and gives a reasonable balance of risk between the parties (Twort & Rees, 1995). Table 22 shows a simple comparison of the generic processes for the two approaches.

Table 22: Traditional Procurement versus Public Private Partnerships

<b>Public Procurement</b>	<b>Public Private Partnership (PPP)</b>
Establish alternatives	Undertake policy study
Appraise options	Appraise options
Draft terms of reference	Public policy document
Conduct feasibility study	Prepare terms of reference
Undertake safety study	Draft performance specifications
Arrange EIA study	Commission feasibility study
Project recommendations	Issue consultation document
Client decision	Public & stakeholders consultations
Create project team	Risk management & cost plans
Planning approvals	Second consultation document
Raise the finance	Decision document
Prepare detailed design	Approvals
Appoint contractors	Conduct pre-qualification of bidders
Supervise construction	Prepare shortlist and ask for bids
Commission works	Evaluate bids
Begin Operations	Select preferred bidder
	Further consultations
	Select private party for final designs
	Negotiations

	Detailed designs
	Environmental & Safety approvals
	Implement agreement
	Audit & manage contract

*Data Source:* Grimsey and Lewis (2004)

Table 22 depicts the various aspects of procurement relative to the traditional and PPP approach. In this table, procurement by means of a PPP is compared with that by conventional means in terms of the steps involved. The processes depict a lot of similarities relative to the policy, planning and construction phase. However the approach relative to the transaction and concession phase shows dramatic differences. Most projects procured through the traditional approach are design and construction, whereas those procured through the PPP approach are for design, construction, operation and maintenance.

## 2.24 Limitations & Problems

Hodgson (1995) puts the blame on the traditional form of procurement, for the poor record of design and construction of capital works, due to the attitudes and culture of the public sector. These result in the regular occurrence of time delays and cost overruns. Other problems frequently associated with traditional procurement include:

- Inadequacy of the business case and feasibility;
- Environmental impact issues;
- Disputes and claims incurred;
- Economic influences;
- Late contractor involvement in design;
- Complexity of the contract structure;
- Legislative and regulatory changes;
- Lack of innovation;
- Poor contractor capabilities;
- Poor project management teams, and
- Poor project intelligence.

## 2.25 Other Issues of Concern

### 2.25.1 Rising Demand for Services

According to Currie (2005), the South African government is facing a rising demand for acceleration of infrastructure development, due to the social and economic transformation process.

The government is facing a skills crisis, mainly at the provincial and municipal council level. Such capacity constraints mean that a lot of funding meant for development remains unlocked or unutilised. It was proposed that the PPP model be utilised for procurement, in 2006, in order to avail much needed project financing and resource support.

The use of PPPs will stimulate growth in the construction sector and will also promote BEE, create employment, provide mandatory skills-training, curb the spread of informal settlements and reduce crime and poverty.

Furthermore, Currie (2005) provided thrust to the research process, which is to investigate South African PPP projects, in order to gain a deeper understanding of the problems, opportunities and benefits associated with utilising the PPP approach in infrastructure development and maintenance.

#### 2.25.2 Making PPPs Work

PPPs have emerged as a more preferable, acceptable and beneficial alternative to privatisation for infrastructure development in developing countries (Anvuur & Kumaraswamy, 2006). However, the implementation of PPPs is faced with a number of challenges, which if not properly addressed may undermine their purpose. The challenges and issues include exclusion of local and small-scale construction firms, bundling of small projects to bigger packages and the level of funding which limits the type of participant.

#### 2.25.3 Infrastructure Maintenance

According to a study by Ng and Wong (2006), the maintenance of infrastructure facilities is a demanding and costly task. It can be a financial burden with a high workload that can become unmanageable for governments with limited resources. Government institutions are now using the PPP approach for infrastructure maintenance.

#### 2.25.4 Risk Mitigation

Alencar and Filha (2006) conducted a study to establish the mechanisms for risk mitigation in PPP projects. The findings of their research indicate that market risk mitigation is not enough to accomplish private investments. The argument is that investment can only be mobilised if there is fair allocation of risks in the partnership.

#### 2.25.5 Procurement Reforms

According to Male, Anvuur and Kumaraswamy (2006), the construction industry in Ghana has undergone major reforms in the recent past. This was necessitated by huge amounts of unsustainable foreign debt, excessive budget deficits, enormous contractual payment arrears, poor construction performance, corruption and pressures from international financial institutions. This has forced the government to commit to a reform of public procurement procedures, which culminated in the passing of the Public Procurement Act (Republic of South Africa, 2003).

#### 2.25.6 PPPs in Developing & Developed Countries

Akintoye *et al.* (2006) maintain PPPs provide an avenue for the funding of major public sector capital projects. Further, they address the extent to which the PPP approach has been adopted in developing countries compared with developed countries, and highlight the enabling environment needed by developing economies in order to attract funding.

#### 2.25.7 Advantages of a PPP Approach

According to Savas (2000), in most countries in the past, roads, water systems and other infrastructure development have hitherto been financed, owned, and operated by government agencies, with the notable exception of the telephone system and most electric utilities in the USA. It was argued that infrastructure development required high levels of investment and risks, and the private sector could not be entrusted with it.

The above argument is not tenable anymore. Governments, more especially in developing countries such as South Africa, are not able to sustain financing and resource requirements. It is necessary that developing countries look beyond their conventional resources and mainstream the private sector into their planning, financing and development of infrastructure.

PPPs that engage in infrastructure development, take many forms such as: public authority contracts; service contracts; operations and maintenance contracts; cooperatives; lease build operate (LBOs) contracts; build transfer operate (BTOs) contracts; build operate transfer (BOT) contracts, and build own operate (BOO) contracts.

### **2.26 Recent Trends in PPP Investments in Developing Countries**

#### 2.26.1 Overview

According to BIAC (2004), there has been some growth in PPP projects in developing countries, mostly in Latin America and East Asia. Investment in infrastructure projects averaged US\$60

billion between 1990 and 2001, with a peak of US\$130 billion in 1997. By 1997, the flow of investments to developing countries, in particular to sub-Saharan Africa had approached zero. Harris (2003) supports the view that the period 1990 to 2001 saw a rapid growth in PPPs, with widespread moves by governments around the world, to involve the private sector in the provision and financing of infrastructure. Almost all developing countries have used PPPs to develop infrastructure since 1990. Table 23 shows the top 25 countries in terms of the use of PPPs in developing countries, for the period 1990 – 2003. The eighth UN Millennium Development Goal expressly aims to promote partnership between governments, non-governmental organizations, civil society and the private sector (UN Commission Report, 2006).

## 2.26.2 International investments in PPPs

Table 23: Top 25 countries for PPPs during the period 1990–2003

<b>Country</b>	<b>US\$m</b>	<b>Percent</b>
Brazil	157 098	19.7
Argentina	72 858	9.1
China	61 170	7.7
Mexico	59 753	7.5
Malaysia	36 695	4.6
India	33 108	4.2
Philippines	31 017	3.9
Indonesia	29 210	3.7
Thailand	23 662	3.0
Chile	22 003	2.8
Poland	18 025	2.3
Turkey	17 719	2.2
Hungary	17 415	2.2
Czech Republic	16 388	2.1
South Africa	15 959	2.0
Russia	14 784	1.9
Colombia	13 779	1.7
Peru	13 762	1.7
Morocco	12 812	1.6
Venezuela	11 858	1.5
Pakistan	7 487	0.9
Slovak Republic	5 837	0.7
Egypt	5 689	0.7
Romania	5 321	0.7
Bolivia	4 848	0.6

Total Top 25	708 257	88.9
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*Data Source:* World Bank PPP database, 2003.

Almost all developing countries have undertaken some form of private investment in infrastructure since 1990. However, private investors have tended to focus on relatively large and fast growing markets (Thomsen, 2005). Table 23 presents the top 25 countries for investment in PPPs in infrastructure in developing and transition economies. Combined these countries account for almost 90% of total PPP investment in the developing world. The 64 countries located at the bottom half of the list account for only 1% of total investment in PPPs in developing and transition economies since 1990.

## **2.27 Summary**

In this chapter the main functions of the literature review were explained as providing an up-to date account of what is known about PPPs, to provide a conceptual and theoretical context of the subject area. The literature review did assist the researcher in obtaining clues about the methodology and instrumentation, and furthermore refined the study to retain focus on relevant issues.

This chapter presents a comprehensive review of literature relative to PPPs, from various sources. The review of the literature addresses the broad theme of physical infrastructure development using PPPs as a vehicle for investment and service delivery: PPP concepts; the need for accelerated infrastructure development; constitutional, legislative, and institutional frameworks; how to develop a PPP; international and local PPP lessons from experience; funding of and support for programmes of PPPs; traditional procurement systems and standard forms of contract; the future and sustainability of PPPs, and recent trends in PPP investment, in developing countries.

The review of the literature contains case studies of a wide variety of PPP projects in the developed and developing world. There is a specific focus on the development of a PPP model of procurement in the South African context. Emerging and operational PPP projects were also reviewed to provide more insights. The review covers the historical context of PPP successes realized for various projects in different countries. There is also a focus on PPP techniques as an investment tool for providing public services, which were traditionally provided by the public sector and which governments are now unable to fund, because of constrained capital resources.

The review of the literature was based on the case study approach (Mouton, 2000). This was done so as to focus and conduct an in-depth study of the selected PPP projects. PPP literature falls into three broad categories: engineering practitioner material, academic, and government policy documents (Grimsey & Lewis, 2004). The following categories of literature were accessed

during the survey of the literature: academic journals; conference proceedings; textbooks; government documents; theses and dissertations, and contemporary magazines.



## CHAPTER 3

### 3. RESEARCH DESIGN AND METHODOLOGY

#### 3.1 Introduction

The main purpose of this study was to assess the performance of operational South African PPP projects. This chapter includes sections describing: population and sample stratum; research design; instrumentation; procedures for data collection, and procedures for data analysis.

Multi-case empirical research was conducted to examine various performance aspects of operational South African PPPs. A web-based survey using questionnaires was used to capture the experiences and perceptions of various actors involved directly or indirectly in selected PPP projects. The advantages and disadvantages of choosing the given approach have been provided.

A case study approach was used, because the focus was on a particular group of subjects, namely operational South African PPPs contained in the National Treasury (2005) PPP Unit database. The case studies involved an in-depth examination of a limited number of PPPs with primary data collection over a limited period of time between November 2006 and February 2007.

The population for the survey consisted of operational South African PPP projects registered under regulation 16 of the Public Finance Management Act (Republic of South Africa, 1999). The study included the following activities:

- Identifying institutions engaged in PPP projects in South Africa using the National Treasury PPP database;
- Accessing the identified PPP database to obtain a list of specifics about names of projects and project participants, contact addresses in the form of postal and e-mail addresses, facsimile and telephone numbers;
- Designing and developing a questionnaire;
- Revising the questionnaire to incorporate promoter comments;
- Uploading the questionnaire to the university website;
- Conducting an exploratory questionnaire with three potential respondents to test its suitability;
- Distributing the web-based questionnaire using e-mail, along with a cover letter explaining the purpose of the study and requesting the respondents to participate in the PPP survey;
- Following up non-respondents by e-mail and telephone after two weeks from the date when they should have received the questionnaire;

- Compiling and analysing the questionnaire results, and
- Providing feedback to the respondents based on the questionnaire results.

The methodology section of the study describes the research design and the procedures that were followed in conducting the study. In this chapter the researcher discusses the sample stratum<sup>1</sup>, samples, sampling procedure, data collection and data analysis procedures.

### **3.2 Purpose of the Study**

The study was designed to assess the performance of operational South African PPP projects. It aimed to contribute towards the existing body of knowledge relative to PPPs and to develop a systemic model for the planning and implementation of a sustainable PPP system in South Africa and other parts of Africa.

The performance issues examined included project management competency, affordability, level of investment, contract type and duration, transfer of responsibilities, risk management, policy and guidelines, and PPP awareness and training.

### **3.3 Scope and Objectives of the Study**

#### **3.3.1 Scope**

The primary objective of this study focussed on:

- Experiences and perceptions of PPP actors, and
- Operational South African PPP projects

#### **3.3.2 Objective**

The main objective of the study was to investigate the performance of operational South African PPP projects.

### **3.4 Setting**

The research was conducted in South Africa, the southernmost country in Africa. It is bordered on the north by Namibia, Botswana, Zimbabwe, Mozambique, and Swaziland. On the east and southern coasts it is bordered by the Indian Ocean and on the west by the Atlantic Ocean.

According to Lemon *et al.* (2004) South Africa is divided into nine administrative provinces:

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<sup>1</sup> The sample stratum is the list of PPP projects in the National Treasury database as at December, 2005

- Gauteng;
- Limpopo;
- Mpumalanga;
- North-West;
- Free State;
- Eastern Cape;
- Northern Cape;
- Western Cape, and
- KwaZulu Natal.

South Africa has three capitals:

- Cape Town, the legislative capital;
- Pretoria, the executive capital, and
- Bloemfontein, the judicial capital.

The administrative, research management support and supervision for this study was provided by the Nelson Mandela Metropolitan University (NMMU), which is located in the coastal city of Port Elizabeth. It is situated on the southeast coast of South Africa, in the Eastern Cape, the third largest province. Port Elizabeth is a port city with a strong industrial sector and well-developed infrastructure.

### 3.5 Research Design

Philliber *et al* cited in Yin (2003), describe a research design as a roadmap for conducting research. The research design deals with at least four problems: what questions to study; what data are relevant; what data to collect; and how to analyse the results. Yin (2003), further defines research design as a logical sequence that links empirical data collection to initial research questions and eventually to its conclusions. Mouton (2001) confirms research design as a plan, or blue print of how to conduct research. This research study can be considered to be a multi-site programme effect case study, designed to examine the performance of operational PPP projects.

A case study approach was used in this thesis, because the emphasis was on a holistic, in-depth investigation of the PPP projects in the sample area. The study examined eighteen selected operational South African PPP projects, within various public institutions, in their natural setting. The components of the case study design followed the recommendation of Yin (2003) and included the following:

- The study's questions;

- The propositions;
- The unit of analysis;
- The logic linking the data to the proposition, and
- The criteria for interpreting the findings.

According to Yin (2003), there are six sources of evidence for data collection in the case study protocol:

- Documentation;
- Archival records;
- Interviews;
- Direct observation;
- Participant observation, and
- Physical artefacts.

Not all these sources need be used in every case study (Yin, 2003). In this study, the last three types of sources were not relevant, since they are related to direct sociological investigation, and were not used. The researcher used the first three methods for data collection for this multi-case study.

### 3.5.1 Advantages of the Case Study Approach

The case study approach has the following advantages:

- It fosters the use of multiple sources of data, which in turn facilitates validation;
- It is appropriate since the researcher has no control over events within the proposed organizations or projects;
- The research was small scale and mainly for academic purposes only, which involved eighteen case studies, and effort was focussed on selected cases only (National Treasury, 2006);
- The approach enabled use of a variety of research methods for data collection, and
- It entailed holistic, detailed and particular focus on the subjects of the study - the PPP projects (Denscombe, 2003).

### 3.5.2 Disadvantages of the Case Study Approach

According to Denscombe (2003), the disadvantages of the case study approach are:

- It is vulnerable to criticisms in relation to credibility of generalisations;

- It is perceived as being suitable for qualitative research and focuses on processes rather than measurable end products;
- Some case study boundaries might be difficult to define, and
- Negotiating access to case study settings can be a demanding part of research, which can seriously affect the study.

### **3.6 Selection of Case Studies**

#### **3.6.1 Population**

The target population for the study consisted of all the operational South African PPP projects registered by the National Treasury PPP Unit as of December 2005. Projects were selected from the National Treasury PPP Unit database as being representative of those successful, problematic and unsuccessful cases in South African (National Treasury, 2006). Valuable lessons were drawn from this pool of cases, based on experiences learned during the planning, implementation and management of the PPP projects.

#### **3.6.2 Sample Stratum**

A sample of eighteen operational PPP projects was drawn from the National Treasury PPP Unit database. This sample consisted of twelve PPP projects registered as per Treasury Regulation 16, as of December 2005. In addition, six other operational PPP projects were selected, which came into operation before the enactment of the Public Finance Management Act, 1999. The latter category of projects were included, because many PPP projects had been in operation for more than five years and therefore presented a rich source of data in terms of the various PPP aspects under investigation.

According to the National Treasury (2005) PPP Unit, there is a comprehensive PPP projects database, which is updated regularly. The database was used to select cases for investigation using the following reasons:

- It involved little travel;
- The costs involved were fairly low;
- Less time was needed to spent on fieldwork, and
- The data was easily accessible, since a website exists, which was easily accessible to the researcher.

The database also contained a whole spectrum of all the registered and operational PPP projects in South Africa. The PPP unit, which maintains the database, is the sole regulatory agency for PPPs and therefore presented a more authentic source of information on PPP projects in South

Africa, than any other source known to the researcher. Integrative cases were preferable, since the findings were more likely to reach a wider audience and immediate application. The units of analysis were the selected PPP projects.

The operational PPP projects investigated included:

- The N4 Toll road from Witbank to Maputo;
- The N3 Toll road from Johannesburg to Durban;
- Head Office Accommodation for the Department of Trade and Industry (DTI) in Tshwane;
- The Cradle of Humankind - Morapeng Complex in Johannesburg;
- Eco-tourism, Manyeleti - three sites in Limpopo;
- Correctional facilities in South Africa;
- Fleet management in the Northern Cape;
- The Inkosi Albert Luthuli Hospital in KwaZulu–Natal;
- The Chapman's Peak Drive toll road in Western Cape;
- The State Vaccine Institute;
- The Humansdorp District Hospital in Eastern Cape;
- The Universitas and Pelonomi Hospitals co-location in Free State;
- The Social Grant Payment System for the Department of Social Development in the Free State;
- Water and sanitation projects at Ilembe District;
- Information Systems Project for the Department of Labour;
- The Nelspruit Water Concession;
- The Queenstown Water Concession, and
- The Amanzu Abantu Water Project in the Eastern Cape.

### 3.6.3 Unit of Analysis

The selected projects formed the units of analysis from the defined population, namely South African PPPs. The individual projects were the most basic units on which data was collected. The questionnaires were sent to PPP project officers and other PPP and non-PPP actors who were directly or indirectly involved in the projects. Secondary data on the projects were collected through a literature study.

### 3.6.4 Sampling Approach

Non-probability sampling was used, because the focus of this study was on in-depth information and not on making inferences or generalisations. The projects were selected, because they were

considered informative, or rather they possessed the required characteristics. The cases selected, offered in-depth information that were considered relevant to the study.

### 3.6.5 Sample Adequacy

This was achieved through the systematic evaluation of some aspects of the selected samples. Some of the items used in the checklist, included descriptions of the population and the sample, and whether a probabilistic sampling method was used. A sample checklist is presented in Table 24.

Table 24: Evaluation Checklist

ID	Evaluation Criteria	Yes	No
1	Population and sample description	Yes	
2	Probabilistic sampling method		No

The number of selected case studies was obviously small, compared to the actual number of PPP projects registered, or in the PPP production pipeline. It was necessary to only study cases that had been registered with the PPP Unit. Those that were waiting for approval before being implemented were excluded, because little information, if any, was available on them. It is important to recognise that due to the limited number of cases available and their newness, elaborate statistical representation was not possible.

The research data was obtained from a survey of public and private sector contract managers of PPP projects in South Africa that were in operation at the end of 2005. Questionnaires were sent to different authorities who were responsible for live PPP projects and to other PPP actors linked directly or indirectly to them, and to the PPP sector in general. A full list of operational PPP projects that were included in the survey is provided in Appendix 6.

The research was conducted over a ten-week period, from November 2006 to February 2007. It covered a wide range of topics such as: costs; affordability; budgets; risks; training; project management; roles and responsibilities; policy, and regulatory frameworks. These covered various sectors where there were operational PPP projects in South Africa.

Cases were selected to demonstrate certain structures, issues and problems, which were commonly encountered. Solutions were then suggested. An attempt was made to demonstrate the positive and negative impacts of private sector participation. Many of the cases selected represented on-going PPP projects, which will continue to evolve over time. It was necessary, in certain cases, to apply a time limit so as to have a common benchmark to compare issues relating to the PPP process.

To allow a common analysis, eight key criteria were used:

- Project management competency - the competency of key players in the PPP delivery process;
- Affordability - the budgetary constraints on PPP implementing institutions or agencies;
- Level of investment - the amount of capital investment in the PPP project exclusive of the income streams or operational costs;
- Contract type and duration - the type of PPP model used;
- Transfer of responsibilities - the degree to which each party is involved;
- Risk management - the risk allocation and management strategy;
- Policy and guidelines - the legal framework to catalyse and guide PPP projects, and
- PPP awareness and training - PPP mainstreaming into the various institutions and training for staff.

### 3.6.6 Justification

The projects were selected using non-probabilistic methods (Brink, 2006). Hence, it was decided that whichever case was selected in any of the listed categories for PPP projects, was representative of other typical PPP projects. The suitability of the case studies chosen were based on the following grounds:

- They represented a broad spectrum of sectors - health, transportation, water, housing, power, and information technology;
- They were operational and hence complied with the requirements of the regulatory agency in South Africa;
- They were typical and therefore similar in crucial aspects to other projects which could have been chosen;
- They had generated data, necessary to inform the research;
- South Africa has a limited number of operational PPPs, and
- Some case studies provided unique opportunities, namely the N4 Toll Road and the Albert Luthuli Hospital projects.

## 3.7 Research Methodology

### 3.7.1 Data Collection - Approach and Strategy

This section explains the research methods followed in the study. It includes the methods of data collection and analysis used and the basis of the analytical framework. According to Mouton (2001), the type of data analysis techniques to be used should be chosen before the data is



collected so that the appropriate data collection techniques are utilised. Hence, in this study, the data collection techniques were determined before the data collection commenced.

After obtaining approval for the research proposal, the first step in the second phase of the research process, was to implement the research plan. A detailed work plan, with a complete breakdown of tasks that needed to be performed at various stages in achieving the desired outcomes, was prepared. It was discussed and agreed with by the promoter, before being implemented, as part of the preparatory stages of the entire research process.

Structured detailed case studies were conducted in the following sectors: power; water / wastewater; solid waste management; transport; tourism; sports; telecommunications, and social infrastructure. It is important to recognize that PPP principles can be applied in a wide range of projects, covering both physical and social infrastructure.

### 3.7.2 Work Plan

The format of the work plan is presented in Table 25. The activity breakdown was based on the broad three-year strategic plan for the completion of the PhD programme.

Table 25: Work Plan Format

Item	Description of Activity	Latest finish	Responsibility	Outcome
1.	Field scanning	30/11/2005	Candidate	Identify focus area
2.	Prepare research proposal	7/27/06	Candidate	Proposal
3.	Approve proposal	8/27/06	RTI Committee	Approved proposal
4.	Sign Learning Agreement	1/23/06	Promoter	LA signed
5.	Confidentiality Agreement	1/23/06	Promoter	CA signed

The specific activities that the researcher undertook included:

- Developing a detailed work plan for the research project, clearly indicating the schedule for instrument preparation, testing, data collection, analysis and thesis writing;
- Preparing a list of performance indicators based on research objectives;
- Developing an instrument to be used for collecting the required data from the field;
- Pre-testing the instrument and making the necessary corrections;
- Developing the Internet link and uploading the instrument onto the web, and
- Finalising the design of the instrument and collecting the field data.

## 3.8 Research Instrument and Data Collection

### 3.8.1 Instrument Design and Construction

The questionnaire was developed by the researcher and reviewed by the promoter. It addressed the following issues relevant to PPP project environments:

- Project profiles;
- PPP actors;
- Costs and affordability;
- Budget;
- Risk transfer;
- Policy frameworks and guidelines;
- Project management competency levels, and
- PPP awareness and training.

The questionnaires were distributed via the NMMU website and also directly by the researcher to the targeted respondents. Completed questionnaires were returned either by facsimile, or electronically. Reminder e-mails were sent to all the respondents, followed by phone calls to encourage participation.

Six common ways of information collection were considered. These were literature searches, focus groups, personal interviews, telephone surveys, mail surveys, and web-based surveys. It was decided to collect the primary data by using a web-based questionnaire in order to access the necessary data.

The literature survey involved reviewing readily available material from various sources such as: academic journals; textbooks; theses; contemporary magazines; technical reports; on-line databases, and any other published material concerning PPPs in general. This approach proved an inexpensive method of gathering information, although it took time to conduct a comprehensive literature survey.

Various options such as telephone interviews, personal interviews and the use of questionnaires were considered for data collection. Due to the geographical spread of the targeted projects, time considerations, and cost implications, it was decided to use web-based survey.

The following general guidelines informed the development and design of the questionnaire. The researcher kept in mind that the response to the questionnaire was voluntary and designed the instrument accordingly, to maintain respondent interest. The questionnaire was designed and structured with:

- Precise and clear instructions on how to answer questions;
- Divisions into logical sections by subject;
- Initial questions that were easy to answer;
- A progression from general to specific questions;

- Personal questions listed at the end of each section;
- Little technical jargon;
- A limited number of questions to avoid respondent fatigue;
- Questions that were framed with particular issues in mind, and
- The ranking of each type of question by using simplified recording, tabulation and editing.

### 3.8.2 Piloting of Survey Instrument

The research instrument was tested for functionality and usability on a group of experts and project managers from industry, institutions, and some of the case study organizations. The feedback from the pilot survey was obtained and the necessary changes made before sending out the final instrument.

The results from the pilot survey results indicated that the respondents had few questions for clarification and little difficulty in understanding what was required. However, their views on some of the items were noted and the relevant changes made. These included corrections to spelling, choices and personal information. The pilot survey was carried out by e-mailing respondents and by providing hypertext links to the test group. Feedback was then obtained and the necessary corrections made, followed by the rolling out of the finalised survey, to the various respondents.

### 3.8.3 Cover Letter

A cover letter accompanied every questionnaire sent or transmitted to the respondents. The letter was brief and contained an adequate explanation about the proposed research project. The cover letter contained the following:

- Self introduction;
- Purpose of the study;
- Brief explanation of the importance of the study;
- Assurance of confidentiality, and
- Specific deadlines for returning the questionnaire.

### 3.8.4 Cost of Implementing Survey

The questionnaires were considered cost effective when compared to face-to-face interviews. This is particularly true for studies involving large sample sizes and large geographic areas. Written questionnaires become even more cost effective as the number of research questions increase. Questionnaires are easy to analyse. Data entry for nearly all surveys can be easily expedited with standard computer software packages. Questionnaires are familiar to most people. Nearly everyone has had some experience completing a questionnaire and generally

they do not make people apprehensive. Questionnaires reduce bias. There is a uniform question presentation and no intermediary bias. The researcher cannot influence the respondent to answer the questions in a certain manner. There are no verbal or visual clues to influence the respondent. Questionnaires are less intrusive than telephone or face-to-face surveys. When respondents receive a questionnaire in the mail or via email, they are free to complete the questionnaire in their own time. Indeed, this was the case for some respondents from the Buthelezi, Albert Luthuli PPP Project, who wrote back and indicated that they had flagged the questionnaire task completion for a later date. Unlike other research methods, the respondent is not expected to complete the questionnaire immediately.

#### **3.8.5 Disadvantages of Written Questionnaires**

One major disadvantage of written questionnaires is the possibility of low response rates. This is particularly disadvantageous if high-end statistical analysis is contemplated. Rigorous statistical analysis was not envisaged in this study as was clearly indicated in the research limitations. Cognisance was taken for the fact that low response rates could drastically lower confidence in the results. Response rates can vary widely, between 10% and 90%. However, by improving the design of the instrument this was mitigated.

Another disadvantage of questionnaires is their inability to probe responses. Questionnaires are structured instruments. They allow the respondent flexibility with respect to response format. In essence, they often lose the 'flavour of the response', since respondents may sometimes want to qualify their responses. Clearly defined research project goals provided direction and guidance for the design of the questionnaire.

### **3.9 Procedures for Data Collection**

Both self-administered and researcher administered questionnaires were used to collect data. For the self-administered questionnaires, the respondents were asked to complete the questionnaires themselves. These types of questionnaires were web-based, faxed, mailed, or hand-delivered to the respondents. The researcher conducted personal interviews with the respondents in their work places, or at the project sites, using a questionnaire.

Use was made of internet technology to take advantage of its low costs, convenience and possibility of high response rates. The benefits of high response rates far outweighed the problem of response bias. The web-based questionnaire was a simple user-friendly web-page hosted at the university website.

### 3.9.1 Web-based questionnaire

The researcher designed the questionnaire as a simple web-page and arranged the hosting of it on the NMMU website. The website was linked to the university's main server. The Webmaster assigned the researcher a dedicated web address, identity and password. This site was then used to facilitate the research process, especially in questionnaire distribution, monitoring and administration.

E-mail messages were then sent to selected or identified respondents inviting them to visit the site to complete the questionnaire. The questionnaire was made simple, colourful and attractive with enhanced features to engender optimum response rates.

Respondents were provided with a URL link: <http://www.nmmu.ac.za/pppquestionnaire>, which explained the multi-case study, so that all that a respondent needed to do was double click on the link in order to access the website and open the questionnaire. Respondents were then able to select from a pre-defined range of answers and simply submit the completed form at one keystroke. The researcher was then able to secure answers through option buttons and text entry boxes, which were then linked automatically into a database with the twin benefits of speed and accuracy, in terms of data collection and analysis.

One major advantage of this method of data collection was that, all that was required was an e-mail account to be able to access and complete the questionnaire. Given that the proposed respondents from each sample project were PPP actors, representing contractors, operators, financial advisors, legal advisors, consultants, facility operators, construction managers and project managers, this approach was most appropriate.

The main disadvantage of this approach was that it required respondents to have technical skills and access to the Internet. However, this problem was overcome by e-mailing respondents and informing them about the survey and including in the e-mail a hypertext link to the website, so that all that the respondent needed to do was double click on the link, in order to go to the website and open the questionnaire.

### 3.10 Procedures for Data Analysis

Both qualitative and quantitative data analysis techniques were utilised to analyse the data collected. Given the limited number of cases investigated, a common statistical analysis software package, MS Excel, was used. Each PPP case was analysed individually, before cross-analysis was conducted for the whole study. The investigator studied each PPP project's written

documentation and survey response data as a separate case, to identify unique patterns within the data for that particular PPP project.

The researcher prepared detailed case study summaries for each project, and examined the data to determine whether there were any similarities, or differences within common or differing groups. Cross-case analysis then followed. The analysed data has been presented graphically in the next chapter to illustrate the various concepts based on the findings.

Research components to be completed in subsequent phases included:

- Data coding and analysis using a relevant statistical software package;
- Analysis and interpretation;
- Writing the draft thesis using the data analysed;
- Presenting research findings to promoter and faculty management;
- Revising the draft thesis and taking into consideration the comments;
- Participating in a scientific conference and presenting conference papers;
- Submitting the thesis for examination;
- Binding the required number of hard copies and recording CD soft copies and submitting for examination, and
- Graduating and proceeding to post-doctoral research and lecturing.

The next chapter contains the presentation and discussion of data collected and analysed in the study.

## CHAPTER 4

### 4. PRESENTATION AND ANALYSIS OF THE DATA

#### 4.1 Introduction

This chapter contains the presentation of the findings emanating from the primary data collected during the study. The statistics in the form of frequencies and mean scores, a measure of central tendency, are discussed and interpreted. In that way, both the technical requirements and the informational needs are met.

Receipt, monitoring, and handling of completed questionnaires were undertaken online. Some questionnaires were sent and received by facsimile. Data was then captured on the web-survey system for consolidation and processing. The web-survey programme that was used contained tools for editing, modifying, publishing, monitoring progress, and closing the survey.

The first step in processing was to convert the raw data that was collected into meaningful, or interpretable information. This was achieved first by editing and then encoding the data. The primary purpose of editing was to eliminate errors in the raw data, and to encode the data into appropriate categories. The questionnaire that was used in the survey was pre-coded.

The web-survey tool that was used did not contain any reporting of results other than basic raw data collection. Due to the numerous ways in which data can be analysed and graphically represented, provision was made for exporting the data to Excel software, where it could be easily analysed.

A simple frequency analysis of all the respondents was conducted for various categories and questions. The five-point Likert-type scale used, had sufficient options to accommodate the broad spectrum of respondents' perceptions regarding various issues pertaining to PPP projects. The questions were grouped into different categories, in a way that could best serve the study. These categories were:

- General project profiles;
- Costs and affordability;
- Budget;
- Risk transfer;
- Policy framework and guidelines;
- Project management competency, and
- PPP awareness and training.

The above categories dealt with the different dimensions of the research problem and sub-problems, and addressed the formulated research objectives. All the categories established were mutually exclusive and covered all possible answers. Personal judgement was used to decide on appropriate categories. A spreadsheet data entry format was used for recording raw data. The responses on each questionnaire were recorded horizontally, under separate headings.

#### 4.1.1 Executive Summary

This thesis is the result of a research project conducted by the researcher at the Department of Construction Management at the NMMU, South Africa. This section summarises the evidence from the survey of operational PPP projects in South Africa, organized around the key issues set out in the set of hypotheses. The nineteen case studies that were examined were a representative sample of the PPPs implemented in South Africa over the last decade.

The aim of the research was to examine the performance of selected South African PPP projects in their operational phase, in an endeavour to further the knowledge and understanding of the performance of PPP projects in South Africa and provide direction for a sustainable PPP system.

The PPP projects investigated were chosen on the basis of a survey of the literature and consultation with the PPP unit at the National Treasury. The sample included all PPP projects signed in terms of the Treasury Regulation 16, as of September 2005. It also includes a few selected projects that came into operation before the enactment of the Public Finance Management Act, 1999 (PFMA).

The approach to reporting the results avoids technical jargon and uses clear explanations to enhance communication between the researcher and the user. This approach is necessary to help the user understand the implications of the findings. The results of this research will also be of use to the public and private sector managers across various sectors within South Africa and beyond, in managing their contracts.

#### 4.1.2 Response Summary (Type I & II PPPs)

Table 26 presents a summary of survey responses by sector. There were two categories of PPP projects (Type I and II). Type I operational PPP projects came into operation after the PFMA came into effect. Type II PPP projects were in operation before 1999

Table 26: Summary of survey responses by sector

<b>Sector</b>	<b>Distributed (No.)</b>	<b>Respondents (No.)</b>	<b>Response (%)</b>
Health	4	3	75
Transportation	4	3	75
Tourism	2	1	50
Information Technology	1	1	100



Housing	1	0	0
Finance	1	1	100
Water	4	3	75
Correctional	1	0	0
Other	1	0	0
<b>Total</b>	<b>19</b>	<b>12</b>	<b>63</b>

*Type I: PPP projects in operation since 1999. Type II: PPP projects before 1999.*

It is clear from the data in Table 26 that the response rate was sufficient to conduct the planned statistical analysis. Moreover, as the report will indicate, the response was representative of the PPP sector projects surveyed, and was considered adequate for this study.

## 4.2 Data Collection

### 4.2.1 Operational PPP Projects

Table 27 depicts the sector distribution of projects surveyed relative to PPP type.

Table 27: PPP Projects surveyed by sector and type

<b>Sector</b>	<b>Type I PPPs</b>	<b>Type II PPPs</b>
Health	4	0
Transportation	3	2
Tourism	2	0
Information Technology	1	0
Housing	1	0
Finance	1	0
Water	0	4
Correctional	0	1
<b>Total</b>	<b>12</b>	<b>7</b>

*Type I PPP projects operationalised after 1999 and Type II PPP projects before 1999.*

## 4.3 Description of the PPP Projects

The two categories of PPP projects considered are represented in Tables 28 and 29 respectively. Brief project profiles for the various projects are also presented.

Table 28: Type I Operational South African PPP Projects

<b>Item</b>	<b>Project Name and Location</b>	<b>Sector</b>
A	Albert Luthuli Hospital – KwaZulu Natal, DoH	Health
B	Fleet Management - Northern Cape, DPW	Transportation
C	Eco-tourism, Manyeleti 3 sites - Limpopo, DEAT	Tourism
D	Universitas and Pelonomi Hospitals - Free State, DoH	Health
E	Information Systems Project - DoL	Information Technology
F	Chapman's Peak Drive Toll Road - DPW	Transportation
G	State Vaccine Institute - DoH	Health
H	Humansdorp District Hospital - Eastern Cape, DoH	Health
I	Head Office Accommodation - Gauteng, DTI	Housing
J	Cradle of Humankind - Gauteng, Finance & Tourism	Tourism

K	Social Payment Grant System - Free State	Finance
S	Other: Fleet Management - Eastern Cape, DoT	Transportation

Table 29: Type II Operational South African PPP Projects by sector before 1999

Item	Project Name and Location	Sector
L	Ilembe Water Concession - KwaZulu Natal	Water
M	N4 Toll Road - Johannesburg to Maputo	Transportation
N	Correctional Facilities in South Africa	Legal
O	N3 Toll Road - Johannesburg to Durban	Transportation
P	Queenstown Water Concession - Queenstown	Water
Q	Nelspruit Water Concession - Queenstown	Water
R	Amanzu Abantu Water Project - Eastern Cape	Water

#### 4.3.1 Case A: Inkosi Albert Luthuli Hospital, Department of Health, KwaZulu Natal

This South African pioneering PPP project was conceptualised in 2000 and reached financial closure on 6 December 2001 (PPP Quarterly, 2001). The process took five months of negotiations between various PPP actors. The Net Present Value of the project is R5 billion. The agreement provides for the supply and maintenance of specialised medical equipment and certain hospital upgrades and facilities management, over a period of 15 years.

Table 30: Inkosi Albert Luthuli Hospital

Case Study / Province	Albert Luthuli Hospital – KwaZulu Natal
Rationale / Objectives of PPP	Hospital equipment & maintenance
Sector	Health
PPP model	DFBOT
Contract duration	15 years
Investment level	R 5 billion
Risk allocation	Operational risk with private party
Financing structure	Equity and debt financing
PPP actors	DoH and Impilo Consortium

#### 4.3.2 Case B: Fleet Management, Department of Public Works, Northern Cape

The PPP Fleet management project reached financial closure on 31 October 2001. This five-year contract, worth R37 million per annum, involved the Northern Cape Department of Transport, Pemberley Investments (Pty) Ltd. - Imperial (Pty) Ltd. and Afrika Kosini. This service contract was for the provision of quality and well-maintained vehicles for use by Northern Cape departments within approved budget allocations for the province. This PPP project provided a

good lesson for the establishment of more fleet projects across the country. Table 31 provides a short profile of the project.

Table 31: Fleet Management

<b>Case Study / Province</b>	<b>Fleet Management – Northern Cape</b>
Rationale / Objectives of PPP	Quality & well maintained vehicles
Sector	Transportation
PPP model	DFO
Contract duration	Five years
Investment level	R 181 million
Risk allocation	Operational risk with private sector
Financing structure	Equity: 100%
PPP actors	DoT, Pemberley Investments & Deloitte

#### 4.3.3 Case C: Eco-tourism, Manyeleti 3 sites, Department of Environment and Tourism, Limpopo

The three 30-year Limpopo eco-tourism PPP projects were signed in December 2001. The concession deals, located in the Manyeleti game reserve, required concessionaires to pay the province a concession fee for the rights to develop and operate tourism businesses, under specified conditions in three areas: The Khoko Moya Camp was concessioned to Khoko Moya Wilderness Trails (Pty) Ltd; Honeybadger Camp to Tinswala Lodges (Pty) Ltd; and Pungwe Camp concessioned to Pungwe Game Reserve (Pty) Ltd. The three concessions involved the upgrading of existing facilities and the re-design, construction, and operation of new facilities.

Table 32: Eco-tourism

<b>Case Study / Province</b>	<b>Eco-tourism – Limpopo</b>
Rationale / Objectives of PPP	Develop and operate tourism business
Sector	Tourism
PPP model	DFBOT
Contract duration	30 years
Investment level	29 million
Risk allocation	Operational risk to private party.
Financing structure	Equity: 100%
PPP actors	Finance, Economic Affairs & Tourism, DBSA, White & Case, Koko Moya, Tinswala & Pungwe.

#### 4.3.4 Universitas and Pelonomi

Table 33 presents a brief profile of the 16-year co-location hospital in the Free State. This project was closed in November 2002. It provides community health and management services on behalf of the Department of Health.

Table 33: Universitas and Pelonomi

<b>Case Study / Province</b>	<b>Universitas and Pelonomi – Free State</b>
Rationale / Objectives of PPP	Community Health and Management Services
Sector	Health
PPP model	DFBOT
Contract duration	16 Years
Investment level	N/A
Risk allocation	Operational risk to private party
Financing structure	Equity: 100%
PPP actors	DoH

N/A: Data not available

#### 4.3.4 Case E: Information Systems Project, Department of Labour

Table 34 presents a brief profile for the information systems project for the Department of Labour. The duration of the project is 10 years and was closed in December 2002.

Table 34: Information Systems

<b>Case Study / Province</b>	<b>Information Systems – National</b>
Rationale / Objectives of PPP	Information management services
Sector	Information Technology
PPP model	DFBOT
Contract duration	10 Years
Investment level	N/A
Risk allocation	Public: 46% & Private sector: 44%
Financing structure	Debt:44%, Equity:10% & Gov; 46%
PPP actors	Semens Consortium & Department of Labour

#### 4.3.5 Case F: Chapman's Peak Drive Toll Road, Department of Public Works, Western Cape

The Chapman's Peak Drive project reached financial closure in May 2003 (Table 35). The duration of the project is 30 years and the value is R 1.5billion. The project is located in the Western Cape.

Table 35: Chapman's Peak Drive

<b>Case Study / Province</b>	<b>Chapman's Peak Drive – W/Cape</b>
Rationale / Objectives of PPP	Safe transportation
Sector	Transportation

PPP model	DF(part)BOT
Contract duration	30 Years
Investment level	R 1.5b
Risk transfer	Private sector
Financing structure	100 % Equity
PPP actors	Capstone 252 (Pty) Ltd. Consortium & DoT

#### 4.3.6 Case G: State Vaccine Institute, Department of Health

According to the PPP Quarterly (2002), the South African government has traditionally been involved in the manufacture of human vaccines, through the State Vaccine Institute in Pinelands, Cape Town (Table 36). The process of restructuring the State Vaccine Institute started in 2000, with a new entity called Biovac Consortium, which was appointed for a five-year programme for the manufacture of a limited number of vaccines. The marketing of the vaccines in the SADC region will be a primary aim of the PPP project. The PPP project reached financial closure in April 2003.

Table 36: State Vaccine Institute

<b>Case Study / Province</b>	<b>State Vaccine Institute – Gauteng</b>
Rationale / Objectives of PPP	Manufacture & marketing of vaccines
Sector	Health
PPP model	Equity Partnership
Contract duration	4 Years
Investment level	N/A
Risk allocation	Operational risk to private party.
Financing structure	Equity: 100%
PPP actors	Biovac Consortium, DoH & PriceWaterhouse

#### 4.3.7 Case H: Humansdorp District Hospital, Department of Health, Eastern Cape

This PPP project, an 80-bed hospital, reached financial closure in June 2003 and consists of a revitalised, refurbished and upgraded modern hospital, with a long-term maintenance and non-clinical services agreement (Table 37). As a co-location hospital, various medical facilities are shared between the private and public sectors. The private operator is Metro-Star Hospital.

Table 37: Humansdorp District Hospital.

<b>Case Study / Province</b>	<b>Humansdorp – Eastern Cape</b>
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Rationale / Objectives of PPP	Upgrading, expansion and maintenance
Sector	Health
PPP model	DFBOT
Contract duration	20 years
Investment level	18.9 million
Risk allocation	Operational risk to private party
Financing structure	Equity: 90%, Govt: 10%
PPP actors	DoH, Metro-Star and Ignis

#### 4.3.8 Case I: Head Office Accommodation, Department of Trade and Industry, Gauteng

The Head Office Accommodation project is a 25-year design, finance, build, operate and transfer type PPP, for the multi-purpose trade and industry campus, located on a 4ha site on Nelson Mandela Drive (Table 38). The project was initiated in January 2001 and reached financial closure in August, 2003.

Table 38: Head Office Accommodation.

<b>Case Study / Province</b>	<b>Office Accommodation – Gauteng</b>
Rationale / Objectives of PPP	Asset management and support services
Sector	Housing
PPP model	DFBOT
Contract duration	25 years
Investment level	R 870 million
Risk transfer	N/A
Financing structure	Debt: 80%, Equity: 8%, Contribution :12%
PPP actors	DTI, Ignis, Utho Capital and Standard Bank.

#### 4.3.9 Case J: Cradle of Humankind – Maropeng, Departments of Finance and Tourism

The Cradle of Humankind World Heritage PPP project in Gauteng, a ten-year DBOT project, reached financial closure in October 2003 (Table 39).

Table 39: Cradle of Humankind (Maropeng).

<b>Case Study / Province</b>	<b>Cradle of Humankind – Gauteng</b>
Rationale / Objectives of PPP	Scientific research, education and tourism
Sector	Tourism
PPP model	DBOT
Contract duration	10 years

Investment level	Not available
Risk transfer	Operation risk to private party
Financing structure	Equity: 100 %
PPP actors	Dept. of Finance and Economic Affairs, PriceWaterhouse, Furneaux Stewart Gapp

#### 4.3.10 Case K: Social Payment Grant System, Department of Social Development, Free State.

The Free State province signed a three-year PPP deal with AllPay (Pty) Ltd., in April 2004 for the Social Grant Payment System (Table 40). The short period for the deal was due to the anticipated creation of a national agency for managing social grants. The deal envisaged a 28% savings in cost of delivery social grant services (PPP Quarterly, 2004).

Table 40: Social Payment Grant

<b>Case Study / Province</b>	<b>Social Payment System – Free State</b>
Rationale / Objectives of PPP	Efficient delivery of social grants
Sector	Social Security
PPP model	DFO
Contract duration	3 years
Investment level	R260 million
Risk transfer	Operational risk to the private party
Financing structure	Equity: 100 %
PPP actors	Dept. of Social Development, Ernst and Young and AllPay (Pty) Ltd.

#### 4.3.11 Case L: Ilembe Water Concession, Ilembe District Municipality, KwaZulu Natal

Located in South Africa's KwaZulu-Natal province, the then Borough of Dolphin Coast, which now falls within the Ilembe district, signed a 30-year concession contract in 1999 with Siza Water Company. The contract provided for the overseeing, managing, and implementation of the provision of water and sanitation services within the then Borough of Dolphin Coast municipal boundary. However, the geographical coverage area for the contract changed as a result of the restructuring and demarcation of municipal boundaries (Robbins, 2003). Issues which arose out of these changes are not the subject of this research, but nevertheless would present greater insights on operational problems of PPPs should it be researched further.

The BODC municipality chose the PPP approach for water and sanitation provision, because the municipality lacked adequate funding and experience to upgrade and expand services to cater for growing investment and management responsibility.

Table 41: Ilembe Water Concession

<b>Case Study / Province</b>	<b>Ilembe Water Concession – KwaZulu Natal</b>
Rationale / Objectives of PPP	Efficient water provision management
Sector	Water
PPP model	DBOT
Contract duration	30 years
Investment level	18 million
Risk transfer	Operational risk to private party
Financing structure	N/A
PPP actors	Ilembe, Siza, SAUR & Metropolitan Life

#### 4.3.12 Case M: The Pretoria to Maputo N4 Toll Road, Trans African Concessions

The N4 represents a unique trans-boundary PPP agreement, signed between the governments of Mozambique and South Africa in 1996, for a 30-year period (Table 42). Trans African Concessions (TRAC) designed and built it, and is now operating the N4 Toll Road from Witbank, South Africa to Maputo, Mozambique. Control and management of the N4 Toll Road will revert back to the two governments at the expiry of the concession period.

Table 42: N4 Toll Road

<b>Case Study / Province</b>	<b>N4 Toll Road – Gauteng, Mpumalanga</b>
Rationale / Objectives of PPP	Design, build & efficient operation of N4 road
Sector	Transportation
PPP model	DFBOT
Contract duration	30 year
Investment level	R3 billion (1996 estimates)
Risk transfer	Commercial risk shared
Financing structure	Equity: 20% and Debt: 80%
PPP actors	RSA, MZE, SANRAL, TRAC, DBSA, Rand Merchant, ABSA, Nedcor, Standard, FNB, and Mine Employees and Officials Pension Fund.

#### 4.3.13 Case N: Correctional Facilities in South Africa

The Departments of Correctional Services (DCS) and Public Works used a model of privately built and operated prisons to establish this PPP (Table 43). The above model was based on UK models. The South African government signed two 25-year concessions for maximum security prisons in Bloemfontein and Louis Trichardt as part of the Department of Public Works' Asset



Procurement and Operating Partnership Systems (APOPS) in the year 2000, at a total cost of R1.7 billion. The consortium that developed the PPP is responsible for designing, building, financing, operating and transferring the prisons back to the government at end of concession.

Table 43: Correctional Facilities

<b>Case Study / Province</b>	<b>Correctional Facilities - Bloemfontein, Free State</b>
Rationale / Objectives of PPP	Efficient management of correctional services
Sector	Correctional
PPP model	DFBOT
Contract duration	25 years
Investment level	R1.7 billion
Risk transfer	Operational risk to private party
Financing structure	Debt: Equity:
PPP actors	DCS and others

#### 4.3.14 Case O: N3 Toll Concession – Cedara in KwaZulu-Natal to Heidelberg in Gauteng

This 30-year concession is part of the South African government's efforts at developing infrastructure through alternative sources such as PPPs, so as to relieve the burden of financing public infrastructure, through tax-based revenues. According to SANRAL (2006) the N3 Toll Road Project represents one successful PPP case that can be replicated in other parts of the country. The value of the N3 Toll Road Project was R3.5 billion, covering a distance of 418 kilometres from Cedara in KwaZulu-Natal, to Heidelberg in Gauteng Province. The project received the 1999 Project Finance International Deal of the Year Award (SANRAL, 2006). The aims of this project were to: reduce congestion; reduce transport costs; reduce cost of goods; enable faster, safer and more efficient transport and reduce travelling time between Durban and Johannesburg.<sup>2</sup>

Table 44: N3 Toll Concession

<b>Case Study / Province</b>	<b>Albert Luthuli Hospital – KwaZulu Natal</b>
Rationale / Objectives of PPP	Faster, safer and more efficient transport
Sector	Transportation
PPP model	DFBOT
Contract duration	30-Years
Investment Value	R3.5 billion
Risk transfer	Design and operational risk to private party

<sup>2</sup> The issues of decongestion, transport & goods costs, speed, safety, efficiency and reduced traveling time on the N3 toll road are ideal for further research to contribute more towards the body of PPP knowledge.

Financing structure	Equity: 85%, Debt: 15%
PPP actors	N3TC

#### 4.3.15 Case P: Queenstown Water Concession, Queenstown

Table 45: Queenstown Water Concession

<b>Case Study / Province</b>	<b>Queenstown Water Concession – E/Cape</b>
Rationale / Objectives of PPP	N/A
Sector	Water
PPP model	N/A
Contract duration	N/A
Investment level	N/A
Risk transfer	N/A
Financing structure	N/A
PPP actors	N/A

#### 4.3.16 Case Q: Nelspruit Water Concession, Ehlanzeni District Municipality, Mpumalanga

The controversy-ridden Nelspruit Water concession faced a lot of challenges from the labour union movement. The contract was finally signed in April 1999, despite strong opposition from the South African Municipal Workers Union (SAMWU) and the Congress of South African Trade Unions (COSATU), to extend the coverage of services to the town's poorer areas (Table 46).

Table 46: Nelspruit Water Concession

<b>Case Study / Province</b>	<b>Nelspruit Water Concession – Mpumalanga</b>
Rationale / Objectives of PPP	N/A
Sector	Water
PPP model	N/A
Contract duration	N/A
Investment level	N/A
Risk transfer	N/A
Financing structure	N/A
PPP actors	N/A

#### 4.3.17 Case R: Amanzu Abantu Water Concession Water Project, Eastern Cape

There is hardly any information available about this concession. However, the first long-term municipal public/private partnerships, concluded mostly in the late 1980s and early 1990s

included towns like Stutterheim, Fort Beaufort, and Queenstown. These towns entered into management contracts for water and sanitation.

Table 47: Amanzu Abantu Water Concession

<b>Case Study / Province</b>	<b>Amanzu Abantu Water Concession – Eastern Cape</b>
Rationale / Objectives of PPP	N/A
Sector	Water
PPP model	N/A
Contract duration	N/A
Investment level	N/A
Risk transfer	N/A
Financing structure	N/A
PPP actors	N/A

#### 4.3.18 Case S: Fleet Management, Eastern Cape Department of Transport

The Fleet Management PPP project, initiated by the Eastern Cape Department of Transport (ECDoT), is a pioneering and innovative restructuring of the former Mayibuye Transport Corporation (MTC) (Table 48). According to the PPP Quarterly (2002), it had been operating on a government subsidy. In November 2001, the ECDoT appointed Deloitte & Touche Management Solutions as Transaction Advisors to conduct an options analysis and feasibility study, and drive the procurement process. The ECDoT PPP project is among twelve projects signed in terms of the Treasury Regulation 16, as at January 2006.

Table 48: Fleet Management

<b>Case Study / Province</b>	<b>Fleet Management, Eastern Cape</b>
Rationale / Objectives of PPP	Provide affordable & accessible transport
Sector	Transport
PPP model	DFO
Contract duration	5 years
Investment level	R 553 million
Risk transfer	Operational risk to private party
Financing structure	Debt: 100%
PPP actors	Fleet Africa, ECDoT and Rand Merchant

#### 4.3.19 Case S: Bakwena Platinum Toll Road PPP project

The Bakwena Platinum Toll Road is a good example of the major role being played by PPPs in the development of South Africa's infrastructure (Table 49). The 30-year concession is valued at R3.5 billion. The Highway comprises two of the main access roads to Pretoria: the N4-West, linking Pretoria to the Botswana Border - 290 kilometres, and the N1-North, connecting Pretoria to Warmbaths - 90 kilometres and ultimately, to Zimbabwe.

Table 49: Bakwena Platinum Toll Road\*

<b>Case Study / Province</b>	<b>Bakwena Platinum Highway</b>
Rationale / Objectives of PPP	Build, upgrade and maintain
Sector	Transportation
PPP model	DBOT
Contract duration	30 years
Investment level	R 3.5 billion
Risk transfer	Operational risk to private party
Financing structure	Debt and Equity
PPP actors	Bakwena, ABSA, NIB, Nedbank, EIB, and SANRAL

#### 4.4 Survey Data

##### 4.4.1 Part I: Project Background

Tables 50 to 56 summary data relative to each project examined and include: sector responses; PPP project models; contract durations; investment levels; responsibility transfer, and PPP actors.

Table 50: Sectors Responses

<b>PPP Sector</b>	<b>Response</b>	
	<b>No.</b>	<b>%</b>
Transportation	3	25.0
Health	3	25.0
Water	3	25.0
Housing	0	0.0
Tourism	0	0.0
Social Security	0	0.0
Correctional / Legal	0	0.0
Other	3	25.0

Table 51: PPP project models

<b>PPP model</b>	<b>Response</b>	
	<b>No.</b>	<b>%</b>
Service Contract (SC)	6	50.0
Design Finance Operate (DFO)	0	0.0
Design Finance Build Operate Transfer (DFBOT)	5	41.7
Joint Venture	1	8.3
Other	0	0.0

Table 52: Contract duration

Duration	Response	
	No.	%
≤ 5 years	2	16.7
> 5 ≤ 10 years	3	25.0
> 10 ≤ 20 years	3	25.0
> 20 ≤ 30 years	4	33.3
> 30 years	0	0.0

Table 53: Investment level

Investment Level (Rand)	Response	
	No.	%
≤ 10 m	1	8.3
> 10 ≤ 20 m	0	0.0
> 20 ≤ 30 m	2	16.7
> 30 ≤ 40m	1	8.3
> 40 m	8	66.7

Table 54: Responsibility transfer

Responsibility transfer	Response	
	No.	%
Fully public	1	8.3
70 Public / 30 Private	5	41.7
50 Public / 50 Private	0	0.0
30 Public / 70 Private	3	25.0
Fully private	3	25.0

Table 55: Finance structure

Financing structure	Response	
	No.	%
Fully public	2	16.7
70 Public / 30 Private	1	8.3
50 Public / 50 Private	2	16.7
30 Public / 70 Private	4	33.3
Fully private	3	25.0

Table 56: PPP actors

PPP Actor	Response	
	No.	%
Public entity	3	25.0
Consultant	2	16.7
Contractor	0	0.0
Operator	2	16.7
Transaction advisor	1	8.3
Financier	1	8.3
Other	3	25.0

#### 4.4.2 Part II: Perceptions on performance of PPP projects

A self-report data collection instrument, using a five-point Likert scale was used to measure the opinions of people from diverse backgrounds who were involved directly or indirectly in South African PPP projects. Tables 57 to 86 indicate the perceptions of respondents relative to various performance related aspects of South African PPPs in terms of percentage responses to a scale of 1 to 5, and a mean score (MS) ranging between 1.00 and 5.00. MSs were computed for each statement to enable interpretation of the percentages relative to each point on the response scale. Given that there are five points on the scale, and that  $5 - 1 = 4$ , the ranges were determined by dividing 4 by 5 which equates to 0.8. Consequently, the ranges and their definitions are as follows:

- $> 4.20 \leq 5.00$ : between agree and strongly agree / strongly agree, or often to always / always;
- $> 3.40 \leq 4.20$ : between neutral and agree / agree, or sometimes to often / often;
- $> 2.60 \leq 3.40$ : between disagree and neutral / neutral, or rarely to sometimes / sometimes;
- $> 1.80 \leq 2.60$ : between strongly disagree and disagree / disagree, or never to rarely / rarely, and
- $> 1.00 \leq 1.80$ : between strongly disagree to disagree, or never to rarely.

##### 4.4.2.1. Costs and Affordability

Table 57: Cost savings

Frequency	Response		Mean score
	No.	%	
Always	4	33.3	4.08
Often	5	42.0	
Sometimes	3	25.0	
Rarely	0	0.0	
Never	0	0.0	

Respondents were required to indicate the frequency 'PPP procurement delivers cost savings in comparison to conventional procurement'. Given that the MS is 4.08 ( $> 3.40 \leq 4.20$ ), PPP procurement can be deemed to deliver cost savings in comparison to conventional procurement between sometimes to often / often (Table 57).

Table 58: Factual Data

Frequency	Response		Mean score
	No.	%	
Always	0	0.0	3.50
Often	5	42.0	
Sometimes	6	50.0	
Rarely	1	8.0	

Never	0	0.0	
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With respect to whether cost savings can be assessed with reference to factual data, rather than through comparisons with the assumptions used in the Public Sector Comparators, the resultant MS of 3.50 ( $> 3.40 \leq 4.20$ ) indicates that the frequency of such assessment rather than through comparisons, can be deemed to be more appropriate between sometimes and often / often (Table 58).

Table 59: Affordability

Frequency	Response		Mean score
	No.	%	
Always	4	33.0	4.08
Often	2	17.0	
Sometimes	3	25.0	
Rarely	3	25.0	
Never	0	0.0	

Based upon the MS of 4.08 ( $> 3.40 \leq 4.20$ ), respondents can be deemed to be of the opinion that 'various implementing agencies are able to afford project transaction costs', between sometimes and often / often (Table 59).

Table 60: Transaction costs subsidies

Frequency	Response		Mean score
	No.	%	
Always	2	17.0	3.81
Often	4	33.0	
Sometimes	1	8.0	
Rarely	4	33.0	
Never	1	8.0	

The MS of 3.81 ( $> 3.40 \leq 4.20$ ) indicates that respondents can be deemed to be of the opinion that 'PPP transaction costs are subsidised in South Africa' between sometimes and often / often (Table 60).

Table 61: High transaction costs

Frequency	Response		Mean score
	No.	%	
Always	1	8.0	3.55
Often	6	50.0	
Sometimes	3	25.0	
Rarely	1	8.0	
Never	1	8.0	

The MS of 3.55 ( $> 3.40 \leq 4.20$ ) presented in Table 61 indicates that respondents can be deemed to be of the opinion that 'high transaction costs are a major constraint for faster deal flow', between sometimes and often / often.

The overall MS of 3.80 ( $> 3.40 \leq 4.20$ ) for all the five statements included in the category of 'costs and affordability', indicates that respondents can be deemed to be of the opinion that the contentions expressed in the statements apply between sometimes and often / often.

#### 4.4.2.2 Budget

Table 62: PPP benefits

Frequency	Response		Mean score
	No.	%	
Strongly agree	7	58.0	4.41
Agree	3	25.0	
Neutral	2	17.0	
Disagree	0	0.0	
Strongly disagree	0	0.0	

The MS of 4.41 ( $> 4.20 \leq 5.00$ ) indicates that the degree of concurrence relative to the statement 'the use of PPPs delivers benefits due to budget restrictions in the public sector capital budgets' can be deemed to be between agree and strongly agree / strongly agree (Table 62).

Table 63: Investment acceleration

Frequency	Response		Mean score
	No.	%	
Strongly agree	9	75.0	4.75
Agree	3	25.0	
Neutral	0	0.0	
Disagree	0	0.0	
Strongly disagree	0	0.0	

Given that the MS is 4.75 ( $> 4.20 \leq 5.00$ ), the degree of concurrence relative to the statement 'PPP procurement brings forward investment and / or ensures that optimal maintenance strategies are followed' can be deemed to be between agree and strongly agree / strongly agree (Table 63).

The overall MS of 4.58 ( $> 4.20 \leq 5.00$ ) for the two statements included in the category of 'budget', indicates that the overall degree of concurrence relative to the statements can be deemed to be between agree and strongly agree / strongly agree.

#### 4.4.2.3 Risk Transfer

Table 64: Risk management system

Frequency	Response		Mean score
	No.	%	
Strongly agree	7	58.0	4.50
Agree	4	34.0	
Neutral	1	8.0	
Disagree	0	0.0	



Strongly disagree	0	0.0	
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Based upon the MS of 4.50 ( $> 4.20 \leq 5.00$ ) presented in Table 64, the degree of concurrence relative to the statement 'successful PPPs require the existence of an adequate risk management system, for appropriate transfer of risks to the party best suited to manage it at least cost' can be deemed to be between agree and strongly agree / strongly agree.

Table 65: Risk management training

Frequency	Response		Mean score
	No.	%	
Strongly agree	8	67.0	4.52
Agree	2	16.5	
Neutral	2	16.5	
Disagree	0	0.0	
Strongly disagree	0	0.0	

Given that the MS is 4.52 ( $> 4.20 \leq 5.00$ ), the concurrence relative to the statement 'PPP risk management training and awareness, is necessary to ensure that project risks are adequately identified and mitigation strategies are followed' can be deemed to be between agree and strongly agree / strongly agree (Table 65).

Table 66: Risk is transferred in practice.

Frequency	Response		Mean score
	No.	%	
Strongly agree	5	41.7	4.17
Agree	4	33.3	
Neutral	3	25.0	
Disagree	0	0.0	
Strongly disagree	0	0.0	

The MS of 4.17 ( $> 3.40 \leq 4.20$ ) indicates that the degree of concurrence relative to the statement '*risk is transferred in practice*' can be deemed to be between neutral and agree / agree (Table 66).

Table 67: Risk allocation

Frequency	Response		Mean score
	No.	%	
Strongly agree	1	8.3	3.66
Agree	7	58.3	
Neutral	2	16.7	
Disagree	1	8.3	
Strongly disagree	1	8.3	

The MS of 3.66 ( $> 3.40 \leq 4.20$ ) indicates that the degree of concurrence relative to the statement '*it is always clear where risk lies in PPP projects*' can be deemed to be between neutral and agree / agree (Table 67).

Table 68: Risk shifting

Frequency	Response		Mean score
	No.	%	
Strongly agree	1	8.3	3.75
Agree	6	50.0	
Neutral	1	8.3	
Disagree	3	25.0	
Strongly disagree	1	8.3	

The MS of 3.75 ( $> 3.40 \leq 4.20$ ) indicates that the degree of concurrence relative to the statement 'there is evidence of contractors or customers seeking to shift risk to the other party, after signing the contract' can be deemed to be between neutral and agree / agree (Table 68)

The overall MS of 4.12 ( $> 3.40 \leq 4.20$ ) for the five statements included in the category of 'risk transfer', indicates that the overall degree of concurrence relative to the statements can be deemed to be between neutral and agree / agree.

#### 4.4.2.4 Policy Framework and Guidelines

Table 69: PPP effectiveness and sustainability

Frequency	Response		Mean score
	No.	%	
Strongly agree	8	66.7	4.50
Agree	2	16.7	
Neutral	2	16.7	
Disagree	0	0.0	
Strongly disagree	0	0.0	

The MS of 4.50 ( $> 4.20 \leq 5.00$ ) indicates that the degree of concurrence relative to the statement 'the existence of an effective and sustainable legal and regulatory framework, is essential for promoting and fostering successful PPPs' can be deemed to be between agree and strongly agree / strongly agree (Table 69).

Table 70: Credibility of legal and regulatory framework

Frequency	Response		Mean score
	No.	%	
Strongly agree	6	50.0	4.33
Agree	3	25.0	
Neutral	2	16.7	
Disagree	1	8.3	
Strongly disagree	0	0.0	

The MS of 4.33 ( $> 4.20 \leq 5.00$ ) indicates that the degree of concurrence relative to the statement 'there exists a credible legal and regulatory framework in South Africa, for the implementation of PPP projects' can be deemed to be between agree and strongly agree / strongly agree (Table 70).

Table 71: Private sector participation

Frequency	Response		Mean score
	No.	%	
Strongly agree	4	33.3	4.08
Agree	2	16.7	
Neutral	3	25.0	
Disagree	3	25.0	
Strongly disagree	0	0.0	

Given that the MS is 4.08 ( $> 3.40 \leq 4.20$ ) that the degree of concurrence relative to the statement 'the government is committed to private sector participation in infrastructure development and service delivery' can be deemed to be between neutral and agree / agree (Table 71).

Table 72: Market access and competition

Frequency	Response		Mean score
	No.	%	
Strongly agree	0	0.0	3.75
Agree	8	66.7	
Neutral	3	25.0	
Disagree	1	8.3	
Strongly disagree	0	0.0	

The MS of 3.75 ( $> 3.40 \leq 4.20$ ) indicates that the degree of concurrence relative to the statement 'the existing policy framework environment supports open market access and fair PPP competition' can be deemed to be between neutral and agree / agree (Table 72).

Table 73: Public interest and value added

Frequency	Response		Mean score
	No.	%	
Strongly agree	3	25.0	4.16
Agree	7	58.3	
Neutral	1	8.3	
Disagree	1	8.3	
Strongly disagree	0	0.0	

Based upon the MS of 4.16 ( $> 3.40 \leq 4.20$ ), respondents can be deemed to be of the opinion that 'PPPs protect public interest and maximise value added for projects', between neutral and agree / agree (Table 73).

Table 74: Investment climate

Frequency	Response		Mean score
	No.	%	
Strongly agree	4	33.3	4.08
Agree	5	41.7	
Neutral	3	33.3	
Disagree	0	8.3	
Strongly disagree	0	0.0	

The MS of 4.08 ( $> 3.40 \leq 4.20$ ) indicates that the degree of concurrence relative to the statement 'the existing investment climate in South Africa promotes a viable and sustainable PPP project system' can be deemed to be between neutral and agree / agree (Table 74).

Table 75: Effective PPP Options

Frequency	Response		Mean score
	No.	%	
Strongly agree	2	16.7	3.83
Agree	5	41.7	
Neutral	4	33.3	
Disagree	1	8.3	
Strongly disagree	0	0.0	

Table 75 depicts the MS as 3.83 ( $> 3.40 \leq 4.20$ ), which indicates the degree of concurrence relative to the statement 'the current PPP guidelines in South Africa provide adequate opportunity to assess the most effective type of PPP, for a given project' can be deemed to be between neutral and agree / agree.

Table 76: PPP policy environment

Frequency	Response		Mean score
	No.	%	
Strongly agree	0	0.0	3.50
Agree	4	33.3	
Neutral	6	50.0	
Disagree	2	16.7	
Strongly disagree	0	0.0	

Given that the MS is 3.50 ( $> 3.40 \leq 4.20$ ) the concurrence relative to the statement 'the policy environment favours PPP growth in South Africa' can be deemed to be between neutral and agree / agree (Table 76).

Table 77: Consistency of PPP policies

Frequency	Response		Mean score
	No.	%	
Strongly agree	1	8.3	3.33
Agree	2	16.7	
Neutral	6	50.0	
Disagree	2	16.7	
Strongly disagree	1	8.3	

The MS of 3.33 ( $> 2.60 \leq 3.40$ ) presented in Table 77, indicates that the degree of concurrence relative to the statement 'policies relative to PPPs are consistent with other government policies, i.e. land use, social policies and so on', can be deemed to be between disagree and neutral / neutral.

Table 78: PPP agreements.

Frequency	Response	Mean score
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	No.	%	
Strongly agree	4	33.3	3.91
Agree	4	33.3	
Neutral	2	16.7	
Disagree	1	8.3	
Strongly disagree	1	8.3	

Table 78 depicts a MS of 3.91 ( $> 3.40 \leq 4.20$ ), which indicates that the respondents' concurrence with the statement 'there is sufficient legislative authority for entering into PPP agreements' can be deemed to be between neutral and agree / agree.

Table 79: Management of PPPs.

Frequency	Response		Mean score
	No.	%	
Strongly agree	2	16.7	3.83
Agree	4	33.3	
Neutral	4	33.3	
Disagree	2	16.7	
Strongly disagree	0	0.0	

The MS of 3.83 ( $> 3.40 \leq 4.20$ ) indicates that the degree of concurrence relative to the statement 'there is sufficient legislation to support the management and supervisory role of the public sector in PPPs' can be deemed to be between neutral and agree / agree (Table 79).

Table 80: Debt agreements by the PPP agencies.

Frequency	Response		Mean score
	No.	%	
Strongly agree	0	0.0	3.66
Agree	7	58.3	
Neutral	4	33.3	
Disagree	1	8.3	
Strongly disagree	0	0.0	

Given that the MS is 3.66 ( $> 3.40 \leq 4.20$ ), the degree of concurrence relative to the statement 'there is sufficient authorisations and leeway, to enter into debt agreements by the PPP agencies' can be deemed to be between neutral and agree / agree (Table 80).

Table 81: PPP procurement, management and auditing.

Frequency	Response		Mean score
	No.	%	
Strongly agree	3	25.0	3.92
Agree	2	16.7	
Neutral	4	33.3	
Disagree	3	25.0	
Strongly disagree	0	0.0	

The MS of 3.92 ( $> 3.40 \leq 4.20$ ) indicates that the degree of concurrence relative to the statement 'existing PPP regulations and guidelines provide for an efficient and effective mechanism, for the

procurement, management and auditing of PPP projects in South Africa' can be deemed to be between neutral and agree / agree (Table 81).

The overall MS of 3.91 ( $> 3.40 \leq 4.20$ ) for all thirteen statements included in the category of 'policy and regulatory framework', indicates that the overall degree of concurrence relative to the statements can be deemed to be between neutral and agree / agree.

#### 4.4.2.5 Project Management Competency Levels

Table 82: Capacity constraints

Frequency	Response		Mean score
	No.	%	
Strongly agree	3	25.0	4.25
Agree	7	58.3	
Neutral	0	0.0	
Disagree	2	16.7	
Strongly disagree	0	0.0	

Given that the MS is 4.25 ( $> 4.20 \leq 5.00$ ), the degree of concurrence relative to the statement 'the slow deal flow for PPP projects in South Africa, is due to capacity constraints in provincial governments and municipalities' can be deemed to be between agree and strongly agree / strongly agree (Table 82).

Table 83: Project management approach

Frequency	Response		Mean score
	No.	%	
Strongly agree	4	33.3	4.08
Agree	5	41.7	
Neutral	3	25.0	
Disagree	0	0.0	
Strongly disagree	0	0.0	

The MS of 4.08 ( $> 3.40 \leq 4.20$ ) presented in Table 83 indicates that the degree of concurrence relative to the statement 'the lack of, or an inadequate project management approach, slows down the implementation of PPP projects' can be deemed to be between neutral and agree / agree.

The overall MS of 4.20 ( $> 3.40 \leq 4.20$ ) for the two statements included in the category of 'project management' indicates that the overall degree of concurrence relative to the statements can be deemed to be between neutral and agree / agree.

#### 4.4.2.6 PPP Awareness and Training

Table 84: Lack of PPP training and awareness

Frequency	Response	Mean score
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	No.	%	
Strongly agree	4	33.3	4.25
Agree	5	41.7	
Neutral	0	0.0	
Disagree	3	25.0	
Strongly disagree	0	0.0	

Given that the MS is 4.25 ( $> 4.20 \leq 5.00$ ), the concurrence relative to the statement 'a lack of PPP training and awareness hampers PPP growth and development' can be deemed to be between agree and strongly agree / strongly agree (Table 84).

Table 85: The level of PPP awareness and training.

Frequency	Response		Mean score
	No.	%	
Strongly agree	1	8.3	4.08
Agree	2	16.7	
Neutral	2	16.7	
Disagree	5	41.7	
Strongly disagree	2	16.7	

Table 85 depicts the MS as 4.08 ( $> 3.40 \leq 4.20$ ), which indicates that the degree of concurrence relative to the statement 'the level of PPP awareness and training, within the public and private sectors in South Africa, is sufficient for PPP development and growth' can be deemed to be between agree and strongly agree / strongly agree.

The overall MS of 4.20 ( $> 3.40 \leq 4.20$ ) for the two statements included in the category of 'PPP awareness and training' indicates that the overall degree of concurrence relative to the statements can be deemed to be between neutral and agree / agree.

#### 4.4.2.8 Organizational Level

Table 86: Organisational Level of Respondents

Management Level	No.	%
Director	4	33.3
Senior Management	3	25.0
Middle Management	3	25.0
Other	2	16.7

Directors (33.3%) predominated in terms of the organisational level of respondents, followed jointly by senior management and middle management. This was expected, given that in projects of this nature, directors and managers play a more active role in the management of PPP projects (Table 86).

In Chapter Five, a systemic model for PPP planning and implementation is evolved and tested for appropriateness.

## **CHAPTER 5**

### **A SYSTEMIC MODEL FOR PPP PLANNING AND IMPLEMENTATION**

#### **5.1 Introduction**

This is partial output for a PhD case study being conducted at the Department of Construction Management, NMMU, based on Yin (2006) methodology and culminates in the evolution of a systemic model for implementation and monitoring of performance of PPP projects in South Africa and the Southern Africa Development Corporation (SADC) region. This is an approach to a holistic understanding of the PPP process and the complexity of the interrelationships within the PPP environment. Systemic PPP planning and procurement is a strategic process of translating ideas and beliefs into policies and projects. It treats the total PPP process and the environment as one system. Given a statement of the problem, systemic PPP planning, procurement and management provides for a continuously iterative analysis of the PPP cycle and the environment, to identify preferred courses of action most likely to lead to the achievement of a given set of goals.

The model focuses on the inputs, processes, outputs, outcomes and eventual impact of the PPP process. Currently South Africa is experiencing an era of shifting accountability in asset and service delivery, coupled with the ever-increasing need for producing results. There is a need to ensure that PPP practitioners are provided with an efficient tool, to guide planned activities through a sound process that produces results, outcomes and creates the desired impact on society.

Systemic models are considered most useful, when developed at the beginning of project activities. This could be at the planning stage of a PPP project, or within a proposed development phase, in order to facilitate the coordination of resources. It is useful for the setting up of realistic expectations for outcomes that may result from a PPP project. However, models are also useful for ongoing projects, since they can be used to clarify how current project activities are unfolding. This would help to accomplish specific objectives and to identify data sources and collection strategies to be used that could help to achieve the expected outcomes.

#### **5.2 Purpose**

The purpose of this new systemic PPP model is to:

- Introduce a 'systems thinking approach' in the PPP environment;
- Define the systemic processes that will be used to plan and implement PPP projects;



- Clarify the complexity of elements and causal interrelationships within the PPP system, and
- Provide direction for current and future researchers into making new discoveries.

### **5.3 Scope**

The proposed model addresses the processes for PPP project implementation and management of end user outputs over the entire project life cycle.

### **5.4 A Systemic Model**

A systemic model is a graphical method of demonstrating relationships between project resources, activities, outputs, and outcomes. Systemic models are planning, implementation and monitoring tools that indicate the resources a PPP project will employ, to conduct activities that are intended to produce specific, describable, and measurable changes, or results in people, organizations, or the broader physical and social environment (Senge, 2006).

It is important to understand the context in which the PPP projects were studied and how they unfold, and the basic assumptions related to the purpose of the project and the target systems the project is designed to impact upon. Specific terms are used in systemic modelling that help to establish a common foundation for describing and understanding a PPP project process.

The elements of the systemic model, depicted in Figure 7, are displayed in individual cells that are read from left to right. The cells depict a set of 'if-then' relationships. For example, if resources are available, then a certain set of activities can be implemented. Certain outputs, such as a PPP agreement, could then be expected and the outputs, if successfully achieved, would then be likely to produce the expected outcomes, such as assets and or services. Finally as a result of successful outcomes, the end user / community would enjoy a better quality of life.

### **5.5 Motivation for a Systemic Model for PPPs**

Systemic models are useful tools to demonstrate integrated, systemic planning in relation to the achievement of goals and expected outcomes. Often PPP project proposals may not clearly specify the relationship shared among resources, planned activities / outputs, and the benefits expected from the PPP project. The systemic model helps to crystallise the extent to which the PPP project has made a difference, or how it can make a difference.

The graphic features of a model serve to depict the relationships among the components of the PPP project. A model provides a common vocabulary to describe elements of project work in a way that encourages deeper understanding over a variety of projects. Once internalised within

the PPP sector, this approach will transform the mindset of PPP managers in the way of solving PPP-related problems systemically.

The new model will also be an effective tool in communicating the desired results, or effects of a PPP project's scope of work. It represents a vision of how staff and other stakeholders with input into the planning process, intend to produce anticipated results through resources and activities. Furthermore, the PPP model is helpful in focussing activities and in clarifying how each is expected to contribute to the stated outcomes.

Through linking PPP project elements, activities and resources in a graphic model format, PPP actors are better able to monitor the direction of project activities regarding the most important project objectives. Systemic models encourage practical project planning and enable investors to envision what can reasonably be expected from the implementation of the planned activities and the delivery of intended outputs. This approach is also extended to risk management of large and complex construction projects (Wibowo & Patria, 2007).

According to MacNamara (2006), systemic modelling is a tool that helps to organize the relationship between major project activities and anticipated outcomes. It can be effective in planning a PPP project design, implementing project activities, and evaluating project success. It should be noted that while a systemic model demonstrates the relationships shared by PPP project elements, such as expected results, changes, or effects, derived through project activities, a systemic model does not take the place of the performance indicators within a PPP project context.

Relevant performance indicators, or criteria, must still be developed for each specific PPP project. Relevant evaluation questions, targeted data and data sources, and data collection strategies, are essential elements of a PPP project's ongoing continuous quality assurance and improvement. It is acknowledged that models are not static; hence there is a need for continuous review and improvement. The intention is to transform the systemic model into a dynamic tool that will assist PPP teams in planning, implementation and assessment efforts. The existing generic PPP model adapted from the PPP Unit is shown in Figure 4 below.

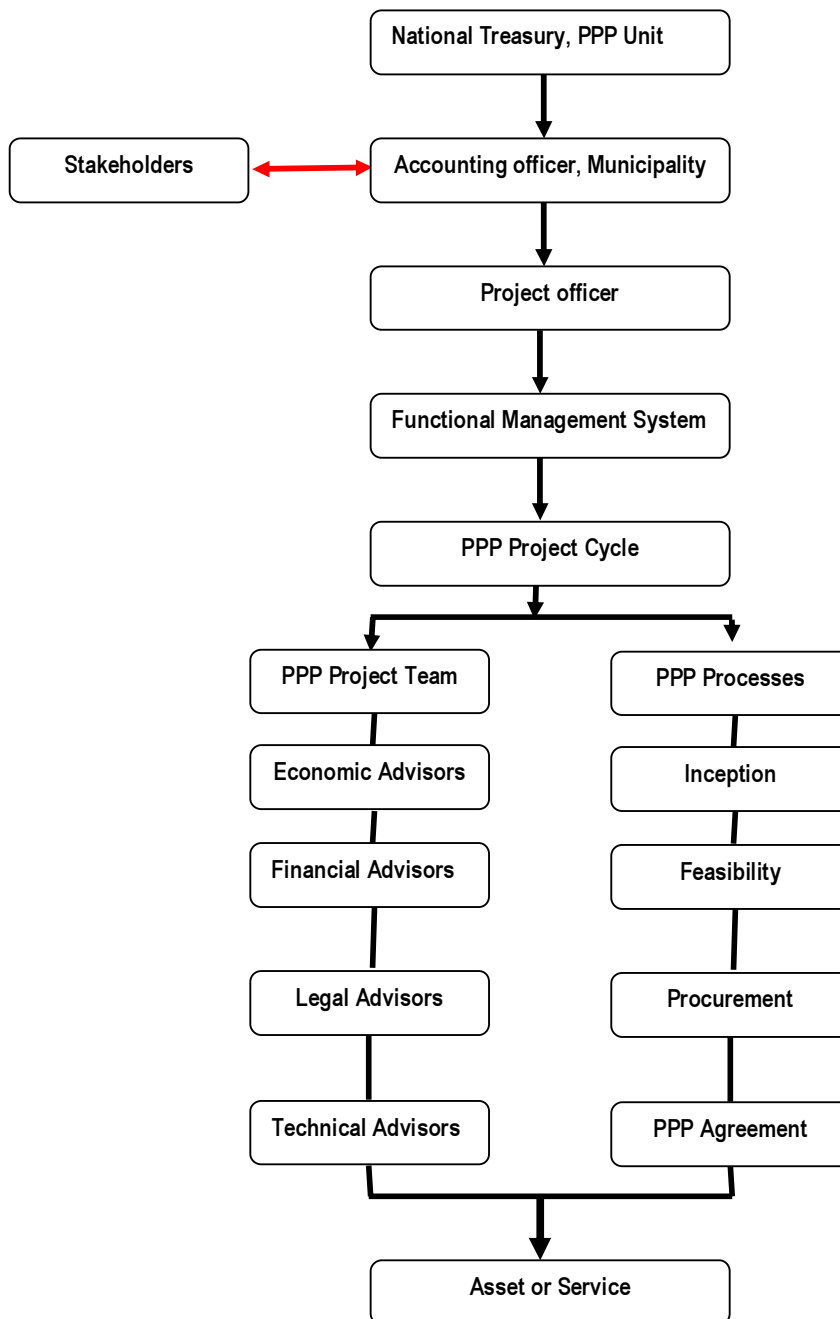


Figure 4: A Generic PPP Model

Source: Adapted from National Treasury, PPP Unit website generic PPP model.

## **5.6 The Status Quo**

The PPP structure in South Africa is currently governed by both the Public Finance Management Act of 1999 and the Municipal Finance Management Act of 2003.. Under these arrangements, the National Treasury has evolved a generic PPP project life cycle for national and provincial governments. In addition to this, the MFMA's PPP regulations help to guide the implementation of the PPP projects.

## **5.7 Project Inception**

According to the Gazette Notice No. 27368 (Republic of South Africa, 2005), only the accounting officer or the accounting authority of an institution may enter into a PPP agreement on behalf of that institution. Clause 16.3.1 states that as soon as the institution identifies a project that may be concluded as a PPP, the accounting officer or accounting authority must in writing:

- Register the PPP with the relevant treasury;
- Inform the relevant treasury of the expertise within the institution to proceed with a PPP;
- Appoint a project officer from within or outside the institution, and
- Appoint a transaction advisor if the relevant treasury so requests (Republic of South Africa, 2005).

## **5.8 Shortcomings - The 'Missing Link'**

The Treasury Regulations, which provide policy direction for the implementation, do not make any mention about the following:

- Project management competency levels required for both the accounting officer, institution, or officer responsible for implementing the PPP project;
- The appointment of the project political champion;
- The appointment of a PPP project manager;
- The appointment of an independent PPP project auditor;
- The establishment of the project management office and systems, and
- PPP education and training.

It is clear from the current structure and policy arrangements that an accounting officer is responsible for PPP agreement management, and that an appointed project officer operates in a 'systems vacuum' to deliver important projects worth millions of rand. Furthermore, the issues of a PPP project champion and independent PPP project auditor are not addressed. The need for a project office and associated systems is also lacking, as well as the policy direction on PPP education, training, and awareness.

An extensive survey of the related literature has been conducted relative to the broad aspects of PPP implementation. However, there is no evidence as to how PPP implementing agencies are supposed to address the above issues. However, it is notable that the MFMA (Republic of South Africa, 2005) makes clear provision for the following:

- Competency levels for financial officials;
- Resources or opportunities for training of officials by the municipality, and
- External intervention by the National Treasury in training of officials.

The above issues constitute the 'missing link' in the existing model for the PPP life cycle process. The new PPP systemic model intends to fill this gap.

## **5.9 Proposed PPP Model**

The proposed model consists of the following added functions besides the generic ones as depicted in Figure 4.

### **5.9.1 The Political Champion**

This function is targeted at the chief executive level in the form of a Mayor or a Member of the Executive Committee (MEC), and will provide input towards political support and broader stakeholder consultation relative to PPP procurement. This role should be seen as a unique, active role, as opposed to the passive generic role of politicians, when it comes to the implementation of projects of this nature.

### **5.9.2 The PPP Project Manager**

This should be a well-rounded and experienced person in PPP projects' policies, procedures and processes. The PPP project manager's principal responsibility is to deliver the project end-item. This is the asset or service, within the specified objectives. Although responsibilities are likely to vary, they will usually include: planning, organizing and controlling project resources; selecting and organizing the project team; interfacing with stakeholders; monitoring project status; identifying technical and functional problems; solving problems; and closing the project. The PPP project manager should establish a fully functional institutional framework, consisting of a project support office, staff and relevant infrastructure. He should have clearly defined roles and tacit authority to initiate, plan and management the PPP Agreement for PPP projects.



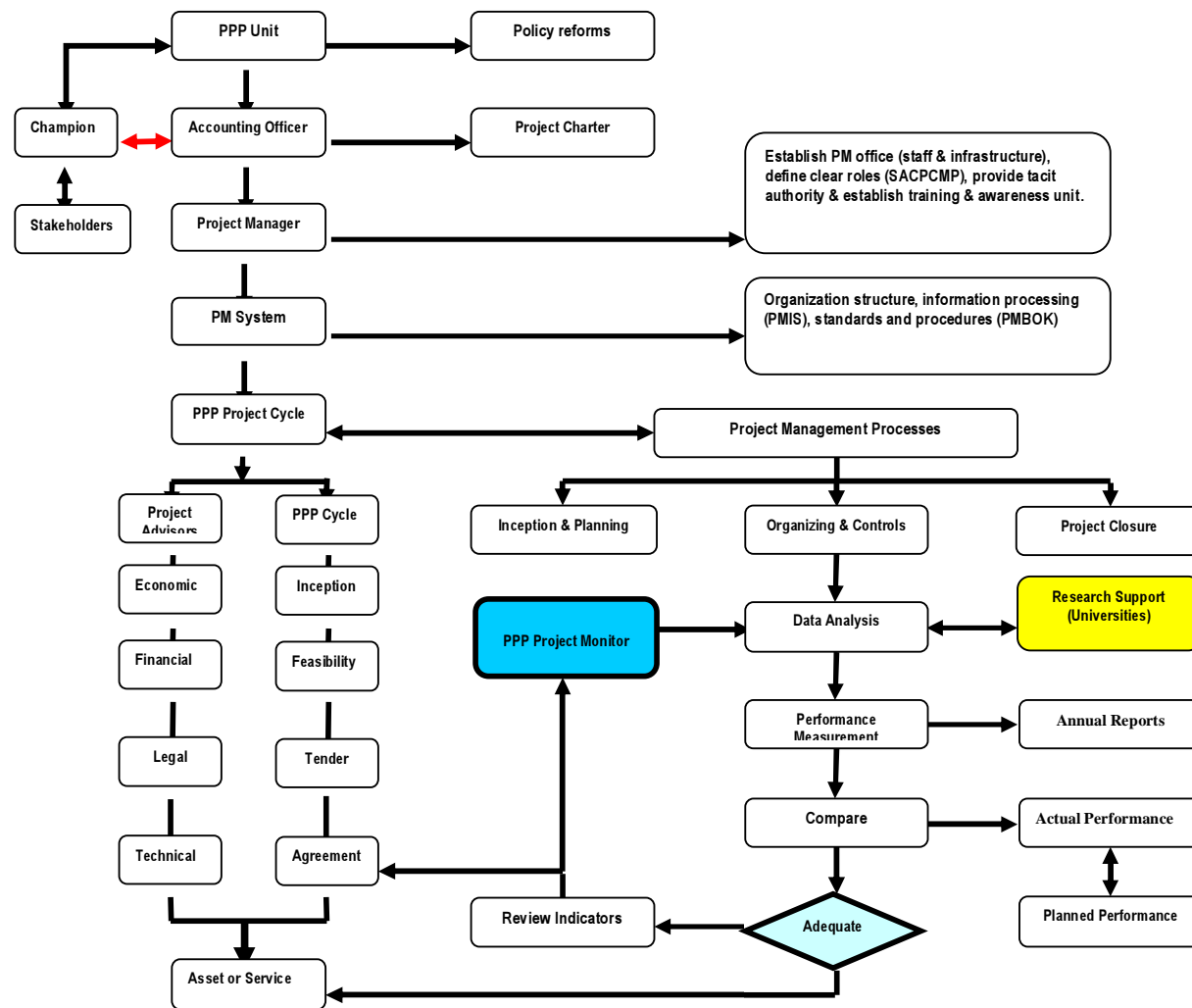


Figure 6: Proposed PPP structure

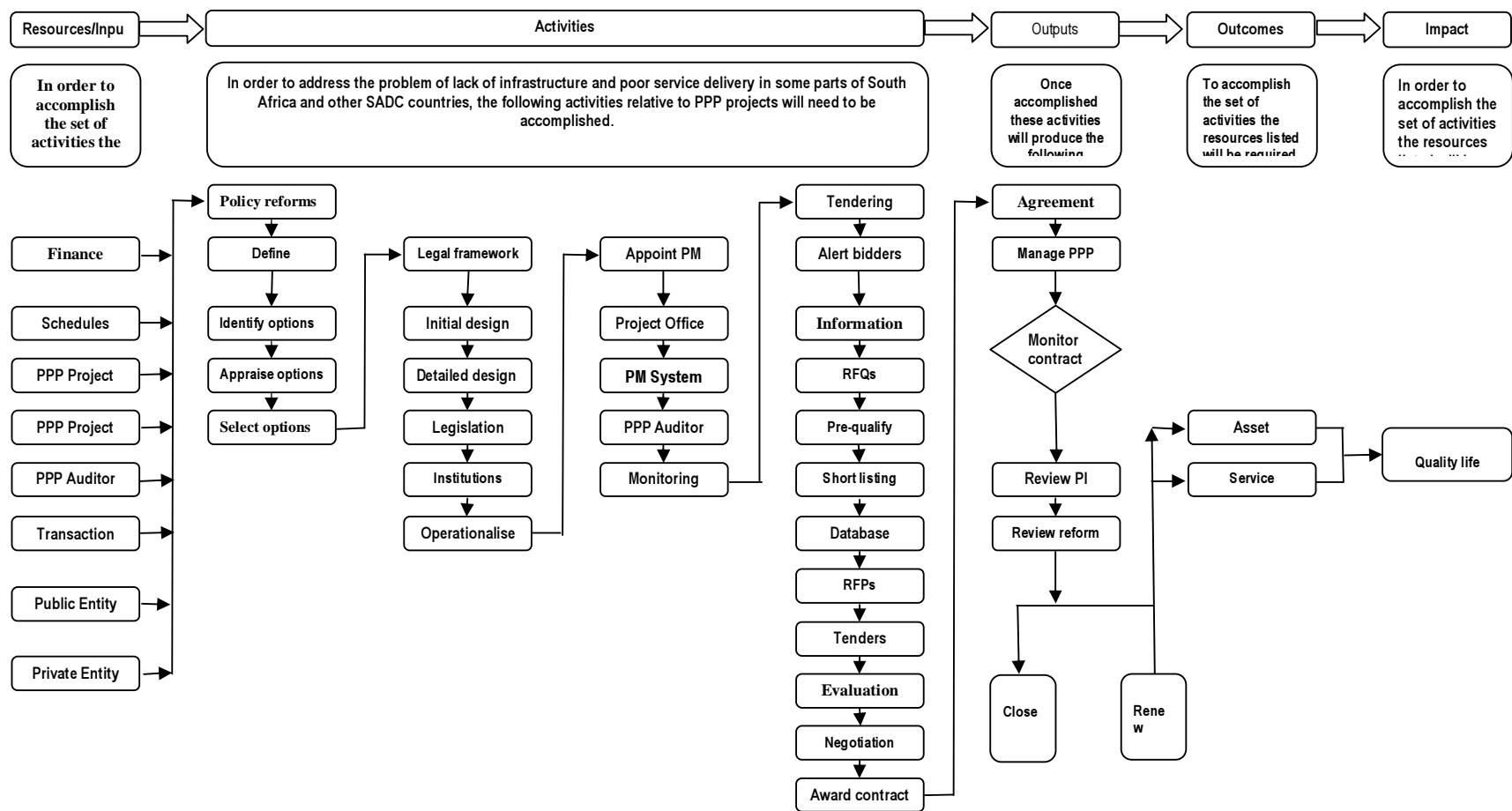


Figure 7: Model Systemic Phases, Parallel and Linked Tasks



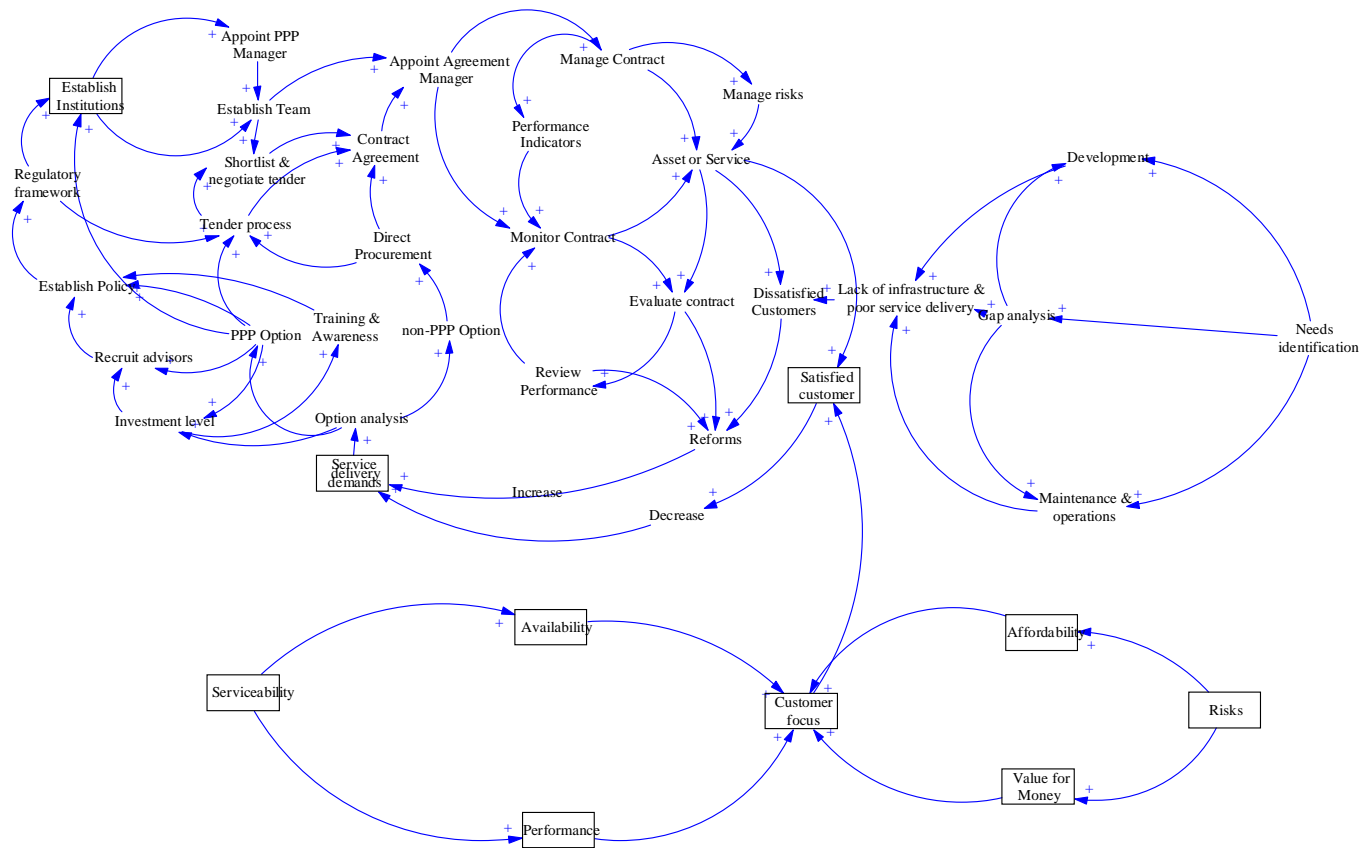


Figure 8: Causal Loop Diagram

## 5.10 Testing of New Model

The new PPP systemic model was tested for appropriateness by surveying sixty PPP and non-PPP participants, who were attending an international conference on 'Financing Infrastructure in Africa through Public Private Partnerships' held at the Saint Georges Hotel, Johannesburg on 28 and 29 August 2007. The researcher administered a two-page questionnaire during the two-day conference. A summary in the form of statements and their related MSs is presented in Table 87 in eight categories.

Table 87: Summary of test results

<b>A.</b>	<b>Infrastructure &amp; poor service delivery</b>	<b>Mean Score</b>
1	Lack of infrastructure and poor service delivery activates policy reforms to address the problem	3.89
2	Service delivery problems decrease with an increase in investment levels	2.95
3	Service delivery problems result in increased demand for policy reforms	3.86
4	Poor service delivery leads to an increase in PPP agreements closure	2.78
5	Poor service delivery leads to high demand for more PPP experts	3.43
<b>B.</b>	<b>Project management</b>	
6	Increased PPP tenders leads to increased demand for project management services	3.81
7	Increased use of project management approach facilitates PPP deal flow / throughput	3.81
<b>C.</b>	<b>PPP awareness and training</b>	<b>Mean Score</b>
8	A PPP culture exists within the public sector	3.03
9	A PPP culture exists within the private sector	3.38
10	A PPP culture exists within the built environment	3.54
11	PPP expertise is pervasive within the public sector	2.68
12	PPP expertise is pervasive within the private sector	3.38
13	PPP expertise is pervasive within the built environment	3.22
14	Increased demand for PPP monitoring increases demand for PPP experts.	4.19
15	A high demand for monitoring experts increases demand for PPP training and awareness and vice versa	3.95
16	High demand for education and training leads to an increased role for universities in the PPP sector	3.73
17	Tertiary built environment PPP related education is inadequate	3.68
18	Corrupt practices lead to increase in infrastructure and service delivery problems	4.32
<b>D.</b>	<b>Investment level</b>	<b>Mean Score</b>
19	Increased PPP agreement throughput facilitates investments	4.22
20	Increase in PPP agreements increases portfolio of assets and scope for service delivery	4.11
21	High demand for service delivery increases demand for private sector investment and expertise	4.32
22	Increased level of investment leads to a decrease in demand for	2.73

	infrastructure and service delivery	
<b>E.</b>	<b>PPP monitoring</b>	<b>Mean Score</b>
23	High throughput for assets / services leads to a high demand for monitoring and evaluation services	3.73
<b>F.</b>	<b>Policy and regulatory framework</b>	<b>Mean Score</b>
24	Policy reforms lead to the establishment of PPP regulatory agencies	3.76
25	Policy reforms lead to a reduction in infrastructure and service delivery problems	3.14
26	Establishment of PPP legal and regulatory agencies leads to a decrease in need for policy reforms	3.00
27	PPP legal and regulatory agencies promotes PPP growth	3.81
28	Closure of more PPP deals leads to reduction in service delivery problems	3.51
<b>G.</b>	<b>Costs and affordability</b>	<b>Mean Score</b>
29	High transaction costs reduce the number of agencies participating in PPP deals	3.89
30	High transaction costs lead to a decrease in PPP deals output	3.84
<b>H.</b>	<b>Risk Transfer</b>	<b>Mean Score</b>
31	Inadequate risk management increases inappropriate risk transfers	4.11
32	Higher risk projects decreases investment levels in PPP projects	3.84

Given that the MSs of 'lack of infrastructure and poor service delivery activates policy reforms to address the problem', 'service delivery problems result in increased demand for policy reforms', and 'poor service delivery leads to high demand for more PPP experts' are  $> 3.40 \leq 4.20$ , the degree of concurrence relative to the statements can be deemed to be between neutral and agree / agree. However, given that the MSs of 'service delivery problems decrease with an increase in investment levels' and 'poor service delivery leads to an increase in PPP agreements closure' are  $> 2.60 \leq 3.40$ , the degree of concurrence relative to the statements can be deemed to be between disagree and neutral / neutral (Table 96).

Furthermore the MS of 3.81 ( $>3.40 \leq 4.20$ ) for the category of the statements under project management indicates that the degree of concurrence relative to the statements that: 'Increased PPP tenders leads to an increased demand for project management services' and 'increased use of a project management approach facilitates PPP deal flow / throughput', can be deemed to be between neutral and agree / agree.

The overall MS of 3.55 ( $>3.40 \leq 4.20$ ), as shown in the category of 'PPP awareness and training' indicates that 'a PPP culture exists within the public sector', 'a PPP culture exists within the private sector', 'a PPP culture exists within the built environment', 'PPP expertise is pervasive within the public sector', 'PPP expertise is pervasive within the private sector', 'PPP expertise is pervasive

within the built environment', 'Increased demand for PPP monitoring increases demand for PPP experts', 'a high demand for monitoring experts increases demand for PPP training and awareness and vice versa', 'a high demand for education and training leads to an increased role for universities in the PPP sector', 'tertiary built environment PPP related education is inadequate' and 'corrupt practices lead to an increase in infrastructure and service delivery problems' indicates that the degree of concurrence, relative to the statement that: 'A PPP culture exists within the public sector', can be deemed to be between neutral and agree / agree.

Given that the MS for the category of investment level is 3.85 ( $>3.40 \leq 4.20$ ), the degree of concurrence relative to the statements 'Increased PPP agreement throughput facilitates investments', which leads to 'an increase in PPP agreements increases portfolio of assets and scope for service delivery', a 'high demand for service delivery increases demand for private sector investment and expertise', and an increased level of investment leads to a decrease in demand for infrastructure and service delivery' can be deemed to be between neutral and agree / agree.

A MS of 3.73 ( $>3.40 \leq 4.20$ ) indicates that the concurrence relative to the statement 'High throughput for assets / services leads to a high demand for monitoring and evaluation services' can be deemed to be between neutral and agree / agree.

The MS of 3.44 ( $>3.40 \leq 4.20$ ) for the category of 'policy and regulatory framework' indicates that respondents' concurrence relative to the statements that: 'Policy reforms lead to the establishment of PPP regulatory agencies', 'leads to a reduction in infrastructure and service delivery problems', 'establishment of PPP legal and regulatory agencies leads to a decrease in need for policy reforms', 'PPP legal and regulatory agencies promotes PPP growth and that 'closure of more PPP deals leads to reduction in service delivery problems' can be deemed to be between neutral and agree / agree.

Table 96 depicts a MS of 3.87 ( $> 3.40 \leq 4.20$ ) for both statements under the category of 'costs and affordability', which indicates that the concurrence relative to the statements 'High transaction costs reduces number of agencies participating in PPP deals', and high transaction costs lead to decrease in PPP deals output' can be deemed to be between neutral and agree / agree.

The overall mean score of 3.98 ( $> 3.40 \leq 4.20$ ) for both statements under the category of 'risk transfer' indicates that the overall degree of concurrence relative to the statements 'inadequate risk management increases inappropriate risk transfers' and 'higher risk projects decreases investment levels in PPP projects' can be deemed to be between neutral and agree / agree.

### 5.11 Application of the New Model

This model will be applicable to all PPP projects, resource persons, activities and processes that have holistic interrelationships (Boisjoly & DeMichiell, 1994). It is anticipated that PPP and non-PPP practitioners in South Africa and the SADC region will use the model.

### 5.12 Causal Loop Analysis - Results

Table 88: Infrastructure and poor service delivery

PPP aspect	Causal effects	Interventions required
Lack of infrastructure & poor service delivery	Negative	Accelerate infrastructure development and improve service delivery.
Policy reforms	Positive	None
PPP agreements closure	Positive	None
Lack of PPP experts	Negative	Train more PPP experts

Table 89: Project management

PPP aspect	Causal effects	Interventions required
Increased PPP tenders	Negative	Accelerate training of PPP project managers
Use of project management approach	Positive	None

Table 90: PPP awareness and training

PPP aspect	Causal effects	Interventions required
PPP culture exists within public, private and built environment	Positive	None
Lack of PPP expertise within the public, private and the built environment	Negative	Train more PPP experts
Lack of monitoring experts	Negative	Train more monitoring experts
Inadequate tertiary level PPP education	Negative	Introduce PPP training at tertiary level
Existence of corrupt practices	Negative	Uphold high professional ethics

Table 91: Investment level

PPP aspect	Causal effects	Interventions required
Increase in PPP agreement output	Positive	None
High demand for service delivery	Negative	Increase investments in PPPs

Table 92: PPP monitoring

PPP aspect	Causal effects	Interventions required
High demand for PPP monitoring experts	Negative	Train more experts

Table 93: Policy and regulatory framework

PPP aspect	Causal effects	Interventions required
PPP policy reforms	Positive	None

Table 94: Costs and affordability

PPP aspect	Causal effects	Interventions required
High transaction costs	Negative	Reduce transaction costs through standardization of processes

Table 95: Risk transfer

PPP aspect	Causal effects	Interventions required
Inadequate risk management	Negative	Train and use Risk Managers
High risk projects	Negative	Avoid high risk projects

Tables 88 to 95 depict summaries of causal effects and interventions required relative to the 8 categories of PPP factors. These causal effects are based on the causal loop diagram representation of the internal PPP system structure that underpins the behaviour patterns in the PPP environment. A causal loop diagram for the PPP process is shown in Figure 8. This diagram includes elements and arrows, which are called causal links. The arrows link the PPP elements and also include a + or – sign on each link. A causal link from one element A to another element B is positive, that means a change in A produces a change in B in the same direction. A causal link from one element A to another element B is negative, that is if a change in A produces a change in B in the opposite direction. This notation is also illustrated by the causal loop diagram presented in Figure 8.

The method of systems thinking used over the years and promoted by Senge (2000) provides a tool for better understanding complex PPP planning and management problems. The methods have been used for over thirty years and are now well established. However, these approaches require a mindset shift in the way PPP actors think about the performance of PPP projects. In particular, it is necessary that PPP and non-PPP managers move away from looking at isolated events and their causes and start to look at the PPP environment as a system made up of interacting and interrelated parts. Once there is a shift from the event orientation to focusing on the internal PPP system structure, there is a possibility of improving PPP performance. This is because system structure is often the underlying sources of difficulty. Unless one corrects system structure deficiencies through

specific interventions, it is likely that the problems will resurface, or be replaced by an even more difficult problem.

In Chapter Six, the primary conclusions of the study are summarised, discussed and interpreted, and where appropriate, recommendations will be made for further research, practice and or implementation.

## **CHAPTER 6**

### **6 SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **6.1 Introduction**

This chapter contains a summary of the study, which includes a summary of the findings, conclusions, recommendations and where appropriate, suggestions for further research, practice and / or implementation.

#### **6.2 Summary of the Study**

This study was designed to examine the performance of operational South African PPP projects, contribute towards the existing body of knowledge on PPPs, and provide a model for a sustainable PPP system in South Africa and beyond.

The performance issues examined, included: project management competency; affordability; level of investment; contract type and duration; transfer of responsibilities; risk management; policy and guidelines; PPP awareness; and training. The research was organized around a set of eight hypotheses, which were as follows:

##### **6.2.1 First Hypothesis**

The low number of PPP projects is due to inadequate project management skills among accounting officers and other staff to conceptualise PPP viable projects.

##### **6.2.2 Second Hypothesis**

PPP projects are considered unaffordable due to government budgetary constraints, and / or inadequate subsidies for PPP projects.

##### **6.2.3 Third Hypothesis**

The level of investment in PPP projects depends on the public sector's marketing strategy, involvement, and incentives offered to the private sector.



#### 6.2.4 Fourth Hypothesis

The PPP model used for procurement is determined by the type and nature of the project, the expected value-for-money, and public interest.

#### 6.2.5 Fifth Hypothesis

The degree of transfer of responsibilities determines the success, or failure of a PPP project.

#### 6.2.6 Sixth Hypothesis

Ineffective risk distribution can lead to huge financial losses and renegotiation of PPP contracts.

#### 6.2.7 Seventh Hypothesis

The existing PPP policy framework and guidelines in South Africa are adequate, if properly interpreted and applied can catalyse more PPP projects and spur growth in the infrastructure sector.

#### 6.2.8 Eighth Hypothesis

Sustained PPP awareness, training and community education is fundamental to the mainstreaming and success of the PPP sector in South Africa.

To test these hypotheses, eighteen case study projects of operational South African PPP projects, consisting of 12 Type I PPP projects, and six Type II PPP projects were selected by the researcher using non-probabilistic technique-judgement sampling. This was based on sound judgement, from the National Treasury PPP unit database, as a sample for this study. A total of 18 PPP project case studies were examined. Thirteen institutions returned questionnaires, representing a response rate of 63%. Six case study institutions did not complete and return the questionnaire.

An explanation for this might be that the managers responsible did not want to be associated with an assessment of the operational performance of their PPP project. They might also have been too busy, or they might have considered the questions too sensitive. They may have forgotten to complete the questionnaires, or it may have been a combination of these factors.

The instrument used for this study consisted of affirmative statements in which respondents had to rate items based on a five-point Likert scale. The instrument consisted of six categories with 38 statements. The instrument was developed by the researcher and reviewed by the promoter. A pilot test was conducted using three pioneer respondents drawn from some of the targeted respondent institutions to establish reliability and validity.

The instrument consisted of the following eight main categories: costs and affordability; budget; risk transfer; legal and regulatory framework; project management, and PPP awareness and training.

The researcher administered the instrument by hosting it on the NMMU website, [www.nmmu.ac.za](http://www.nmmu.ac.za) with a hypertext URL link, with which respondents could log on.

Survey respondents rated the various categories of statements using a five-point Likert scale: 'never' to 'always' relative to frequency, and 'strongly disagree' to 'strongly agree' relative to concurrence. MSs were computed for each statement to determine the measure of central tendency to enable interpretation of the percentage responses. The hypotheses that were formulated were tested empirically. The test of the hypotheses involved collection and analysis of data.

### 6.3 Testing of Hypotheses

Tables 96 to 104 summarise the results of the testing of the hypotheses. The results indicate that all the hypotheses are supported.

#### 6.3.1 Project Management

It was determined that the low number of PPP projects was due to inadequate project management skills among accounting officers and other staff resulting in the inability to conceptualise viable PPP projects.

Table 96: Project Management

<b>Theoretical Proposition 5-Project Management</b>	<b>Mean score</b>	<b>Overall mean score</b>
The slow deal flow for PPP projects in South Africa is due to capacity constraints in provincial governments and municipalities	4.25	4.20
Lack of or an inadequate project management approach slows down the implementation of PPP projects	4.08	

Table 96 depicts an overall mean score of 4.20 ( $> 3.40 \leq 4.20$ ) for the two statements included in the category of project management, which indicates that the overall degree of concurrence relative to the statements can be deemed to be between neutral and agree / agree.

### 6.3.2 Budget

The costliness of PPP projects is due to government budgetary constraints, and / or inadequate subsidies for PPP projects.

Table 97: Budget

<b>Theoretical Proposition 2: Budget</b>	<b>Mean score</b>	<b>Overall mean score</b>
The use of PPPs delivers benefits due to budget restrictions in the public sector capital budgets.	4.41	4.58
PPP procurement brings forward investment and / or ensures that optimal maintenance strategies are followed.	4.75	

The overall mean score of 4.58 ( $> 4.20 \leq 5.00$ ) for the two statements included in the category of budget indicates that the overall degree of concurrence relative to the statements can be deemed to be between agree and strongly agree / strongly agree (Table 97).

### 6.3.3 Costs and affordability

The level of investment in PPP projects depends on the public sector's marketing strategy, involvement and incentives to the private sector.

Table 98: Costs and affordability

<b>Theoretical Proposition 3: Costs and Affordability</b>	<b>Mean score</b>	<b>Overall mean score</b>
PPP procurement delivers overall cost savings in comparison to conventional procurement.	4.08	3.80
Cost savings can be assessed with reference to factual data, rather than through comparisons with the assumptions used in the Public Sector Comparators.	3.50	
The various PPP implementing agencies are able to afford project transaction costs?	4.08	
PPP transaction costs are subsidised in South Africa.	3.81	
High transaction costs are a major constraint for faster deal flow.	3.55	

The overall MS of 3.80 for the five statements included in the category of 'costs and affordability' indicates that the overall degree of concurrence relative to the statements can be deemed to be between neutral and agree / agree (Table 98).

#### 6.3.4 Relevant PPP model selected

Table 99: PPP model selected for projects

PPP model	No.	%
Service Contract (SC)	6	50.0
Design Finance Operate (DFO)	0	0.0
Design Finance Build Operate Transfer (DFBOT)	5	41.7
Joint Venture	1	8.3
Other	0	0.0

Table 99 indicates the different types of PPP models that are used for procurement in the various projects that were investigated. Service contract model dominates representing 50% operational PPPs. A further 41.7% of PPP projects are the DFBOT type. Joint ventures represent a mere 8.3%.

#### 6.3.5 Responsibility transfer

Table 100: Level of responsibility transfer

Level of responsibility transfer	No.	%
Fully public	1	8.3
70 Public / 30 Private	5	41.7
50 Public / 50 Private	0	0.0
30 Public / 70 Private	3	25.0
Fully private	3	25.0

The level of responsibility transfer determines the success or failure of a PPP project. Table 100 depicts the level of responsibility transfer. According to the study the preferred level of responsibility transfer is 70 Public / 30 Private as represented by 41.7% responses. Respondents indicate that fully private responsibility represents only 25%. Furthermore the results show that 0% projects have responsibilities shared on a 50 Public / 50 Private basis.

#### 6.3.6 Risk transfer

Ineffective risk distribution can lead to huge financial losses and renegotiation of PPP contracts.

Table 101: Risk transfer

Theoretical Proposition 6 – Risk Transfer	Mean score	Overall mean score
Successful PPPs require existence of an adequate risk management system for appropriate transfer of risks to the party best suited to manage it at least cost.	4.50	4.12
PPP risk management training and awareness is necessary to ensure that project risks are adequately identified and mitigation strategies are followed.	4.52	
Risk is transferred in practice.	4.17	

It is always clear where risk lies in a PPP project.	3.66	
There is evidence of contractors or customers seeking to shift risk onto the other party after signing the contract.	3.75	

The overall mean score of 4.12 ( $> 3.40 \leq 4.20$ ) for the five statements included in the category of '*risk transfer*' depicted in Table 101 indicates that the respondents' overall degree of concurrence relative to the statements can be deemed to be between neutral and agree / agree.

### 6.3.7 Policy and regulatory framework

The existing PPP policy framework and guidelines in South Africa are adequate, if properly interpreted and applied and can catalyse more PPP projects and spur growth in infrastructure.

Table 102: Policy and regulatory framework

<b>Theoretical Proposition 7- Policy and Regulatory Framework</b>	<b>Mean score</b>	<b>Overall mean score</b>
Existence of an effective and sustainable legal and regulatory framework is essential for promoting and fostering successful PPPs.	4.50	<b>3.91</b>
A credible legal and regulatory framework exists in South Africa for the implementation of PPP projects.	4.33	
The government is committed to private sector participation in infrastructure development and service delivery.	4.08	
The existing policy framework environment supports open market access and fair PPP competition.	3.75	
PPPs protect public interest and maximize value added for projects.	4.16	
The existing investment climate in South Africa promotes a viable and sustainable PPP project system.	4.08	
The current PPP guidelines in South Africa provide adequate opportunity to assess the most effective type of PPP for a given project.	3.83	
The policy environment favours PPP growth in South Africa.	3.50	
Policies relative to PPPs are consistent with other government policies i.e. land use, social policies etc.	3.33	
There is sufficient legislative authority for entering into PPP agreements.	3.91	
There is sufficient legislation to support the management and supervisory role of the public sector in PPPs.	3.83	
There is sufficient authorisations and leeway to enter into debt agreements by the PPP agencies.	3.66	
Existing PPP regulations and guidelines provide for an efficient and effective mechanism for the procurement, management and auditing of PPP projects in South Africa.	3.92	

The overall mean score of 3.91 ( $>3.40 \leq 4.20$ ) for the thirteen statements included in the category of '*policy and regulatory framework*' indicates that the overall degree of concurrence relative to the statements can be deemed to be between neutral and agree / agree (Table 102).

### 6.3.8 PPP awareness and training

Sustained PPP awareness, training and community education is fundamental to the mainstreaming and success of the PPP sector in South Africa.

Table 103: PPP awareness and training

<b>Theoretical Framework 8 - PPP Awareness and Training</b>	<b>Mean score</b>	<b>Overall mean score</b>
Lack of PPP training and awareness hamper PPP growth and development	4.25	<b>4.20</b>
The level of PPP awareness and training within the public and private sectors in South Africa is sufficient for PPP development and growth.	4.08	

Table 103 depicts an overall mean score of 4.20 ( $> 3.40 \leq 4.20$ ) for the two statements included in the category of PPP awareness and training, which indicates the overall degree of concurrence relative to the statements can be deemed to be between neutral and agree / agree.

### 6.3.9 Project Deal Flow

The slow implementation of infrastructure development and provision of social services in South Africa is due to capacity and finance constraints, resulting from inadequate utilisation of the PPP approach, in the procurement, development, and management of government projects.

Table 104: Project Deal Flow

<b>Theoretical Proposition 5 - Project Management</b>	<b>Mean score</b>	<b>Overall Mean score</b>
The slow deal flow for PPP projects in South Africa is due to capacity constraints in provincial governments and municipalities.	4.25	<b>4.20</b>
Lack of or an inadequate project management approach slows down the implementation of PPP projects	4.08	

The overall mean score of 4.20 ( $> 4.20 \leq 5.00$ ) for the two statements included in the category of '*project management*' indicates that the overall degree of concurrence relative to the statements can be deemed to be between agree and strongly agree / strongly agree (Table 104).

## 6.4 CONCLUSIONS

The conclusions from the review of the related literature, interviews and questionnaire survey are:

- The slow deal flow for PPP projects in South Africa is due to capacity constraints in provincial governments and municipalities;
- The lack of, or an inadequate project management approach, slows down the implementation of PPP projects;
- The use of PPPs delivers benefits due to budget restrictions in the public sector capital budgets;
- The low number of PPP projects is due to inadequate project management skills among accounting officers and other staff to conceptualise PPP viable projects;
- The costliness of PPP projects is due to government budgetary constraints, and / or inadequate subsidies for PPP projects;
- The level of investment in PPP projects depends on the public sector's marketing strategy, involvement and incentives to the private sector;
- Ineffective risk distribution can lead to huge financial losses and renegotiation of PPP contracts;
- The existing PPP policy framework and guidelines in South Africa are adequate, if properly interpreted and applied can provide the catalyst for more PPP projects and spur growth in the infrastructure sector;
- Sustained PPP awareness, training and community education is fundamental to the mainstreaming and success of the PPP sector in South Africa, and
- The slow implementation of infrastructure development and provision of social services in South Africa is due to capacity and finance constraints resulting from inadequate utilisation of the PPP approach in the procurement, development, and management of government projects.

Chapter 5, focused on the evolution of a systemic model for the implementation and monitoring of the performance of PPP projects in South Africa and the Southern Africa Development Corporation (SADC) region. This approach provides a holistic understanding of the PPP processes and the complexity of the interrelationships within the PPP environment. Systemic PPP planning and procurement is a strategic process of translating ideas / beliefs into policies and projects. It treats the total PPP process and the environment as one system. Given a statement of the problem, systemic PPP planning, procurement and management, provides for a continuously iterative analysis of the PPP cycle and the environment, to identify preferred courses of action that are most likely to lead to the achievement of a given set of goals.

## **6.5 RECOMMENDATIONS**

The following recommendations are based upon the findings and conclusions of the study:

- There is a need for government departments and other PPP implementing agencies to build and sustain capacity, in order to facilitate deal flow for PPP projects in provincial governments and municipalities;
- It is necessary to adopt a project management approach to the implementation of PPP projects in South Africa at all levels;
- Where appropriate, the use of PPPs should be adopted as an alternative procurement strategy, since the research findings indicate that it delivers benefits due to budget restrictions in public sector capital budgets;
- There is a need for training in project management skills for accounting officers and other staff to be able to conceptualise PPP viable projects, in order to increase PPP projects throughput;
- Empirical evidence from the study shows that the costliness of PPP projects is due to government budgetary constraints, and / or inadequate subsidies for PPP projects. Government or other agencies should subsidise PPP transactions;
- The level of investment in PPP projects depends on the public sector's marketing strategy, involvement and incentives for the private sector. A clear marketing strategy should be formulated and implemented by all PPP agencies;
- Ineffective risk distribution can lead to huge financial losses and renegotiation of PPP contracts. PPP agencies should ensure fair and appropriate risk allocation;
- The research findings show that the existing PPP policy framework and guidelines in South Africa are adequate, and if properly interpreted and applied can catalyse more PPP projects and spur growth in the infrastructure sector. PPP guidelines and implementation toolkits should be standardised and used by various PPP agencies, and
- There is a need for sustained PPP awareness, training and community education for the public, as a fundamental tool to the mainstreaming and success of the PPP sector in South Africa, and beyond. PPP courses should be developed at various levels and used for training PPP implementing officers, and according to the findings, the slow implementation of infrastructure development and provision of social services in South Africa is due to capacity and finance constraints resulting from inadequate utilisation of the PPP approach in the procurement, development, and management of government projects. The various agencies should adopt a PPP approach, where appropriate, in infrastructure development and service delivery.



## 6.6 RECOMMENDATIONS FOR FUTURE RESEARCH

The following recommendations for future research are based upon the findings and conclusions of this study:

- Further systemic research should be conducted relative to the causal interrelationships for the various PPP factors within the PPP environment;
- The PPP model developed by the researcher can be enhanced by conducting further research to parameterise the model;
- PPP performance surveys should be conducted on a yearly basis, preferably twice, so that trend analysis results can inform decision-makers and management for effective monitoring and control;
- A comparative study on transaction costs of PPPs between South Africa and other country perceived as 'least corrupt' in Africa;
- Risk management should ensure a fair allocation and monitoring system for risks, to avoid the tendency to transfer risks after contracts have been signed, and
- It is recommended that the PPP Unit commissions sector specific studies that seek to compare performance across PPP and non-PPP contracts.
- Researchers need to examine the processes that need systemic improvement to facilitate PPP delivery;
- Researchers should examine why deal flow is low despite concerted efforts to improve, and
- Researchers should investigate how PPP managers can implement systemic strategies in the PPP procurement processes.

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**APPENDICES**  
**APPENDIX 1:**

**COVER LETTER**

**SOUTH AFRICAN PUBLIC PRIVATE PARTNERSHIP (PPP) PROJECTS**

R/No. 

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Dear

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**SUBJECT: INTRODUCTION AND REQUEST TO COMPLETE QUESTIONNAIRE**

I am a PhD (Construction Management) candidate in the Department of Construction Management, Faculty of Engineering, Built Environment and Information Technology, Nelson Mandela Metropolitan University, conducting research relative to South African Public Private Partnership (PPP) projects.

The purpose of this study is to contribute to the existing body of knowledge on South African PPPs, gain in depth understanding of the performance of operational South African PPP projects and provide direction for a sustainable PPP system in South Africa.

You are invited to participate in this study, in which approximately 60 people from diverse backgrounds, both in the public and private sectors will be asked to complete a self administered questionnaire, which includes questions about PPP projects. It should take approximately 15 minutes to complete the simple and brief questionnaire.

Your participation in this study is completely voluntary. However, it is very important to glean your opinions and perceptions relating to the project(s) included in the study and the PPP sector in general.

Your responses to the survey will be treated in the strictest confidence and data from this research will be reported on in aggregate format. Therefore, your information will remain confidential and used for academic purposes only. You will be notified of the findings of the survey through e-mail.

Please return completed (hard copy or electronic) questionnaire to Josiah Nyagwachi by postal, fax or e-mail at the following addresses:

**Josiah Nyagwachi**  
**PO Box 76649,**  
**(NMMU South Campus)**  
**Port Elizabeth**  
**6031**  
**Fax +27 (0) 41 504 2345 / 2574**  
**Email: nyagwachi@yahoo.com**

If you have questions at any time about the survey or procedures, please contact me at: **082 533 5172**, or my e-mail: **nyagwachi@yahoo.com**

Thank you very much for your support

## APPENDIX 2:

### QUESTIONNAIRE

R /No.

#### SOUTH AFRICAN PUBLIC PRIVATE PARTNERSHIP (PPP) PROJECTS

### QUESTIONNAIRE

#### PART I: GENERAL

##### A. PPP BUILT ENVIRONMENT ACTORS

1. Which of the following best describes your role in the built environment?	Tick one	A1
Contractor		
Consultant		
Financier		
Other: Please specify		
<b>Contacts:</b>		
Telephone: _____ Fax: _____		
Email address: _____		

#### PART II: PERFORMANCE OF PPP PROJECTS IN THE BUILT ENVIRONMENT

Use the scale **1 (never)** to **5 (always)** and put a check (✓) to indicate the extent to which each of the following statements apply to PPP projects in the built environment.

• SCALE					
1 = Never	2 = Rarely	3 = Sometimes	4 = Often	5 = Always	

B.	COSTS AND AFFORDABILITY	1	2	3	4	5	Code
2	PPP procurement delivers overall cost savings in comparison to conventional procurement.						B2
3	Cost savings can be assessed with reference to factual data, rather than through comparisons with the assumptions used in the Public Sector Comparators.						B3
4	The various PPP implementing agencies are able to afford project transaction costs						B4
5	PPP transaction costs are subsidised in South Africa.						B5
6	High transaction costs are a major constraint for faster deal flow.						B6

• SCALE					
1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	

C.	Project Management	1	2	3	4	5	Code
7	The slow deal flow for PPP projects in South Africa is due to capacity constraints in provincial governments and municipalities.						C7
8	Lack of or an inadequate project management approach slows down the implementation of PPP projects						C8

	PPP Awareness and Training	1	2	3	4	5	Code
9	Lack of PPP training and awareness hamper PPP growth and development						C9
10.	The level of PPP awareness and training is adequate in South Africa.						C10

Use the scale **1 (Strongly Disagree)** to **5 (Strongly Agree)**, to indicate the extent to which you agree or disagree about each of the following statements regarding PPP projects in the built environment.

• SCALE					
1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	

D.	BUDGET	1	2	3	4	5	Code
11	The use of PPPs delivers benefits due to budget restrictions in the public sector capital budgets.						D11
12	PPP procurement brings forward investment and / or ensures that optimal maintenance strategies are followed.						D12

E.	RISK TRANSFER	1	2	3	4	5	Code
13	Successful PPPs require existence of an adequate risk management system for appropriate transfer of risks to the party best suited to manage it at least cost.						E13
14	PPP procurement brings forward investment and / or ensures that optimal maintenance strategies are followed.						E14
15	Risk is transferred in practice.						E15
16	It is always clear where risk lies in a PPP project.						E16
17	There is evidence of contractors or customers seeking to shift risk onto the other party after signing the contract.						E17

F.	POLICY AND REGULATORY FRAMEWORK	1	2	3	4	5	Code
18	Existence of an effective and sustainable legal and regulatory framework is essential for promoting and fostering successful PPPs.						F18
19	A credible legal and regulatory framework exists in South Africa for the implementation of PPP projects.						F19
20	The government is committed to private sector participation in infrastructure development and service delivery through PPPs.						F20
21	The existing policy framework environment supports open market access and fair PPP competition.						F21
22	PPPs protect public interest and maximize value added for projects.						F22
23	The existing investment climate in South Africa promotes a viable and sustainable PPP project system.						F23
24	The current PPP guidelines in South Africa provide adequate opportunity to assess the most effective type of PPP for a given project.						F24
25	The policy environment favours PPP growth in South Africa.						F25
26	Policies relative to PPPs are consistent with other government policies i.e. land use, social policies etc.						F26
27	There is sufficient legislative authority for entering into PPP agreements.						F27
28	Existing PPP regulations and guidelines are efficient and effective mechanism for PPP transactions and auditing in South Africa.						F28

**THANK YOU FOR COMPLETING AND RETURNING THE QUESTIONNAIRE.**

**APPENDIX 3:  
SYSTEMIC MODEL – COVER LETTER**



**Nelson Mandela  
Metropolitan  
University**

*f o r t o m o r r o w*

22 August 2007

Attention: The PPP Practitioner / Consultant / Manager

Dear Madam / Sir

**Re: South African Public Private Partnership (PPP) Projects- Systemic Model for Implementation**

The enclosed survey 'South African Public Private Partnership Projects-Systemic model for implementation and performance monitoring' constitutes part of a PhD (Construction Management) study to determine:

- Causal effects of various variables within a PPP project system;
- The interrelationships between the various PPP system elements (variables), and
- Potential interventions to contribute to an improvement in implementation and management of PPP projects.

The sample stratum consists of all PPP and non-PPP practitioners such as architects, engineers, contractors, financiers, project managers, finance managers, and lawyers, involved in the South African built environment.

The questionnaire should **not take more than 10-15 minutes** to complete. We would be grateful if you would endeavour to complete the questionnaire and return it by the **17 September 2007** to:

Department of Construction Management  
Nelson Mandela Metropolitan University  
PO Box 77000  
Port Elizabeth  
6031

Attention: Professor John Smallwood or Josiah Nyagwachi  
or per facsimile to (041) 504 2345 or 504 2574 (**preferably per facsimile**).  
(041) 504 2790 or per e-mail: [john.smallwood@nmmu.ac.za](mailto:john.smallwood@nmmu.ac.za)

**Thanking you in anticipation of your response.**

**John Smallwood, PhD (Construction Management)  
Professor, and Head, Department of Construction Management  
Programme Director, MSc (Built Environment) Programme**

## APPENDIX 4:

### SYSTEMIC MODEL – QUESTIONNAIRE

#### SOUTH AFRICAN PUBLIC PRIVATE PARTNERSHIP (PPP) PROJECTS

R/No.

#### SYSTEMIC MODEL QUESTIONNAIRE

##### PART I: CAUSAL EFFECTS OF PPP VARIABLES IN THE BUILT ENVIRONMENT

Use the scale **1 (Strongly Disagree)** to **5 (Strongly Agree)**, and record a check ( **X** ) to indicate the extent to which each of the following statements for variables apply to the PPP projects in the built environment.

SCALE					
1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	

A.	Infrastructure & poor service delivery	1	2	3	4	5	Code
1	Lack of infrastructure and poor service delivery activates policy reforms to address the problem						A1
2	Service delivery problems decrease with increase in investment levels						A2
3	Service delivery problems result in increased demand for policy reforms						A3
4	Poor service delivery leads to an increase in PPP agreements closure						A4
5	Poor service delivery leads to increased demand for PPP experts						A5

SCALE									
1 = Strongly Disagree		2 = Disagree		3 = Neutral		4 = Agree		5 = Strongly Agree	
B.	Project management	1	2	3	4	5	Code		
6	Increased PPP tenders leads to increased demand for project management services						B6		
7	Increased use of a project management approach facilitates PPP deal flow / throughput						B7		

C.	PPP awareness and training	1	2	3	4	5	Code
8	A PPP culture exists within the public sector						C8
9	A PPP culture exists within the private sector						C9
10	A PPP culture exists within the built environment						C10
11	PPP expertise is pervasive within the public sector						C11
12	PPP expertise is pervasive within the private sector						C12
13	PPP expertise is pervasive within the built environment						C13
14	Increased demand for PPP monitoring increases demand for PPP experts.						C14
15	A high demand for monitoring experts increases demand for PPP training and awareness and vice versa.						C15
16	High demand for education and training leads to an increased role for universities in the PPP sector.						C16
17	Tertiary built environment PPP related education is inadequate						C17
18	Corrupt practices lead to increase in infrastructure and service delivery problems.						C18

Use the scale **1 (Strongly Disagree)** to **5 (Strongly Agree)**, and record a check ( **X** ) to indicate the extent to which each of the following statements for variables apply to the PPP projects in the built environment

SCALE					
1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree	

<b>D.</b>	<b>Investment level</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Code</b>
13	Increased PPP agreement throughput facilitates investments						D13
14	Increase in PPP agreements increases portfolio of assets and scope for service delivery.						D14
15	High demand for service delivery increases demand for private sector investment and expertise.						D15
16	Increased level of investment leads to a decrease in demand for infrastructure and service delivery.						D16

<b>E.</b>	<b>PPP monitoring</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Code</b>
17	High throughput for assets / services leads to a high demand for monitoring and evaluation services						E17

<b>F.</b>	<b>Policy and regulatory framework</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Code</b>
18	Policy reforms lead to the establishment of PPP regulatory agencies.						F18
19	Policy reforms lead to a reduction in infrastructure and service delivery problems.						F19
20	Establishment of PPP legal and regulatory agencies leads to a decrease in need for policy reforms						F20
21	PPP legal and regulatory agencies promotes PPP growth						F21
22	Closure of more PPP deals leads to reduction in service delivery problems.						F22

<b>G.</b>	<b>Costs and affordability</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Code</b>
23	High transaction costs reduces number of agencies participating in PPP deals						G23
24	High transaction costs leads to decrease in PPP deals output						G24

<b>H.</b>	<b>Risk Transfer</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>Code</b>
25	Inadequate risk management increases inappropriate risk transfers						H25
26	Higher risk projects decreases investment levels in PPP projects						H26

## **PART II: PPP BUILT ENVIRONMENT ACTORS**

<b>I. Which of the following best describes your role in the built environment?</b>		<b>X</b>	<b>I27</b>
Contractor			
Consultant			
Financier			
Other: Please specify			
<b>J. Please fill your contact details below.</b>			<b>J28</b>
Name:	Title:		
Telephone:	Fax:		
Email address:			

## APPENDIX 5

### LIST OF PPP PROJECTS

**Table 135 : List of PPP Projects**

**PPP projects signed in terms of Treasury Regulation 16, as at December 2005**

**Data source: PPP Quarterly, Public-Private Partnerships: Innovative infrastructure and service delivery in South Africa, Dec 2005, No.21.**

**Key: D: design, F: finance, B: build, O: operate, T: transfer of assets back to government**

Item	Public institution	PPP type Contract dur. Date Fin. Close	Project Officer	Private Partner (Consortia)	Transaction Advisors	Financing Structure	Project Cost
1.	<b>Fleet Management</b>						
	Northern Cape Dot, Roads and Public Works	DFO 5 years November 2001	Elliot Monosi (053) 839-2154	Pembeley Investments (Pty) Ltd. Imperial Holdings and Africa Kosini	Deloitte	Equity: 100%	R181 million
	<b>Email Addresses</b>						
2.	<b>Inkosi Albert Luthuli Hospital</b>						
	KwaZulu-Natal Dept of Health	DFBOT 15 years December 2001	Herman Conradie (033) 395-2019	Impilo Consortium (Pty) Ltd. Mbekane Health and Wellbeing, AME International, Vulindlela holdings, Siemens, drake and Skull, Oname	PricewaterhouseCoopers; White & Case, EC Harris; Alicecap; Hilton	Debt: 70% Equity: 20% Gov. : 10% Rand Merch. Bank	R4.5 billion
	<b>Email Addresses</b>						
3.	<b>Eco-tourism</b>						
	Manyeleti 3 sites. Limpopo Dept Finance, Economic Affairs, Tourism	DFBOT 30 years December 2001	Charles Maluleke (015) 290-7300	Koko Moya Wilderness Trail (Pty) Ltd.; Tinswala Lodges (Pty) Ltd.; Pungwe Game Reserve (Pty) Ltd.	DBSA; White and Case	Equity: 100%	N/A
	<b>Email Address</b>						
4.	<b>Universitas and Pelonomi</b>						

	<b>Hospitals</b>						
	Co-location, Free State Dept Health	DFBOT 16 years November 2002	Mr. Shuping (083) 380-6306	Community Health Management/Netcare Consortium	Ignis, Naude's Attorneys	Equity: 100%	N/A
	<b>Email Address</b>						
5.	<b>Information Systems</b>						
	Department of labour	DFBOT 10 years December 2002	Dean Haaasbroek (012) 309-4551	Siemens Business Solutions Consortium	KPMG	Debt:44% Equity:10% Gov.:46%	N/A
6.	<b>Chapman's Peak Drive toll road</b>						
	Western cape DoT	DF(part)BOT 30 years May 2003	Ben Veldman (021) 483-2004	Capstone 252 (Pty) Ltd; Concor, Thebe Investments; Marib Holdings; Haw and Ingles	Ignis; Jeffares & Green; Hofmeyr; Herbstein & Gihwale; Intertoll; decathlon	Equity: 100%	R1.5billion
	<b>Email Address</b>						

Key: D: design, F: finance, B: build, O: operate, T: transfer of assets back to government

Item	Public institution	PPP type Contract dur. Date Fin. Close	Project Officer	Private Partner (Consortia)	Transaction Advisors	Financing Structure	Project Cost
7.	<b>State Vaccine Institute</b>						
	Department of Health	Equity partnership 4 years April 2003	Gerrit Muller (021) 312- 0717	Biovac Consortium	PricewaterhouseCoopers	Equity: 100%	N/A
	<b>Email Addresses</b>						
8.	<b>Humansdorp District Hospital</b>						
	Eastern Cape Dept Health	DFBOT 20 years June 2003	Eugene Jooste (040) 609- 3702	Metro-Star Hospital (Pty) Ltd.; Metropol Hospital and Season Star Trading 123	Ignis, PHI Attorneys	Equity: 90% Gov. : 10%	R18.9 million
	<b>Email Addresses</b>						
9.							
	Department of Foreign	DFO	Mr. M.	Fleet Africa Eastern Cape	Deloitte	Debt: 100%	R553million



	Affairs	5 years August 2003	Nkalane (043) 604-7425	(Pty) Ltd.			
	<b>Email Address</b>						
10.	<b>Head Office Accommodation</b>						
	Department of Trade & Industry	DFBOT 25 years August 2003	Harrida Fakir (012) 310-1564	Rainpropp Consortium: WBHO, Atterbury Property Holdings, Parkdev S.A., Reserve Facility Management, Propnet, Zwelinzima Holdings, Prop 5 Corp, Rainbow Construction, WDB Investment Holdings, PDSA	Ignis, Utho Capital, Ledwaba Mazwa/Masons B.I. Assoc.	Equity: 8% Debt: 80% Gov.: 12%	R870million
	<b>Email Address</b>						
11.	<b>Cradle of Humankind</b>						
	Interpretation Centre Complex Gauteng Dept. Agriculture, Conservation, Environment and Land Affairs	DFBOT 10 years October 2003	Michael Worship (011) 355-1385	Furneaux Stewart Gapp Consort.; Stocks, Fikile, Thebe	PricewaterhouseCoopers, White & Case	Equity: 100% Gov.: 100% Capex	N/A
12.	<b>Social Grant Payment System</b>						
	Free State Dept: Social Development	DFO 3 years April 2004	Shirley Havenga (015) 409-0923	AllPay (Pty) Ltd.	Ernst & Young	Equity: 100%	R260 million

## APPENDIX 6

### PPP Model-Mean Scores

Table 105: Lack of infrastructure and poor service delivery activates policy reforms to address the problem

Perception	Frequency	Percent	Mean score
Strongly agree	7	18.9	3.89
Agree	23	62.2	
Neutral	3	8.1	
Disagree	4	10.8	
Strongly disagree	0	0.0	

Table 106: Service delivery problems decrease with an increase in investment levels

Perception	Frequency	Percent	Mean score
Strongly agree	3	8.1	2.95
Agree	10	27.0	
Neutral	12	32.4	
Disagree	6	16.2	
Strongly disagree	6	16.2	

Table 107: Service delivery problems result in increased demand for policy reforms

Perception	Frequency	Percent	Mean score
Strongly agree	9	24.3	3.86
Agree	20	54.1	
Neutral	2	5.4	
Disagree	6	16.2	
Strongly disagree	0	0.0	

Table 108: Poor service delivery leads to an increase in PPP agreements closure

Perception	Frequency	Percent	Mean score
Strongly agree	2	5.4	2.78
Agree	6	16.2	
Neutral	11	29.7	
Disagree	17	45.9	
Strongly disagree	2	5.4	

Table 109: Poor service delivery leads to a high demand for more PPP experts

Perception	Frequency	Percent	Mean score
Strongly agree	5	13.5	3.43
Agree	15	40.5	

Neutral	9	24.3	
Disagree	7	18.9	
Strongly disagree	1	2.7	

Table 110: Increased PPP tenders lead to an increased demand for project management services

Perception	Frequency	Percent	Mean score
Strongly agree	7	18.9	3.81
Agree	17	45.9	
Neutral	10	27.0	
Disagree	4	10.8	
Strongly disagree	0	0	

Table 111: Increased use of a project management approach facilitates PPP deal flow / throughput

Perception	Frequency	Percent	Mean score
Strongly agree	9	24.3	3.81
Agree	16	43.2	
Neutral	10	27.0	
Disagree	0	0.0	
Strongly disagree	2	5.4	

Table 112: A PPP culture exists within the public sector

Perception	Frequency	Percent	Mean score
Strongly agree	6	16.2	3.03
Agree	4	10.8	
Neutral	12	32.4	
Disagree	15	40.5	
Strongly disagree	0	0	

Table 113: A PPP culture exists within the private sector

Perception	Frequency	Percent	Mean score
Strongly agree	3	8.1	3.38
Agree	18	48.6	
Neutral	8	21.6	
Disagree	6	16.2	
Strongly disagree	2	5.4	

Table 114: A PPP culture exists within the built environment

Perception	Frequency	Percent	Mean score
Strongly agree	3	8.1	3.54
Agree	16	43.2	
Neutral	2	5.4	
Disagree	0	0	

Strongly disagree	3	8.1	
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Table 115: PPP expertise is pervasive within the public sector

Perception	Frequency	Percent	Mean score
Strongly agree	0	0	2.68
Agree	5	13.5	
Neutral	17	45.9	
Disagree	13	35.1	
Strongly disagree	2	5.4	

Table 116: PPP expertise is pervasive within the private sector

Perception	Frequency	Percent	Mean score
Strongly agree	1	2.7	3.38
Agree	17	45.9	
Neutral	14	37.8	
Disagree	6	13.5	
Strongly disagree	0	0.0	

Table 117: PPP expertise is pervasive within the built environment

Perception	Frequency	Percent	Mean score
Strongly agree	1	2.7	3.22
Agree	15	40.5	
Neutral	14	37.8	
Disagree	6	16.2	
Strongly disagree	0	0.0	

Table 118: Increased demand for PPP monitoring increases demand for PPP experts

Perception	Frequency	Percent	Mean score
Strongly agree	10	27.0	4.19
Agree	24	64.9	
Neutral	3	8.1	
Disagree	0	0.0	
Strongly disagree	0	0.0	

Table 119: A high demand for monitoring experts increases demand for PPP training and awareness and vice versa

Perception	Frequency	Percent	Mean score
Strongly agree	8	21.7	3.95
Agree	21	56.8	
Neutral	6	16.2	
Disagree	2	5.4	

Strongly disagree	0	0.0	
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Table 120: High demand for education and training leads to an increased role for public universities in the PPP sector

Perception	Frequency	Percent	Mean score
Strongly agree	10	27.0	3.73
Agree	14	37.3	
Neutral	7	18.9	
Disagree	0	0.0	
Strongly disagree	8	21.6	

Table 121: Tertiary built environment PPP related education is inadequate

Perception	Frequency	Percent	Mean score
Strongly agree	10	27.0	3.68
Agree	9	24.3	
Neutral	14	37.8	
Disagree	4	10.8	
Strongly disagree	0	0.0	

Table 122: Corrupt practices lead to increase in infrastructure and service delivery problems

Perception	Frequency	Percent	Mean score
Strongly agree	22	59.5	4.32
Agree	7	18.9	
Neutral	6	16.2	
Disagree	2	5.4	
Strongly disagree	0	0.0	

Table 123: Increased PPP agreement throughput facilitates investments

Perception	Frequency	Percent	Mean score
Strongly agree	10	27.0	4.22
Agree	25	67.6	
Neutral	2	5.4	
Disagree	0	0.0	
Strongly disagree	0	0.0	

Table 124: An increase in PPP agreements increases portfolio of assets and scope for service delivery

Perception	Frequency	Percent	Mean score
Strongly agree	13	35.1	4.11
Agree	17	45.9	
Neutral	5	13.5	

Disagree	2	5.4	
Strongly disagree	0	0.0	

Table 125: High demand for service delivery increases demand for private sector investment and expertise

Perception	Frequency	Percent	Mean score
Strongly agree	15	40.5	4.32
Agree	21	56.8	
Neutral	0	0.0	
Disagree	0	0.0	
Strongly disagree	1	2.7	

Table 126: An increased level of investment leads to a decrease in demand for infrastructure and service delivery

Perception	Frequency	Percent	Mean score
Strongly agree	7	18.9	2.73
Agree	2	5.4	
Neutral	21	56.8	
Disagree	5	13.5	
Strongly disagree	15	40.5	

Table 127: High throughput for assets / services leads to a high demand for monitoring and evaluation services

Perception	Frequency	Percent	Mean score
Strongly agree	6	16.2	3.73
Agree	20	54.1	
Neutral	6	16.2	
Disagree	5	13.5	
Strongly disagree	0	0.0	

Table 128: Policy reforms lead to the establishment of PPP regulatory agencies

Perception	Frequency	Percent	Mean score
Strongly agree	4	10.8	3.76
Agree	24	64.9	
Neutral	5	13.5	
Disagree	4	10.8	
Strongly disagree	0	0.0	

Table 129: Policy reforms lead to a reduction in infrastructure and service delivery problems

Perception	Frequency	Percent	Mean score
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Strongly agree	5	13.5	3.14
Agree	9	24.3	
Neutral	13	35.1	
Disagree	6	16.2	
Strongly disagree	4	10.8	

Table 130: Establishment of PPP legal and regulatory agencies leads to a decrease in need for policy reforms

Perception	Frequency	Percent	Mean score
Strongly agree	4	10.8	3.00
Agree	5	13.5	
Neutral	17	45.9	
Disagree	9	24.3	
Strongly disagree	2	5.4	

Table 131: PPP legal and regulatory agencies promote PPP growth

Perception	Frequency	Percent	Mean score
Strongly agree	3	8.1	3.81
Agree	25	67.6	
Neutral	8	21.6	
Disagree	1	2.7	
Strongly disagree	0	0.0	

Table 132: Closure of more PPP deals leads to reduction in service delivery problems

Perception	Frequency	Percent	Mean score
Strongly agree	4	10.8	3.51
Agree	20	54.1	
Neutral	6	16.2	
Disagree	5	13.5	
Strongly disagree	2	5.4	

Table 133: High transaction costs reduce the number of agencies participating in PPP deals

Perception	Frequency	Percent	Mean score
Strongly agree	6	16.2	3.89
Agree	21	56.8	
Neutral	10	27.0	
Disagree	0	0.0	
Strongly disagree	0	0.0	

Table 134: High transaction costs lead to decrease in PPP deals output

Perception	Frequency	Percent	Mean score
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Strongly agree	6	16.2	3.84
Agree	21	56.8	
Neutral	8	21.6	
Disagree	2	5.4	
Strongly disagree	0	0.0	

Table 135: Inadequate risk management increases inappropriate risk transfers

Perception	Frequency	Percent	Mean score
Strongly agree	15	40.5	4.11
Agree	16	43.2	
Neutral	3	8.1	
Disagree	1	2.7	
Strongly disagree	2	5.4	

Table 136: Higher risk projects decreases investment levels in PPP projects

Perception	Frequency	Percent	Mean score
Strongly agree	10	27	3.84
Agree	18	48.6	
Neutral	2	5.4	
Disagree	7	18.9	
Strongly disagree	0	0.0	