Factors limiting public-private partnerships in South Africa's water sector

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A research report submitted to the Gordon Institute of Business Science, University of Pretoria, in partial fulfilment of the requirements for the degree of Master of Business Administration

11 November 2019

ABSTRACT

South Africa is a water scarce country with climate change impacting water security for the worst. Its economy is also struggling, causing its infrastructure spend to decline. There is currently a historical backlog in water infrastructure spend, with a lack of critical skills in the sector to utilise the little money that is available.

Public private partnerships (PPPs) is a proven method for emerging economies to address their infrastructure backlogs by utilising the support from private organisations. This has been done for decades throughout the world and in the past 20 years, in many sectors in South Africa. National treasury developed world-class PPP guidelines in 2004 but there is little evidence of it bearing much fruit in aiding the water sector of late.

This qualitative study focusses on establishing whether PPPs should be pursued for water infrastructure projects, when compared with other financing and development models and also on what the limiting factors could be that stifle this method of infrastructure development. Interviews were held with 13 experts on both sides of the PPP spectrum.

It was found that PPPs are a highly advisable option to consider in order to solve for the infrastructure backlogs in the South African water sector. PPPs can offer elements that can kick-start a virtuous cycle of economic growth. Furthermore, it is found that the main reasons for the lack of PPPs lie with government and more specifically in a the lack of political will, onerous processes and legislation, and a lack of able resources that can manage PPPs.

KEYWORDS

PPPs, Barriers, Water, Infrastructure, Investment

DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Signed: Gerhard Viljoen

11 November 2019

Date

CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1 : PROBLEM DEFINITION AND PURPOSE

1.1 Introduction

Africa is filled with emerging economies which are struggling with widening infrastructure gaps between the capacities required and available. The required capital for maintenance and new development is just too much for them to fund on their own (Loxley, 2013). South Africa is no different and is also facing increasing infrastructure backlogs, especially in the water sector (Department of Water and Sanitation of the Republic of South Africa, 2018a). South Africa's Medium-Term Strategic Framework for 2019 to 2024 (The South African Government, 2019) and National Development Plan (National Planning Commission of South Africa, 2012) calls for more private investment to bridge these gaps. The Public private partnership (PPP) model is an alternative procurement model which supplements existing funding techniques and involve the private sector effectively to improve national water infrastructure management (Ruiters, 2013). Despite South Africa being a leader in the continent with regards to PPPs (Fombad, 2015), there seems to have been (and currently are) very little of these types of projects in its water sector (Government Technical Advisory Centre, 2018).

1.2 The need for this Research

1.2.1 South Africa is water scarce

South Africa, as part of Sub-Saharan Africa, is classified as semi-arid. It is a water-scarce country which has in recent years also experienced the negative effects of El Niño. This has caused severe droughts throughout the country, as the region is one of the most vulnerable and least adaptable to climate change. The most publicised drought would be that of Western Cape of 2017/2018 which has an expected one in 400 year return period (Chivenge, Mabhaudhi, Modi, & Mafongoya, 2015; Department of Water and Sanitation of the Republic of South Africa, 2018a).

Droughts are occurring more frequently in South Africa and has a negative impact on the economy, with lower dam levels contributing to a decrease in GDP. It has caused South Africa to become a net importer of certain foods and is having spill

over effects, causing higher unemployment rates in the agriculture sector (Baudoin, Vogel, Nortje, & Naik, 2017). A recent report by Greencape (Reddick & Kruger, 2019) shows the categories of main water users in South Africa and how many users are dependent on municipal water supply. South Africa needs to invest R 90 Billion per year in the water sector to keep up with demand. Forecasted shortages are expected in the key industrial areas which are key to economic growth.

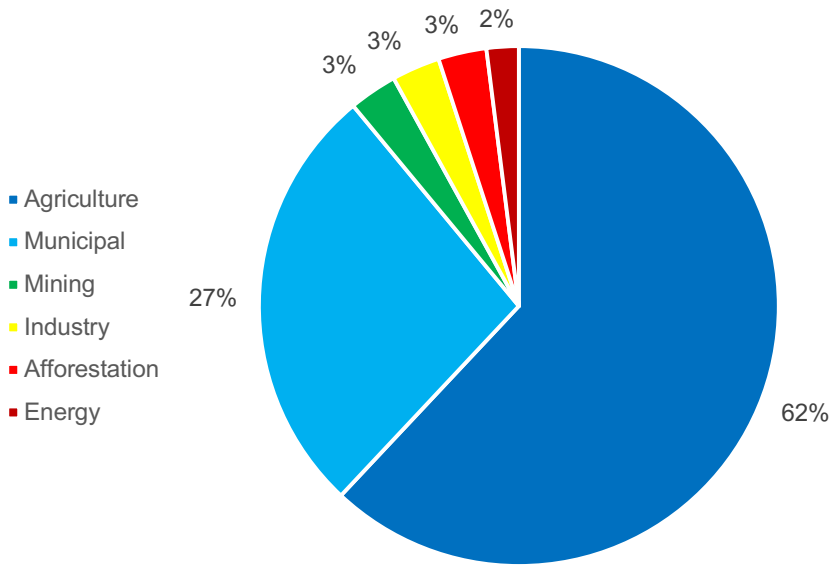

Figure 1: Water Use in South Africa by Sector (Reddick & Kruger, 2019)

In spite of the limited supply of water that nature has dealt this region, South Africa is not making efficient use of the little water resources that it has. South Africa has lost more than half of its wetlands through poor water management and roughly a third of those that remain are classified as being in a poor ecological condition (Department of Water and Sanitation of the Republic of South Africa, 2018b). Wetlands clean and store large amounts of water and this mismanagement, causing their health to decline, is threatening water security.

1.2.2 South Africa's public is under-served.

South Africans are dependent on the Department of Water and Sanitation (DWS) and their local municipalities for clean water for drinking and sanitation. It is, in fact, the constitutional right of all South Africans to have access to clean water (The South

African Government, 1996). Unfortunately many of these municipalities are experiencing systemic failures in governance and budgeting, particularly in the implementation of- and spending on projects (SAHRC, 2014). A lack of clean water and sanitation makes sustainable development a challenge. It poses serious health risks causing pollution, child malnutrition, physical attacks and increased diseases that leads to deaths (United Nations, 2017). If wastewater is left untreated, public health suffers due to the degrading water quality which contaminates the environment (United Nations, 2018). Government is responsible for water infrastructure and management which, if left to decay, will worsen the above issues and degrade biodiversity and ecosystem resilience (United Nations, 2016). There is a tendency to see a lack of integrated planning within municipalities and a lack of infrastructure maintenance in South Africa. In rural areas there is theft and vandalism of assets as well and the combined issues are threatening water security severely (Meissner, R., Steyn, M., Moyo, E. , 2018).

The statistics of access to clean drinking water in South Africa have been recorded by Statistics SA (2018) as described in Figure 2. These figures speak not only of inadequate water infrastructure in urban areas but also of the limited, general access to clean drinking water for Millions of South Africans. There are still many South Africans who are without access to tap water in their dwellings and more than a quarter rely on either collecting water from a community stand or other sources far from their homes.

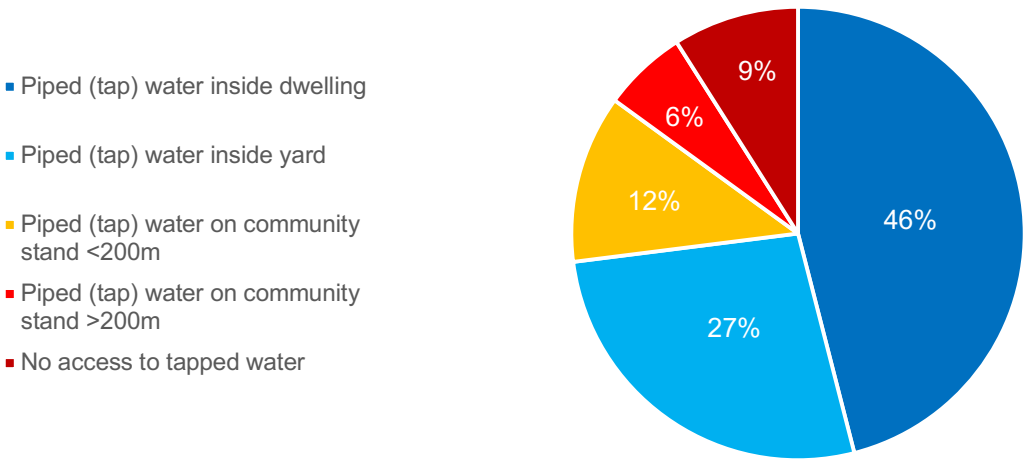

Figure 2: A breakdown of access to clean drinking water in South Africa (Statistics South Africa, 2018)

For the financial year of 2017/2018 it was found that many municipalities are still behind in addressing service backlogs for rolling out basic services and struggling with quality of service provision and revenue collection (Department of Cooperative Governance, 2018). The resulting consequences are that more than three Million people still lack a basic water supply service and 14.1 Million lack safe sanitation. Households that have access to a reliable water supply service form less than 64% of the population. (Department of Water and Sanitation of the Republic of South Africa, 2018b).

1.2.3 South Africa's municipalities are falling behind.

South Africa's municipalities face rising debt levels, there is insufficient spending on repairs and maintenance, and many are unable to facilitate the spend on services and infrastructure. The revenue bases of municipalities are on the decline and the viability of municipalities are questioned. The DWS conducts "Municipal Strategic Self Assessments (MuSSAs) in municipalities that are Water Services Authorities (WSAs) to address water services challenges and have found that 31 of the 144 WSAs' functionality is regarded as having a low or moderate vulnerability. This means that 79% of municipalities that are WSAs do not have acceptable functionality scores. (Department of Cooperative Governance, 2018). Functionality scores measure municipalities across six key performance areas and 29 management performance standards (Department of Planning Monitoring and Evaluation of the Republic of South Africa, 2015).

The following statistics about South African municipalities have been published by the Department of Water and Sanitation (2018) in the document called the National Water and Sanitation Master Plan:

- Of all the wastewater treatment works, 56% are in poor or critical condition.
- Of all the water treatment works, 44% are in poor or critical condition.
- Over 11% of all these treatment works are dysfunctional.
- Of all the municipal water treated, 41% does not generate revenue and 35% is lost through leakage.

- Over R9.9 Billion is lost per annum by municipalities through these wastages and an extra R33 Billion is required per year to achieve water security in the country.

Note: Poor & Critical conditions are accredited to municipalities who require targeted or urgent interventions for water use efficiency. This means that these municipalities are either on the verge of, or already not able to meet the service demands of their communities in their current state of operation (Department of Water and Sanitation of the Republic of South Africa, 2014).

These failures have largely been a result of a lack of funding, technical skills and institutional capacity to operate and maintain infrastructure assets that treat water and wastewater. Municipalities struggle to employ appropriately qualified technical staff. Further to this, the DWS acknowledges that "water is severely under-priced" and has issued a call to action to reduce costs and improve revenue (Department of Water and Sanitation of the Republic of South Africa, 2018b).

These are not new or unique problems for emerging economies, as the literature will show. The outcomes of a continuing trend will however have dire consequences for the South African economy and the aim of this research is to explore the reasons behind the lack of use of the available legislation and support vehicles, more specifically, PPPs, to support efforts to keep this sector afloat and provide proper access to water and sanitation services to the public.

1.2.4 South Africa is not using its PPP resources effectively.

The Department of Cooperative Governance has gone so far as to say that "there is a critical need for collective action across government working with partners, to restore the functionality of water management and supply across our municipalities" (Department of Cooperative Governance, 2018). The National Water and Sanitation Master Plan's "Call to Action" also calls for private loan funding to be increased and it says PPP structures need to be simplified (Department of Water and Sanitation of the Republic of South Africa, 2018b). These statements indicate that national government are aware of the need for PPPs.

South Africa has been applauded for its highly progressive and visionary water legislation (Davis, 2019) and has well-established legislation and guidelines for PPPs, (National Treasury of the Republic of South Africa, 2004, 2005, 2010) which are said to be the best in Africa (Loxley, 2013). These guidelines are generic enough to have been successfully implemented for large infrastructure projects like the Gautrain, national roads upgrade concessions, and correctional services, but only two PPPs have been implemented since 1998 in the water sector (National Treasury of the Republic of South Africa, 2019) despite there being a specific section in the guidelines for water infrastructure PPPs. Ruiters (2013) claims that limited PPP initiatives are being pursued in the water sector and this is central to the theme of this study. South Africa has gone to great lengths to ready itself for PPPs and many projects have been established in this manner, but the water sector has had very limited activity in this arena of PPPs. The water PPPs that could be identified that have been implemented to date in South Africa are (Marin, 2010):

- Johannesburg Water management contract (2001 – 2004)
- Queenstown (1993 – 2000)
- Stutterheim (1995 – 2001)
- Dolphin Coast (1993 – 2003)
- Mbombela (Active)

This is a very small number considering the time span of almost 30 years since the first recorded project. The question beckons why, amidst a period of droughts, decreasing water security, and a call to action by government for PPPs, only five water PPPs are currently registered with national treasury (Government Technical Advisory Centre, 2018), namely:

- M115: City of Umhlathuze
- TASM132: Sekhukhune District Municipality
- TASM139: EThekwini Municipality
- TASM 143: City of Tshwane Municipality
- TASM157: EThekwini Metropolitan Municipality

This should not be, as water is a key driver in alleviating poverty and improving the health of our most destitute, the detrimental effects on growth and development is more acute with water infrastructure than other infrastructure function objectives due to the public health and environmental concerns (Effah Ameyaw & Chan, 2013). Five projects registered does not mean five projects will be successful, and they take a very long time to complete the processes. There are 144 municipalities that are Water Service Authorities (WSAs) in South Africa and therefore this pipeline of projects is not commensurate with the need described.

1.2.5 There is a need for this research.

The lack of investment in water infrastructure in sub-Saharan Africa indirectly costs 4.3 per cent of its combined GDP (1.7 Trillion US Dollars per annum) and this impact is mostly felt in the agriculture, food, energy and health sectors (Chivenge, P., Mabhaudhi, T., Modi, A. T., & Mafongoya, P., 2015; The World Bank, 2019; United Nations, 2016). The South African government has recently confessed that there is a water crisis and that its effects have already been detrimental to the well-being of its citizens and the growth of its economy (Department of Water and Sanitation of the Republic of South Africa, 2018b). The public media has many stories to tell about the detrimental effects on grass root and macro levels, some quotes from recent media articles provide context:

> *"After two decades of little or no maintenance of municipal sewerage plants, corruption and indifference, South Africans are vulnerable to medieval water-borne diseases…villages, towns and even a capital city are experiencing severe water shortages, caused by a combination of years of bad management and drought…decades of municipalities' failure to maintain infrastructure has resulted in sewage leaking into waters sources in many areas" (Cullinan, K., Mukwevho, N., Motaung, P., Mojela, M., Dalana, A., & Maseko, C., 2019)*

> *"The impact of the recent drought on large businesses in South Africa has also been severe. The recent CDP report on water said that 83% of respondents reported 'that their direct operations are exposed to water-related risks, the highest of any sample in the world, with more than half of*

these risks expected to manifest within the next three years and with two-thirds of those risks having a financial impact of medium to high' ". (Burgess, 2018)

"Makhanda's current [water] crisis represents the culmination of what happens when municipal and governmental mismanagement collides with drought – and it is a picture playing out in different parts of the country." (Davis, 2019)

It has been established in this chapter that South Africa is in an arid region and that climate change is impacting it in severe ways. South Africa's water sector is struggling as its infrastructure needs are not being met. It has been established that South Africans and South African businesses are facing serious consequences due to the ailing water sector. Despite having strong PPP frameworks and legislation, the water sector is not making use of it to a degree that is commensurate with the scale of the current water crisis.

The literature study will show that there is a lack of recent and relevant literature on PPPs in the water sector for the South African context. That means that there is a gap in our knowledge regarding PPPs in this sector, for this region. Consequently this study sets out to determine what the main reasons are behind the lack of PPPs and their implementation for water infrastructure in South Africa, despite this looming water crisis and South Africa's seemingly world-class PPP legislation.

1.3 Research Objectives

Holistically, the objective is to support the South African water sector. This study seeks to determine what the current status is on PPPs in this sector and whether they are in fact as scarce as available knowledge leads us to believe. If they are not, the reasons why support systems are not being used (i.e. PPP legislature and treasury resources) are to be determined. Furthermore, PPPs are only one of many alternative funding models for water infrastructure projects and it is explored whether PPPs is a good option to pursue, seeing that there are so few of them. Lastly, the main reasons why PPPs in the water sector are so few and finding out which factors

responsible to prevent such partnerships in modern-day South Africa, are looked at more closely.

1.4 Research Scope

The specific focus is to research the history and trends of water sector PPPs in the past 20 years, with specific focus on emerging economies such as South Africa.
Also, to define the available body of knowledge and publicly available data for PPPs in the water sector, to determine the status of PPPs in the water sector in South Africa. It then used this knowledge to engage with key role players and knowledgeable subject matter experts on both the public and private sides of the PPP spectrum in the Western Cape, South Africa to uncover whether PPPs is a good alternative funding model and to define the factors that limit PPPs in the water sector.

CHAPTER 2 : LITERATURE REVIEW

2.1 Introduction

A first look into the field of interest from an academic standpoint shows that recent, international literature on PPPs (specifically in the water industry) is very limited and has become increasingly scarce. The top 340 results obtained via the “Publish or Perish” software package showed a sharp increase in importance in this field in the early 2000’s and a sharp decline since 2009, except for 2013 which seems to be an outlier. Figure 3 provides a graphical representation of this data and the reason for literature only appearing since 1992. Probably because of PPPs only being used in developed countries since 1990, although China has been implementing PPPs since the 1970s (Chou & Pramudawardhani, 2015). Osei-Kyei & Chan (2015) mentions that the 2007-2008 global financial crises had sparked new interest in PPPs globally to aid with budget deficits and to tap expertise from the private players, this can be observed in the data but since 2014 it seems as though this interest has waned. One of the most important studies on PPPs in the water sector is that of Osei-Kyei & Chan (2015). They did a study on critical success factors in PPPs and their findings for publications per year correlate very closely with the data in Figure 2 included, albeit more focused within the field of success factors. No papers were found which specifically outline critical success factors, risks or key drivers for water infrastructure PPPs in South Africa.

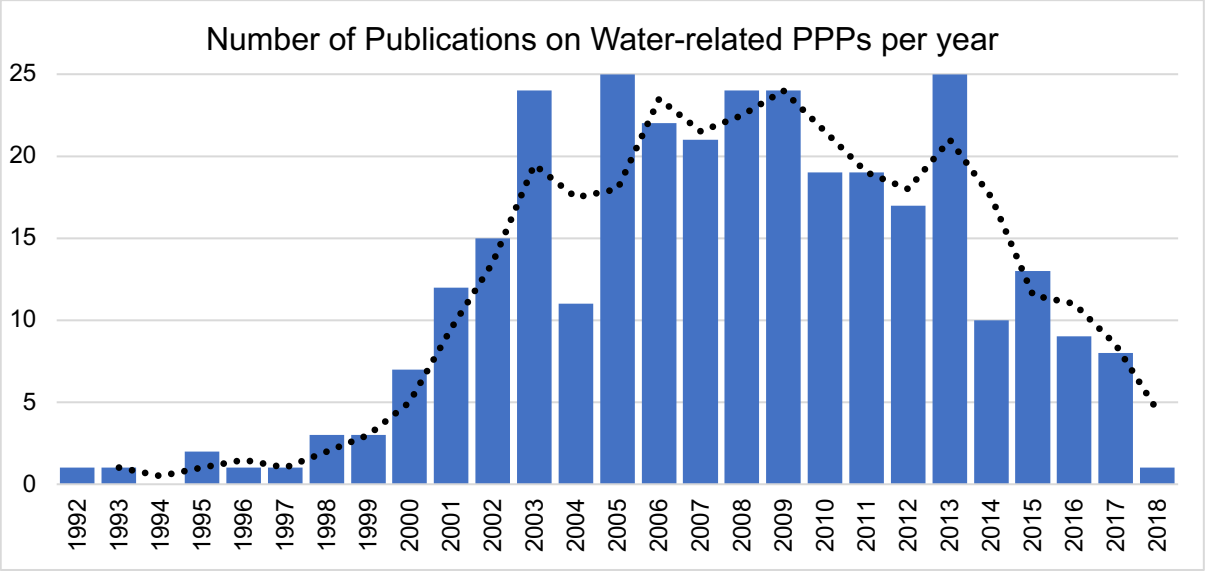

Figure 3: Number of publications on water-related PPPs per year

There is only one source available from 2018 and the citation count from literature, per year of publication, is also quite low for the period spanning over the past five years (less than 2,000 citations from 2014 to 2018 in total). By comparison an average of 3,000 citations were made per year in the 10 years prior to 2014. Finding quality and recent literature that is on-topic, and recent, is therefore difficult.

What has been observed, however, is that PPPs had been a topic of interest in countries which had embarked on these initiatives from the late 1990s such as China and Ghana (Cheung & Chan, 2011; Zhong, Mol, & Fu, 2008). Many articles and case studies exist for PPPs that were implemented 20 years ago, discussing risks and funding models. It is the opinion of the writer that South Africa still has many lessons to learn from countries which have established strong portfolios of water-related PPPs and that older literature can provide valuable insights and form a solid foundation for this study. The intention is to apply PPP theory found within the past 10 years to South Africa in areas where it has not been done before. This is based on the outcomes of paragraph 1.2 which shows that PPPs in the South African water sector have been, and still are, very limited (not being applied in large numbers) China, for instance, was able to successfully service their population with water infrastructure services through PPPs and because of that, by 2008, over 38% of national water services were conducted by private companies (Lee, 2010). With less than five water PPPs currently in the pipeline, according to National Treasury, within a pool of 144 WSAs, not to mention water boards – South Africa's comparative figure to China's fails to compare.

2.2 Literature Themes

2.2.1 What is a public private partnership?

In order to focus the research efficiently, the definition of a PPP, as it is used in this study, needs to be clarified and specified for this study. Marin (2010) describes how basic services such as water, sanitation and electricity were nationalised during the 1900s world-wide and how involvement of private entities were sought again during the latter part of the same century. The term PPP is used for any arrangement on a spectrum for alternative service delivery arrangements (Fombad, 2015) from a simple management contract to a complete concession for a private service provider.

These arrangements respectively range from limited risk and short durations (short-term contracts) to near-absolute responsibility for longer durations (concessions). The most common PPP models in African water projects in a World Bank report (Marin, 2010) were found to be:

- Divestitures (where private investors buy existing infrastructure from public utility managers)
- Concessions (where a private operator is made responsible for any further investment and continuous operations of the public-owned asset, naturally it will be required to hand over the assets in due time in the same condition as received)
- Leases-affermages (the public owner remains liable for its infrastructure assets but a new private entity manages the operations and collects revenue, which is shared with the owner)
- Management contracts (private operator in contracted to manage the operations but services are ultimately provided by the public utility)
- Mixed-ownership companies (Here a minority share of a public water entity is sold to a private investor who then takes over operations, sharing the revenues with the shareholders)

All of these examples do justice to the term “partnership” in the concept of a PPP. This same report mentioned how the biggest gain for the public entities is from improved efficiencies in their operations, not capital investment as one may assume.

The types of PPP arrangements implemented varies significantly between countries and industries, depending on the objectives and purpose of policy implementation (Osei-Kyei & Chan, 2015). In essence PPPs are cooperative arrangements between the public and private sector entities (such as government departments and state-owned entities) which ideally builds on the expertise of both parties by allocating responsibilities, risks and rewards in a fair manner. These arrangements are specifically pursued to improve public services (Loxley, 2013) and their delivery. Refer to Figure 4 for a graphical representation of the spectrum of PPPs.

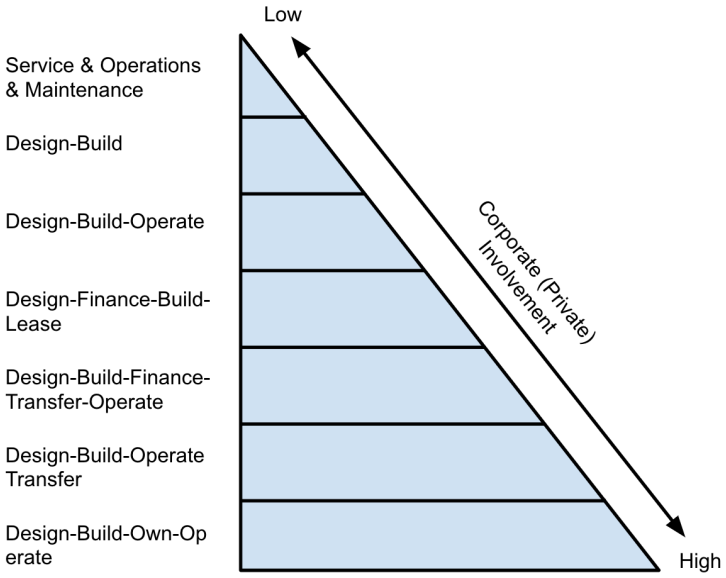

Figure 4: The PPP Spectrum (Loxley, 2013)

- Design-Build-Own-Operate: The highest level of private involvement sees the private company designing and building the asset and/or infrastructure. It then owns and operates it as well. Here the public entity is only a benefactor from the revenues by either “buying water at the gate” or sharing in revenues collected by the private company.
- Design-Build-Operate-Transfer: The first model can be altered by transferring the assets to the public entity after a certain period of time. This covers the technical risk for the public entity that the investment will perform its duties.
- Design-Build-Finance-Transfer-Operate: In this model, the private entity also finances the project and after operating it for a set period of time it will either be sold to the private entity or would have been paid for by the revenue collected through the service.
- Design-Finance-Build-Lease: A private entity can pay for the entire development and building of the asset, own it and lease the asset to the public entity.
- Design-Build-Operate: This is a traditional procurement contract which includes a service contract after establishing the asset.
- Design-Build: The traditional procurement way of contracting a private entity to design and build the asset with public funds.
- Services, Operations and Maintenance: A typical service level agreement where a public entity contracts a private entity to manage key services.

Since the study was undertaken in the South African context, the official definition for a PPP will be drawn from the South African Treasury Regulation No. 16 of 2004 (National Treasury of the Republic of South Africa, 2005). This regulation states that a PPP is a commercial transaction, between an institution and a private party, where the private party:

a) performs an institutional function on behalf of the institution; and/or
b) acquires the use of state property for its own commercial purposes; and
c) assumes substantial financial, technical and operational risks in connection with the performance of the institutional function and/or use of state property; and
d) receives a benefit for performing the institutional function or from utilising the state property.

2.2.2 The rationale of public private partnerships

Various reasons exist for the establishment of PPPs. They are used for improvement of labour productivity by the private sector whilst also creating business opportunities (Chou & Pramudawardhani, 2015; Effah Ameyaw & Chan, 2013). Private companies are less prone to be affected by labour strikes and more of the work can be subcontracted into the private space. PPPs improve operational efficiency, addressing inefficient management and operation on water service facilities while enabling both public and private parties to work more effectively. In many cases the lack of skills within public departments can be supplemented by industry (Chou & Pramudawardhani, 2015; Effah Ameyaw & Chan, 2013; Lee, 2010; Loxley, 2013). There is better performance by the private sector on tariffs imposed, in many cases to support in increasing an under-priced tap water rate (Effah Ameyaw & Chan, 2013; Lee, 2010). There is better performance by private sector in return on equity (Effah Ameyaw & Chan, 2013). Water provisioning is a service and a business which needs to be profitable and repay its assets. PPPs can relieve governments of budgetary pressures (Effah Ameyaw & Chan, 2013); this was clearly illustrated by Lee (2010) which shows that China had embarked on PPPs because of a lack of funds in the 1990s. They help governments relieve pressure on budgets and reduce debt obligations (Loxley, 2013) and provide access to finance in an environment where costs for water infrastructure are escalating and hampering development. South

Africa also has constrained budgets, and PPPs can provide for alternative funding models to reach households which lack basic services (Ruiters, 2013). PPPs can reduce tax obligations where levy user charges (Effah Ameyaw & Chan, 2013). With more profitable water operations the tax burdens that have to make up for the shortfall in repaying assets can be reduced or neglected. They provide for expanded coverage (Effah Ameyaw & Chan, 2013) and help governments reach service objectives. South Africa has not been reaching its objectives and as mentioned is facing serious infrastructure backlogs. As private companies get involved the process allows for upgrading outdated technologies (Lee, 2010). Governments rarely keep up with new technologies and industry can apply learnings when allowed the opportunity. PPPs can increases the quality of services (Effah Ameyaw & Chan, 2013). Better services increases willingness to pay (Devicienti, Klytchnikova, & Paternostro, 2004) which in turn helps to improve revenue collection and profitability. The effective size of government is often reduced and furthermore reduces corruption due to increased transparency in procurement practices (Loxley, 2013). Lower lifetime costs from inception to operation of infrastructure projects, cheaper and on time as they put pressure on contractors to complete work within constraints (Loxley, 2013). PPPs are known to address challenges of infrastructure procurement, including legal, social and political concerns (Chou & Pramudawardhani, 2015). By only using a single contractor with all the skills required to manage big projects, the risks to governments drastically decreases and so also shifts risks to those best suited to handle it (Loxley, 2013). Technical risks are, for instance, better suited to be handled by the private sector who are comfortable with the technologies and have already been exposed to previous projects which were similar in nature. PPPs can also be important instruments for promoting BEE in South Africa (Loxley, 2013), as they allow for more opportunity for black-owned businesses to support government.

2.2.3 Risks involved with public private partnerships

Many funding models are available to finance poor performing public utilities, and a PPP is only one opportunity, but is regarded as a “high risk, high reward” option (Marin, 2010). Being fully aware of these risks is therefore essential if high rewards are to be pursued. Effah Ameyaw & Chan (2013) argue that PPPs for water infrastructure are prone to include more risks that are distinct from other sectors such

as transport, telecommunications or electricity. These risks leave the private sector with less of an appetite for investment and that government need to work towards reducing these risks to attract more investment. PPPs are popular world-wide but implementation thereof is still experiencing lots of impediments (Osei-Kyei & Chan, 2015). The main themes provided by Lee (2010) will be used to summarise the application of risk theories to water infrastructure projects. These themes are:

- Socio-political risks
- Institutional and regulatory risks
- Revenue and foreign exchange risks
- Project execution, administration, construction and operation risks

2.2.3.1 Socio-political risks

The very low cost of water, for decades, creates deeply held beliefs by citizens about the right to clean water as a social good and this impedes chances of profitability of projects. Water News Wire reports on how Cape Town's water and waste water tariffs increased 380% in 2018 compared to a global 3.8% and is only now in line with most European and Unites States cities (Water News Wire, 2019).

The low water tariffs are further exacerbated by politicians' concern of the public's perception of them if prices are raised in fear of losing power (Lee, 2010). Many times, efficiency gains realised by PPPs are at the expense of labour where unionised workers are merely replaced with others whose wages are much lower and are willing to accept less benefits. PPPs in the water sector are most likely to be for the provision of services to poor communities which are difficult and expensive to service and reach. Since they have limited financial resources on top of these issues, recuperation of costs is less likely. It is not uncommon to see protests by communities where decade-long subsidies by government are reduced as PPPs are introduced as massive initial lay-offs of staff are common (Loxley, 2013; Marin, 2010).

2.2.3.2 Institutional and regulatory risks

There are not always enough legal instruments to support the development of PPPs and even less likely with regards to those supporting foreign investors. Even if laws

for PPPs exist, they are often regarded as “guidelines”, especially where it is allowed for laws to be modified to suit local conditions. Implementation of new regulatory frameworks open a new set of challenges in PPPs for urban water supply. Increased corruption sees project costs increase significantly and PPPs are known to increase the facilitation thereof. It has been shown that weak institutions and poor governance make PPPs less effective (Effah Ameyaw & Chan, 2013; Lee, 2010; Loxley, 2013). South Korea in particular has addressed the lack of transparency after failure of PPPs in the 1990s by substantially strengthening its legal framework on PPPs. Competitive bidding is an essential part of effective procurement and PPPs are not always subject to these vital principles. This has the effect that transparency and public scrutiny decreases and accountability wanes, causing decreased government control and lack of visibility to public on costs transferred to government. In the pursuit of joint responsibility, it often happens that both parties accept less responsibility than required and that it becomes a “joint irresponsibility” (Fombad, 2015).

Because of large capital investments required, direct competition is also less and governments stand the chance of allowing exorbitant tariffs through private companies if regulatory frameworks are not in place (Effah Ameyaw & Chan, 2013). Because industry will most probably be experts in their field, they may be much more experienced than the public partner, causing risks in asymmetry of bargaining power. Public sector entities are very likely to carry substantial financial risk as PPPs rarely happen without government guarantees (Fombad, 2015; Loxley, 2013). Fombad (2015) argues that recent bailouts of PPPs in South Africa may indicate that the private sector can rarely deal with the risks allocated to them in PPPs.

Special mention should be made to the South African constitution (The South African Government, 1996) which declares that: “Everyone has the right to have access to sufficient food and water”. The Water Services Act (Department of Water and Sanitation of the Republic of South Africa, 2015) followed suit to make this a reality through WSAs for communities in South Africa. This makes it difficult to increases water prices where the poor cannot pay for their water (Soyapi, 2017). This is a risk for private investment in the water sector.

2.2.3.3 Revenue and foreign exchange risks

The low cost of water, as described above, prevents PPPs in developing markets, as private investors will find it difficult to recover their investments from revenue collection. It is then difficult to make municipal projects attractive for private investors and often governments have to subsidize these shortfalls. International companies are exposed to foreign exchange risks if revenues are received in the local currency which adds significant risk to long term projects in emerging markets with unstable economies (Lee, 2010). Leases paid to private organisations remain debt, just in another form, and debt is not nullified. Financing for PPPs are almost always more expensive than direct loans available to governments. Feasibility is impaired due to higher transaction costs for ongoing monitoring (Loxley, 2013)

2.2.3.4 Project execution, administration, construction and operation risks

Project construction and operation risks are no different for PPPs than they are for the usual infrastructure project risks. These include design issues, cost overruns, project delays and lower performance realised. In operations the risk of not receiving the required permissions or approvals from the authorities or feasibility not being realised as expected (Lee, 2010).

PPPs are however more involved and longer-term arrangements which require more complicated and increased legal paperwork and negotiations due to increased legal, technical, economic and political complexities. This causes large upfront costs and delays. Risk transfer in PPPs are many times over exaggerated and subjective which is linked with cost overruns and unsuccessful outcomes (Chou & Pramudawardhani, 2015; Fombad, 2015; Loxley, 2013). Effah Ameyaw & Chan (2013) specifically found that for two decades of PPPs in Ghana, a large number have fallen short of targets and the reason has been a poor understanding of the risks involved by the private partners.

PPP projects in the water sector typically are capital intensive, have large initial costs, low rates of return, difficult regulatory challenges, political interference, long lead times, high sunk costs and high uncertainties about the asset conditions (especially for underground pipe networks) and consumer behaviours, lengthy

procurement processes, lack of appropriate skills, high end user charges and incomplete risk transfer. These also cause payback periods on investments to be very long (15 to 20 years) (Effah Ameyaw & Chan, 2013; Osei-Kyei & Chan, 2015). It has been noted by Chou & Pramudawardhani (2015) that in developing countries, inappropriate risk allocation and lack of information on success factors have been the most detrimental in causing failures in PPPs.

2.2.4 Policies related to public private partnerships

Research has shown that it is imperative for governments to instate legal frameworks and policies that clearly support the evaluation of PPPs against traditional procurement processes and the World Bank agrees that sound policy and regulatory frameworks are top of the list ingredients for successful PPPs (Marin, 2010). This should also be supported by the right technical capabilities (Loxley, 2013). Public water systems are however not an easy topic for policy and law makers to address, as there are mixed policy objectives which involve political goals and many other governmental departments that oversee health, food security, water and sanitation (Effah Ameyaw & Chan, 2013).

China has been very successful in implementing PPPs in advancing urban water services by changing policies, implementing new laws and regulations in favour of PPPs in the water sector and restructuring water bureaus. This has attracted foreign companies and achieved China's overall objective of improving and strengthening their own capabilities to service their population, despite the environment having been regarded as a high risk (Lee, 2010). The result has been a vastly improved water infrastructure sector which was supported by the private sector supplying up to 38% of the total water supply in 2018 (Lee, 2010). It seems as though South Africa is trying to involve private parties more in the development and operations of public infrastructure but that there may not be sufficient legislative protection to entice the right players (Ruiters, 2013).

One of the key legislative and policy related issues to address is the price of water, and this is a fundamental issue that will guide reforms in the water sector. Also, it must be said that it has been observed that public funding that complements water tariffs have been big contributors towards the success of water PPPs in developing

countries (Marin, 2010). The “user pays” principle should be followed in order for additional revenue streams to fund water infrastructure projects and maintenance (Ruiters, 2013). China started regulating water prices in such a manner as to guarantee an eight to ten percent net return rate for investors, including those who had to still cover the cost of construction (Lee, 2010), and this has been one of the key drivers for PPP success. Having to increase tariffs will lead to increased and wider access to a larger portion of society (Marin, 2010).

South Africa is said to have a strong legal frameworks which are very progressive (Davis, 2019). These include:

- The Local Government Municipal Systems Act (The South African Government, 2000)
- The Municipal Financial Management Act (National Treasury of the Republic of South Africa, 2003)
- The Water Services Act (Department of Water and Sanitation of the Republic of South Africa, 2015)

The Standardised PPP provisions (National Treasury of the Republic of South Africa, 2004) was instated by National Treasury in the early 2000s to promote and support PPPs which are said to be the best in Africa (Loxley, 2013). These frameworks have however not been updated since they were published.

2.2.5 Lessons learnt from previous public private partnerships

Avoiding the risks lined out in paragraph 2.2.3 and adopting successful policies as described in paragraph 2.2.4 will allow for new PPPs to apply best practices from many other examples. A couple of lessons learnt are now discussed to aid in further understanding of what has made for successful PPPs in the past.

It is said that, with water sector PPPs, government needs to focus on being a regulator rather than a service provider and refrain from being too controlling (Lee, 2010; Marin, 2010). Time should be allowed for mutual trust to develop between public and private parties before the commitments are made (Fombad, 2015). Communities affected by PPPs should be engaged very early on and given the

opportunity to participate in the process. They should not be regarded as passive receivers at all and proposals should be made available for public scrutiny (Fombad, 2015). Very importantly, the World Bank has found that the main focus for water PPPs in developing countries like South Africa should not be to make use of private investment but rather to improve service quality and efficiency by using and learning from private partners. This also reflects in the common trend of countries moving away from pure concessions to partnerships (Marin, 2010). Clear and detailed contracts are key in successful implementation of PPPs (Marin, 2010). South Africa should not purely look outside its borders for known players to partner with in water infrastructure projects. The trend in developing countries have shown many private players within its borders have been able to provide the expertise to the levels required to enter into PPPs, very cost effectively (Marin, 2010).

2.2.6 South Africa and public private partnerships

Interest in PPPs started in the late 1990s in South Africa where after a dedicated PPP unit was established within the National Treasury. This unit established PPP legislation for national and provincial governments and for municipalities. It has gone so far as to issue a comprehensive PPP manual to lead and support PPP initiatives. South Africa is said to have “perhaps the most sophisticated legal and institutional structure” out of all the countries in Africa (Loxley, 2013; National Treasury of the Republic of South Africa, 2004, 2010). As detailed in paragraph 1.2.4, South Africa has not, recently, been using its strong PPP structures to its benefit effectively, to support its water infrastructure objectives.

Fombad (2015) argues that South Africa needs to enhance accountability in PPPs. The main techniques in the local context to achieve this has been proposed, and for the sake of brevity, only the main themes are included here. The themes are: clarifying accountability relations, monitoring measures, parliamentary oversight, administrative institutions, community monitoring, accountability structures, transparency, ethical standards, risk transfer and institutional reforms.

The National Business Foundation has done very recent work on PPPs in the water sector of South Africa and has found 28 of 144 WSAs in a suitable position to implement water PPPs (National Business Initiative, 2019b). Their findings also

include that the most suitable WSAs already have good revenue bases and are well capacitated.

2.2.7 The vicious cycle of bad service delivery

Marin (2010) speaks of a vicious cycle in which African municipalities, in the 1980s got trapped. These municipalities became complacent, not foreseeing that bad service delivery would have consequences. They did not see their water service delivery as a business with customers who have to be treated well in order to prevent losing them. This cycle starts with a mismanagement of assets and limited maintenance. This causes infrastructure to deteriorate and which then causes the quality of water to drop and delivery to be unreliable. Customers then do not want to pay and also do not see reason to pay for the year-on-year tariff increase by government. Less paying customers means less revenue which impacts the size of the next financial year's budget to invest in the same assets. With less funds available, the cycle is perpetuated and intervention is required to break it.

CHAPTER 3 : RESEARCH QUESTIONS

RESARCH QUESTION 1: Is there a valid case for pursuing PPPs for South African water infrastructure projects?

Currently, there are 87 PPPs in registered with National Treasury. These include a diverse projects, such as office buildings, prisons and waste to energy projects (Government Technical Advisory Centre, 2018). Only five of them are currently water related while there are 144 WSAs in the country of which many are struggling to keep up with infrastructure backlogs (Department of Cooperative Governance, 2018).

The active and previous PPPs in the water sector started before or shortly after the PPP frameworks were established. As mentioned in paragraph 1.2.4 mentioned, only five water PPPs could be identified in the history of South Africa to date. It may be that other forms of contracts, acquisition or procurement have been found to be easier or less risky to implement and that the authorities are very much aware of the opportunities and risks in implementing PPPs, but choose not to embark on this route.

This research question therefore set out to explore whether there is a valid case for pursuing PPPs in the South African water sector, especially considering the context of the country's fiscal challenges and the current backlog on water infrastructure projects.

RESEARCH QUESTION 2: What are the most prevalent factors that are limiting the establishment of PPPs for South African water infrastructure projects?

This question was chosen because it has been established that national government and the DWS were promoting private investment for water projects. There is little evidence of this making a difference at the at which new water PPP projects are being established. There should therefore be many reasons why there are so few PPPs. There are also unregistered PPPs within municipalities and this research question aims to uncover the reason for this as well.

Inquiry was made into prescribed guidelines by treasury and peoples' knowledge about PPPs in general. It was also investigated whether government's recent re-commitment to gain private support for the development of water infrastructure and improved services have filtered through to the levels where actions should be taken. If there are many PPP projects on the cards, then this would mean the strategy has cascaded over water authorities' objectives. If not, the lack of PPPs may be ascribed to a lack of delineation of objectives to lower levels. Literature provides a host of reasons for the lack of PPPs in developing countries, but the aim of this study is to determine which are the min reasons in the current South African context, and more specifically, in the water sector.

CHAPTER 4 : RESEARCH METHODOLOGY

4.1 Choice of methodology

The general objective of this research is to find the most recent and relevant reasons for the lack of PPPs in the South African water sector and whether PPPs are a well-suited alternative for funding, operations and management of water projects. This implies that new theory will be developed via collection of data from key role players and stakeholders in the public and private sectors in South Africa. Interviews with individuals makes this study suited for a qualitative inquiry, as the strategy does not follow a particular design or technique, but the methodology can rather be described as an approach. Also, the content does not fit into a particular theory (Welman, Kruger, & Mitchell, 2005). Van Maanen (1979) says that qualitative research "covers an array of interpretive techniques which seek to describe, decode, translate and otherwise come to terms with the meaning of naturally occurring phenomena in the social world". This is an accurate description of the nature of the intended study and supports the chosen methodology.

The research uncovered, for the literature study on the topic, is either too general (includes many sectors, not water only) or it is not focused on South Africa. Therefore, inductive reasoning had to be implemented to move from specific observations in interviews to broader generalisations and theories by observing patterns and repeated occurrences between different interview outcomes. This is the definition from Saunders and Lewis (2018) on the induction research approach and it aligns with the principles of the broader qualitative approach and the intended methodology. The fact that an inductive research approach also allows for changes in research emphasis, as the research progresses (Saunders & Lewis, 2018), makes it the ideal approach, as there were many unknowns faced at the offset of this study. Interviews shed light on the lack of available knowledge which changed the focus slightly.

The stated research problem calls for a contextually relevant explanation for issues yet undiscovered in the water industry. It appears that little is known about this particular, focused subject and this supports Kumar's view of when an exploratory study should be followed (Kumar, 2014). New insights are required to support the

water sector. Exploratory research allowed for answers to the focused question areas identified from literature. Saunders and Lewis (2018) defines an exploratory study as “research that aims to seek new insights, ask new questions and assess topics in a new light” and there was sufficient scope for “new questions” in the current political and socio-economic climate of South Africa, and in relating the topic specifically to the water sector.

Denzin & Lincoln (2011) describes interpretivism as the process of creating findings through the process of interaction between the researcher and the researched. This was a cross sectional study where interviews were structured in such a way that it could lead to insights, which were possibly not previously known by the interviewees either, as the questions presented were formulated in such a way as to help them make links between their existing knowledge and established theory. Research findings were therefore created during these interactions and aligns with an interpretivist approach.

4.2 Population

South Africa is the main area of concern and the study did not venture beyond its borders. Key stakeholders from the water industry and other institutions such as Department of Water and Sanitation (DWS), Development Bank of Southern Africa (DBSA), Greencape, National Business Institute and the NEPAD Business Foundation were selected. The Western Cape region was selected as a suitable focus area. Suitable candidates at senior levels within the water services divisions of local municipalities were interviewed.

4.3 Unit of analysis

The fact that this is a qualitative study, leaves the options for units of analysis to be the personal views and applications of experiences of the incumbents during the interview process. One person was interviewed at a time.

4.4 Sampling method and size

The split of the sample for interviews included members from both public and private entities to get a holistic view of the perceptions of both sides of the argument. Purposive sampling was initially used as the student endeavoured to “use his judgement to actively choose those who were best able to help answer the research questions and meet the objectives” as pointed out by Saunders & Lewis (2018). A heterogeneous purposive sampling variety was followed in order to explore emerging patterns and themes. The list of interviewees is presented in Table 1 in Chapter 5.

Most of these interviewees were identified as the study progressed and more knowledgeable people on the subject matter or specific persons in more relevant positions were proposed by interviewees. This was a typical snowball sampling method because more appropriate candidates were identified by initial sample members (Saunders & Lewis, 2018). The goal was to reach 14 interviews with highly relevant people in as much a balanced manner as possible. In the end 13 interviews were completed.

4.5 Discussion guide

This is an explorative study that focuses on specific topics and both Saunders & Lewis (2018) and Welman, Kruger, & Mitchell (2005) propose semi-structured interviews for data gathering for the intended application. A list of questions to be covered was drafted in the form of a discussion guide and emphasis was put on the most suitable topics for the field of expertise for each interviewee. Refer to Appendix B for the detailed discussion guide.

4.6 Data gathering process

The interview guide and consent form were drafted and issued for ethical clearance from the Gordon Institute of Business Science. This clearance was obtained and the proof is in Appendix C of this report. The option to omit their identities was given on the forms and many selected this option.

The first step in gathering data was be to secure interviews with appropriate subjects of which some are listed in Table 1. Interviews were scheduled at their offices or at a boardroom/office off site. Most meetings ended up happening over the phone. Interviews were planned to be minimum of 45 minutes long and were not allowed to exceed 90 minutes. Interviews were recorded whilst the interviewer took notes. Interview recordings were then transcribed and formed the basis of inputs for further processing. Notes were used to supplement findings.

4.7 Analysis approach

An inductive analysis approach was followed in order to build on old PPP theory, to see what is still relevant today and what new developments in sentiments and governance had transpired in recent years. The “codes to theory model for qualitative inquiry” (Saldana, 2009) was used to analyse data using Atlas ti software. Codes were shortlisted throughout this process and it was not attempted to set them up in advance, but to develop as the coding was completed. Codes were categorised to uncover themes and from these themes the literature study was updated with new terminologies and conclusions were made. The conclusions lead to simple models and recommendations that could aid in addressing underlying issues or myths in the water sector which are limiting the pursuit of PPP projects.

4.8 Quality controls – including validity/ trustworthiness criteria

In order to test the student’s interview technique and to make sure the interview questions are likely to be understood Saunders & Lewis (2018) advises that a pilot test be conducted first. This was planned but never executed. There was, however no need for this as from the first interview no issues with clarity were experienced. The forms were issued in advance, as well, so that interviewees could prepare accordingly.

In order to enhance objectivity, the initial interviewees selected were first discussed with the research study leader Dr. Richard Meissner. After which the most appropriate candidates that were suited to the study were selected. Interviewees were screened in advance via emails or phone calls to determine whether they were

in fact aware or involved in PPPs and attuned to the current state of water affairs in South Africa.

The concept of triangulation, where one measures the same construct from two or more sources (Welman et al., 2005), was applied, as the same discussion guide was used to explore the same research questions, with the target of 14 interviewees. Triangulation applies to the outcomes of these interviews as they were compared with each other and with existing theory. There is a clear indication of trustworthiness of the results, as the findings derived from the interviews converged and it soon seemed that negligible new findings were uncovered from later interviews, as is the definition of saturation by Kumar (2014).

4.9 Limitations

Because this study is exploratory and the interviews were only guided, Kumar (2014) cautions against interviewer bias with open ended questions. The interviewer should also be very careful not to introduce any bias that could influence the interviewee's feedback in the way in which the questions are asked or in the way that the interviewer responds. Kumar (2014) describes this bias as a way of thinking that has been developed due to one's background, capabilities and perspectives. Although the interview guide questions never allowed for these types of questions, the discussions could not be prevented completely, but the student is confident that no biases were forced into the conversations.

Purposive sampling was used (Saunders & Lewis, 2018), which allowed the student's judgement to be used to select the interviewees based on self-determined reasons. Some of the interviews led to recommendations of new, key subjects who were well suited to answer the research questions.

CHAPTER 5 : RESULTS

5.1 Introduction

The interviewees proved themselves to be very well-informed and helpful on the topic of PPPs in the water industry. All interviews were recorded and then transcribed, where after they were coded via Atlas TI. Codes were arranged into themes and these themes formed the basis of the results for the data collection in this chapter.

5.2 Description of the sample of interviewees

An initial list of interviewees was populated at the research proposal stage. This list contained a balanced selection of public and private role players in the water sector with a specific focus on candidates with ample knowledge about PPPs. After the three initial interviews the student was put in contact with some of the most knowledgeable people in the country regarding this topic. All participants were positive to contribute, and most felt passionate about advancing PPPs in South Africa's water sector.

A total of 13 interviews were held and most people opted to keep their identities hidden from the report, as to allow them to speak freely about the different role players in the country without being exposed. This added much value to the conversations as there was a lot of valuable information shared which would otherwise have been lost. These interviewees are described in as much detail as possible, in order to prove the credibility of their arguments, but without providing too much information that could compromise the agreement.

Table 1: Information about the interviewees that formed the sample

No.	Interviewee	General description and relevance
1.	Provincial treasury representative	This representative has had decades of experience in the water sector and has been involved in many PPPs over the course of the past 20 to 30 years.

No.	Interviewee	General description and relevance
2.	Konstant Bruinette - Development Bank of Southern Africa	The Development Bank of Southern Africa is a key role player in assisting public and private players to develop infrastructure in the Southern African Region. Mr. Bruinette has had a long history in water infrastructure projects in Southern Africa and is regularly in talks with municipalities, DWS and treasury about financing models and PPPs.
3.	Raldo Kruger – Greencape	Mr. Kruger is a water sector analyst. Greencape works closely with municipalities, private sector and provincial government in order to promote the green economy. He was very active in the recent Cape Town drought prevention campaigns.
4.	André Kruger – NEPAD Business Foundation	The NEPAD Business Foundation is the biggest promotor of PPPs in Southern Africa. They are accredited on the World Bank PPP curriculums and are delivering these courses to the public and private entities, especially water service authorities, on a regular basis. Mr. Kruger spent 30 years of his career with ABSA bank where he was actively involved in financing infrastructure projects for municipalities.
5.	Elspeth Grahn – Business Development Director at Proxa Water	Proxa is one of South Africa's top water treatment companies. They have built many large-scale plants locally and have recently entered into Build-Own-Operate agreements with the City of Cape Town. These agreements are running successfully and have given great insights into the way water service authorities approach water infrastructure projects and PPPs. Ms. Grahn is the interface between Proxa and municipalities.
6.	Christopher Wright – Technical Services Manager at Beaufort West municipality	Mr. Wright has been looking after the water crises for the local municipality in his district for a couple of years and has been involved in the establishment of a water re-use PPP in Beaufort West.
7.	Benoit Le Roy – PPGI, Water Shortage South Africa, Water Chamber	Mr. Le Roy spent his entire career in the water treatment business in South Africa (nearly four decades). His involvement has, in recent years, escalated to a government level where he is actively involved in the Public-Private Growth Initiative (PPGI) and the establishment of the South African Water Chamber.
8.	Themba Mdletshe – PPP unit of National Treasury	Mr. Mdletshe is a project advisor at the South African National Treasury. He works within the PPP unit which is the custodian of the frameworks in question in this study.

No.	Interviewee	General description and relevance
9.	Alex McNamara – National Business Initiative	Mr. McNamara has recently completed a long research study about PPPs in water in South Africa through the National Business Initiative (NBI). These reports are very closely correlated to this research and the feedback from his focus groups added tremendous depth and value to the discussion.
10.	Director of a large, privately owned water treatment products and services company	This person has spent his entire career in the water industry and has supplied many municipalities with products and services over the past three decades.
11.	Department of Water and Sanitation representative.	This representative has served in the water resource management for many years at the DWS in the Western Cape. This interviewee had countless examples of water projects and could offer a very good perspective on PPPs in this context.
12.	Ronald Brown – Drakenstein municipality	Mr Brown is the manager for wastewater services at the Drakenstein Municipality. He is part of a team that is currently pursuing a water infrastructure project and actively dealing with treasury and private players to determine the way forward for this project. His inputs were very relevant as they are recent and fit the scope of this study precisely.
13.	Adriaan Kurtz – Stellenbosch municipality	Mr. Kurtz is a Water resource engineer that has many years of experience in the water provisioning role of the Stellenbosch Municipality.

The presentation of the outcomes of these interviews is presented in paragraphs 5.3 to 5.4.2. All interviews were held, using the interview guide as presented in Appendix B.

5.3 Results for Research Question 1:

RESEARCH QUESTION 1: Is there a valid case for pursuing PPPs for South African water infrastructure projects?

There are many examples of funding models available for water infrastructure projects throughout the world and it has been established that there are very few PPPs registered in this sector in South Africa. Two main questions were asked to uncover whether there are better alternatives to using PPPs, which might be more suitable in the South African context.

a) Which funding models are most common in water infrastructure and services projects and operations in SA?
b) Are PPPs a sensible option to pursue funding in South Africa's current economic climate?

The outcomes made it obvious that there has only been a few advances in terms of financing or operating models compared to those used during the past three to four decades. The interviewers elaborated on these funding models and stated what they think PPPs could offer. The analysis is therefore done in such a way as to establish the main reasons why PPPs should be pursued in the South African context. Table 2 shows how the most frequent themes rank after analysis.

Table 2: Reasons for PPPs to be pursued in the South African water sector

Rank	Theme	Frequency
1	Solve for public budget constraints	13
2	Address public technical and administrative capacity	11
2	Take hold of interest in SA PPPs	11
4	Build on foundation of existing frameworks & support	10
5	Reduce cost of water infrastructure and services	6
6	Build on successful PPP examples in SA	5
6	Leverage existing funding mechanisms	5
8	Benefit local economy, create jobs	4
8	Improve revenue by improving service delivery	4
8	Secure revenue via PPPs with industrial water users	4
11	Facilitate development of large-scale projects	3
12	Address environmental issues	2

The top four themes ranked will be discussed in more detail in paragraphs 5.3.1 to 5.3.4 and the rest grouped together for discussion in paragraph 5.3.5:

5.3.1 Solve for public budget constraints

Not only is this the highest ranked theme but it is the only one that occurred in every single interview. This aligns with the expected impact of South Africa's current

economic challenges and the status of the pressures on its fiscus. The extent and actual impact, however, was elaborated on and new insight has been gained.

Entering into this research, it was soon clear that the majority of South Africa's municipalities have financial difficulties. In addition to this dire situation, a low revenue base in poorer municipalities hampers their ability to serve the local communities with clean water (Department of Water and Sanitation of the Republic of South Africa, 2018b). This was confirmed in the interviews, with comments like:

> *"The National Department for Water and Sanitation has the mandate for bulk water in South Africa, and the department itself is in dire straits and bankrupt so they are not really in a position to co-fund. Part of the solution might be to make it more compatible for the private sector, to put some capital funding into it. But the National Department is not in that space neither is the national fiscus. There are too many other entities draining whatever funding may be available, like ESKOM and TRANSNET."*

> *"I think PPPs is a good option to consider for funding infrastructure, operations and maintenance in South Africa's current economic climate. Especially given that a lot of these water service authorities have limited access to funding and skills."*

> *"The problem that we have in the Beaufort West Municipality is that we have limited funds [of our own], we do not have any surplus funding available from the municipality's budget to implement any projects, so if we want to implement a project we have to go search for funding and apply from different departments."*

> *"The lack of commitment of the DWS makes it extremely difficult for municipalities because they have got funding models but some of the money that was allocated in the previous financial year could not be spent because the department said that they were insolvent. They could not pay their money as gazetted to the municipality."*

"[Our most common funding model for water infrastructure projects] is a traditional design-build and it has come to a drastic stop because there is no money….Design-Builds are dead. Emerging nations, generally speaking are forced to do PPPs. And they are forced because the tax base is too low, so there are fiscal constraints."

"I think if you look at it where the government definitely does not have the capital available to do the infrastructure development as they should in the next few years – it makes sense that we should try and push the PPPs through in the sector, because your question says in the current South African climate. So it does not matter what your best intention is, everybody knows the reality is that there is not enough money for infrastructure development, so the PPPs are definitely going to become a big part of our landscape."

The interview responses above confirm that budget constraints exist on the highest level of government and along the entire supply chain of water in South Africa. The DWS, water boards and WSAs are under severe financial pressure. PPPs can support with the required funding where private players offer capital and share in the financial risk. As the following quotations underline, PPPs should not only be considered by WSAs in poor financial condition but also by those who have strong balance sheets. This is because it can free up reserves on the municipal balance sheets to address numerous other infrastructure projects. It can also allow for better bargaining power with private investors if they have capital as leverage.

"If we take Cape Town, Drakenstein - not entered into any PPPs and I have had discussions with both of them, but not sufficient, yet. They do everything on traditional procurement process – you may know that Drakenstein's budget is spoken for. They cannot borrow an additional cent because they have been very progressive in planning and extending their services and they have literally used their balance sheet capacity to the yield. They are now battling, what to do now. Five years ago they should have considered, based on a long term financial plan that certain of the new assets that they are about to develop or have developed, should have been procured on a PPP basis and let the private sector take the financial risk."

"[Cape Town Municipality] borrows because they can, but could they have had less borrowings by now? Obviously. They could have done PPPs to the tune of R10 Billion without affecting their own balance sheet/credit position."

Another reason why PPPs is a good option to solve for budget constraints in the water sector is because they can be set up in such a way that they cover their financial risk based on future revenues without upfront capital contributions from the public sector. This allows for a WSA with a very weak balance sheet to offer its community services without financing and investing from its own balance sheet.

"There is an assumption that as a government they should have their own revenue fund but then through the PPP model we try to remedy that because in the PPP model we use project financing and project financing internationally is a method where there is not much reliance on the balance sheet and more on the cash flows."

"Because the difference between balance sheet funding and project finance type funding is that on the project finance side you look at cash flow."

The DBSA already has mechanisms in place to support this type of financing model where capital can be invested based on future revenues and foreseen improvements:

"[The DBSA] is looking at project finance balance sheet hybrid approach for non-revenue water programs in South Africa, where basically you will finance directly on the balance sheet of a municipality but with a view on future cash flows that will be generated out of these projects through the savings on your non-revenue water and improvements in cost recovery. You know you have a new revenue stream that will be there as a result of the project that you have implemented. So we as a DFI would take a view on that and we say that based on that, we will lend you a couple of hundred Million to implement, but we build in certain checks and balances".

In conclusion, it is clear that South Africa's water sector fails to maintain its existing infrastructure and struggles to expand water services due to fiscal constraints and

PPPs can support the sector tremendously. Irrespective of whether a WSA is in a good or bad financial position, PPPs can unlock potential projects to achieve sustainable development goals, meet government objectives and protect the constitutional rights of its inhabitants.

5.3.2 Address public technical and administrative capacity

Literature has shown that private industry is generally more efficient and more capable than public WSAs (Effah Ameyaw & Chan, 2013; Loxley, 2013) in developing and maintaining water infrastructure from a technical standpoint. Also, the administrative capacity that allows for efficient contracting, legal and management practices is generally lacking in the public sectors of developing economies and can be greatly supplemented by established private companies (Lee, 2010; Marin, 2010). The interviewees support the fact that there is a lack of the technical and administrative capacity for water infrastructure in all spheres of government and that PPPs can be used as a way of addressing these shortcomings in order to support the water sector:

> *"[PPPs is a very sensible option] from a technical point of view, it can make sense on larger scale projects especially with new technologies and where a municipality does not have the capacity, it definitely does make sense to step up to seek PPP options."*

> *"And then other things like capacity, the sort of technical and financial management capacities of municipalities is also just not there. Most municipalities are just not able to manage the procurement process and complexity around contracting, and financing."*

> *"The municipalities do not have the skills, do not have the understanding of what is needed and do not have the ability to execute or think through such projects. And that is where the shortfall is. The technical competence of the municipalities is sadly lacking. Also the ability to manage the fund and identify the projects or maintain them."*

"I do not think there will ever be the skilsl in our public sector to run membrane plants and if you look at the international trend between re-use and desal – in cities it makes up to 45% of the balance of the water in some major cities and towns in the world. You are going to have to look at a model where you de-risk yourself from the new technologies [WSAs] have no knowledge about, secondly [WSAs] have no knowledge how to operate those."

In some of the interviews it was mentioned that even the stronger municipalities like Cape Town, have proven that they also have challenges in contracting. This statement was made in the light of small desalination projects contracted by the City of Cape Town during the 2007 drought period. One of these projects is in the news regularly as the WSA is in a legal battle with the appointed contractor:

"The desalination procurement process by Cape Town, was really run like an infant. They did it very, very badly and now they have got challenges with that. And they have made their own bed. It was done badly. Because they do not have sufficient background to this… Cape Town is responsible for bulk water, they do not have sufficient resources to maintain the operation ability for this town."

"[Cape Town] have got no chance [to successfully run mega projects]. I'll put on the block, they have got no chance. What they have done with the PPP desalination plants proves that they are in fact far worse than they think they are. They have got absolutely no chance. They have not read the basic books on the subject and there is nobody in South Africa who's got those skills by the way."

On a DWS level it seems there is also a lack of capacity.

"DWS is not sufficiently capacitated themselves anymore. They had leadership changes. The guy who had to act over the last period of time - the minister, had no leadership as far as I am concerned. Our policy documentation points to it."

"[Establishing an independent water producer programme] is supposed to be from DWS but they do not have the capacity. So what has happened – DBSA approached DWS to try and get a mandate to develop this programme."

"Those skills are fairly limited in the country – we'll have to bring them in. And to transfer the skills from the global network. Because South Africa has not been pulling in the demand to do this work. Our South African contractors have been doing the work internationally, in the middle East and in Australia, Singapore and the likes. So that capacity does not reside in government, it does not at all, in any of the three spheres of government. And Cape Town have proven they cannot do it."

The case for PPPs is strengthened by the success of other PPPs from different sectors that have proven to be very successful in recent years:

"And those [skills] will be brought in, internationally brought in, South Africa has not built a utility scale seawater desalination plant. So whoever thinks they can do it – what benchmarks are they going to use? So you know, those international skills are available. It has been done with IPPs also, we did not know renewables – ESKOM did not have the people to do it and had never done it. So those skills were brought in internationally, the technology was brought in internationally and we have started developing certain skills, because those skills were being transferred. So we have to do exactly the same thing in the water."

PPPs can offer the skills and the transfer thereof, to support the local water sector:

"You would therefore do [PPPs] for the access to finance and the access to expertise or because you just do not have the capacity to manage, or maybe you could manage a contract or procurement process but you do not have the money or the time or capacity to refurbish and maintain that asset for a longer period of time."

"Professional international people can bring knowledge into a PPP environment and be able to assist a government that does not have the skills

to fix that whole cycle. You cannot look at something in isolation and say we need water for the next ten months. You need to look at a PPP that is going to solve a broader spectrum of problems."

"If you look at municipalities that are really in trouble of finances and no technical staff to manage the water sectors. That is the golden opportunities to make a difference in service delivery. That is where [PPPs] should be implemented and enforced by national government."

A local contractor mentioned how they have successfully transferred skills to local WSA personnel before:

"We have had huge successes where we have done skill transfer in two to three years to local operators on advanced technologies. And it obviously takes some time, you do not train a guy in six weeks' time to run a fully automated plant."

In summary, there is a serious lack of skills in the public water sector. All spheres of government are affected and there is a bad cycle that has reinforced the lack of skills because a lack of administrative capacity has constrained industry involvement which has lead to less skills being nurtured and attracted in industry. This in turn reduces the overall capacity of the South African water sector. PPPs is a good option to address this issue. It will build and nurture the general pool of skills in South Africa's water sector while addressing the current challenges.

5.3.3 Take hold of interest in SA PPPs

This theme clearly emerged and is found to be something unexpected. This research is trying to uncover why there are so few PPPs in the water sector and this theme shows that there is a very positive aspect to take note of. The following quotes show that there is an appetite for PPPs in water treatment on both public and private ends of the spectrum:

"From a private sector point of view, if the project is well structured and it is a feasible project I am sure there will be appetite in the market and we have seen that a number of times."

"There is a lot happening in this [PPP] space at the moment. We did the assessments for international organizations and looking at the feasibility of PPPs for municipalities private sector investment."

"Umhlatuzi municipality and Richards Bay are developing a very nice project that is going to be one, two, three Billion [Rand]… they had a request for qualification process. They had 18 international consortiums attending the awareness session. So huge interest for that."

"I can tell you that at our tender information session we had about 32 prospective tenderers which was interested in that [Water re-use project] ."

The interviews regularly referred to big PPPs being actively pursued in Kwa-Zulu Natal and that international companies are interested to get involved. The literature review referred to the South African government wanting the support of private industry (Department of Water and Sanitation of the Republic of South Africa, 2018b) and the interview outcomes confirm this:

"Within treasury, within the administration of treasury and the likes, there is definitely an appetite to do it [PPPs]. The problem we have now is that local government cannot be contracted with as private industry because, what guarantees are we going to get."

In summary, South Africa seems to be of great interest to international water treatment firms and there is a growing interest from the local WSAs as well to establish PPPs. This theme was very strong and points to the fact that suitable opportunities and interested parties exist to implement PPPs.

5.3.4 Build on foundation of existing frameworks & support

South Africa's strong legal system is complemented by the PPP frameworks (National Treasury of the Republic of South Africa, 2010) which have been used for a variety of projects for more than a decade. Poor institutions and lack of frameworks are clear deterrents to PPPs (Lee, 2010; Loxley, 2013) but South Africa does not have this problem. The interviewees largely confirmed that, although the PPP frameworks are difficult, they are adequate and enabling for large-scale PPPs in the water sector:

> *Yes definitely, [The PPP legislation can] work [for water projects]. The Gautrain is working, the Toll Roads are working, one in the hospital sector is working very well, in the tourism sector, the Chapman's Peak toll road is working well, having had its challenges."*

> *"I cannot tell you how many international guys we had who wants to participate in this [Water PPP] project. And so then then I would think that they feel that they are protected, because the project went through this [PPP framework] process. I think it is a well-structured project."*

> *"Treasury has already made it much easier for municipalities to adhere. The moment you decide to consider alternative procurement methods [Treasury] will advise and guide you through the feasibility process, leading you to a decision eventually. Whether the decision is to continue with a PPP or go traditional, the outcome of that decision will be a 100 times better. Because now you have considered life cycle costing, vis a vie only construction cost. So if by the end of the feasibility you see that the project is actually pointing to traditional procure project, then you do it. And it is not money wasted, you have actually made a much better decision of what the outcomes would be."*

> *"You should look at the South African definition [of a PPP], and they are very close [to the World Bank's]. Our regulations are world class."*

> *"We do have [specific guidelines for water infrastructure projects]. If you check the municipal guides, we call them tool kits. Tool kits for water which covers bulk water, sanitation as well as retail water."*

It was also expressed that the municipal systems act supports and guides WSAs to follow a well-structured process to consider and approach PPPs:

> *"In SA we have got the Municipal Systems Act, that specifically speaks to a process you need to follow [To consider alternative procurement options], the Section 78 procedure actually guides you quite nicely through the process."*

South Africa's water legislation is also regarded as being enabling and supportive:

> *"The legislation is very clear, our country's got very nice water legislation that feeds through from a national to provincial to local government. The whole water services act. Everything's in place but it all depends on where you put the responsibility for future water security."*

There is also a very good support base within National Treasury for big infrastructure PPPs:

> *"You do find that GTAC is very knowledgeable at technical skills but it is just that the complexity with dealing with the actual Municipalities, that is the challenge."*

> *"The GTAC unit for example and the PPP unit are there to support and facilitate a lot of the pre-work that has to go into developing PPPs."*

Treasury also supports PPPs by funding skills for specific roles which can aid in the successful execution of PPPs:

> *"So they [Midvaal municipality] decided to outsource their whole distribution on a PPP basis. The very next thing they have realised is that they do not have a strong internal person to run with it. So they discussed with treasury – treasury is paying for someone from the private sector to come and sit in the municipality and project manage the development of the project. So there are solutions to that if you do not have the capacity. And many municipalities do not even know that that is possible, to get financial support, but then it is focused support."*

Furthermore, National Treasury and the NEPAD business foundation, both offer comprehensive PPP courses:

> *"In the [GTAC] unit we have quarterly service training sessions, you have seen them on our website. We provide training where we take people through the entire guidelines. Given an opportunity we also try and invite along people from the private sector, those who are involved in PPPs, or PPP-like projects to share their experiences."*

> *"The NEPAD business foundation is running this PPP training course endorsed by the World Bank, and I think it is making a real impact on the ground."*

In summary, South Africa's water sector is well supported from a legislative, framework and training perspective with regards to establishing PPPs. There is even talks of simplifying PPP frameworks further. It can therefore be argued that there are adequate policies and frameworks to ensure the successes of PPPs and that this should be regarded as a key motivation, or at least not a deterrent to embark on PPPs in the water sector.

5.3.5 Other themes that promote pursual of PPPs

Since there was a reasonable change in frequency (from 10 to 6) between the top four themes and the rest of the themes, the latter will be discussed to the extent where new insights came to the fore.

5.3.5.1 Reduce cost of water infrastructure and services

Loxley (2013) speaks of lower life cycle costs on water projects with PPPs and general PPP theory supports this fact. It seems, however, that South Africa is, in some instances, missing out on these benefits because PPPs are not implemented in the right manner. The recent PPPs were specifically contracted for less than three years to avert the municipal council resolution:

"They are trying to get involved but it is a waste of tax payers' money this three years chunks. And you wo not get the [right] kind of bidders either, or they are going to load up the prices – that is what you get. That is what happened with City of Cape Town, that was the experience, if you want two years, fine, but it is going to cost you."

"We also took a two year contract, so the shorter the period, the less the risk, but the higher the cost for the country. So in that case we were willing to do it but are you willing to take a 20 year agreement?"

Because of the lack of skills to implement and manage big infrastructure projects, WSAs should look at long term PPPs to reduce the life cycle costs of projects and therefore the burden on tax payers:

"Cape Town, even in their policy document that was accepted by council a month ago, have made it very clear, in contracting for example, for seawater desalination, is that they are going to pay double the price if they do it themselves. Those are the numbers that they have got. And I think they have been very conservative. It is probably going to be more than that because government is not set up to contract efficiently so you have to transfer that risk and that mechanism is a PPP"

The lack of long term planning and involving private industry is also costing the country:

"[Transporting water in emergency situations] is very pricy, R30 Million per month whereas planning ahead by expertise could have cost much less, even R10 Million. Bringing in experts to fix problems and educating them will prevent expenditure in disaster management."

In summary, there lies potential to reduce the cost of projects and tax burdens on South Africans if PPPs were to be pursued with long term views in mind.

5.3.5.2 Build on successful PPP examples in SA

It has been established that successful PPPs exist in many other sectors but there are also instances in South Africa where PPPs have worked before:

> *"Ethikwini is an example where they are proactively doing [PPPs in water]. But they are doing it with a whole team, they have got a PPP team."*

PPPs in the water sector have worked before and South Africa should learn from the WSAs who have had successes in it. There was no real example of PPPs in the water sector that failed. Therefore, the fact that there are so little PPPs in the water sector may not be attributable to the fact that they do not work well in the South African context.

5.3.5.3 Leverage existing funding mechanisms

The government supplies grants to WSAs but these grants are usually provisional in that they would like to see the WSA match the funding issued. But these grants can be used to leverage for more finances for projects:

> *"We need not be only looking at PPPs or alternative financing models and implementation models to include private sector. But we can also look at optimizing government grant funding. How do we give funding models that will gear government funding and government funding as obviously we know it is not sufficient to meet that requirement in the market. But there is plenty of private funding out there. But you want to use government funding in a way to provide comfort to private funding whether through some sort of security or guarantee or whatever the case might be for specific issues."*

5.3.5.4 Benefit local economy, create jobs

One of the great needs in South Africa's current economic condition is jobs. PPPs have the potential to create many jobs. A great example of a water PPP in Nelspruit proves this:

"In Mbombela, they started off that concession with 80 people and have 260 to 270 people in the concession now. More people employed. All of them belong to the union. We have got so small a number of people working in the water industry in South Africa, that by bringing in the private sector and expanding the area of service delivery, you most likely will increase the number of people participating in the project."

5.3.5.5 Improve revenue by improving service delivery

Major issues can be solved by implementing more PPPs. Better service delivery can improve revenue collection and avoid losing valuable customers. Low income earners historically do not pay if they do not get good service and we are now seeing that the more affluent are going "off-grid", thereby further reducing the revenue base for WSAs:

"What we have seen is that, in a lot of cases, even though people are poor they will be willing to pay for water if they have good service delivery."

"we are slowly seeing people getting off the grid and more because of security than from a cost perspective."

With South Africa's high level of inequality. The above statements should raise concerns with WSAs as they may be increasingly losing out on revenue by not pursuing alternative models that offer solutions to improve service delivery such as PPPs.

5.3.5.6 Secure revenue via PPPs with industrial water users

It seems as though some of the existing water sector PPPs have been successful largely due to the fact that industrial off-takers secured the revenue for WSAs. There are many mines and process plants which need water and it might as well come from a PPP. If an established business could secure its water supply by signing an off-take agreement, a PPP could be bankable quite easily. Examples of comments around this theme include:

"The trick in all of these [Water PPPs], is that if you have an industrial off-taker, of the kind of a Mondi, or Anglo then: 'what a pleasure' ".

"When it comes to industrial areas, [PPPs] might be a better option, but with a large consumer, supplying for Coca Cola or SA Breweries, who will be a dedicated client. But in the municipal space, it becomes problematic."

5.3.5.7 Facilitate development of large-scale projects

The lack of funding in South Africa's water sector has led to less large scale projects being pursued. PPPs can unlock these much needed projects where higher capital outlays have the effect of lower life cycle costs. Supporting quotes include:

"Generally, infrastructure projects that are ground funded by government have the lowest CapEx criteria, so all else being equal, projects are awarded based on the lowest CapEx based cost…whereas if you fund privately you can put an emphasis on lifecycle cost because that lowers your overall project cost, which is actually more beneficial to the municipality, because they can recover it over the lifespan of the project of infrastructure which means your provisional basic services comes at a lower cost to the end user."

"I think [PPPs are] definitely one of the options that we should pursue as a country and as municipalities in South Africa. And I think there are some limitations to PPPs. Also you know [PPPs are] the best in terms of size or scale."

5.3.5.8 Address environmental issues

South Africa has major issues in acid mine drainage. This water needs to be treated to limit its impact on the environment. Climate change in many areas is calling for re-use of water more frequently. To address these environmental issues is also very expensive and PPPs can help curb the effects before it is too late. Some of the quotes that support this from the interviews include:

“There is the acid mine drainage, the desalination of the central and eastern basin projects to produce drinking water for Gauteng. And so, there is a desperate need, we are talking about a couple of Billion Rand projects at least. In most of the applications ranging from 40 to 120 ML/day each. Those are the big ones, that lays the foundation for these PPPs.”

“The Western Cape is a drought-prone area. We know that climate change adaptation in the future is going to be hugely important, we have got to deal with temperatures rising and evaporation. Water re-use, use of ground water and desalination are going to be right up there at the City of Cape Town – that are some of the areas that are well-suited for PPPs in terms of opportunity; re-use PPPs, and ground water to a reasonable extent as well.”

5.4 Results for Research Question 2:

RESEARCH QUESTION 2: What are the most prevalent factors that are limiting the establishment of PPPs for South African water infrastructure projects?

There are many studies which have outlined the risk factors involved with implementing PPPs in different developing economies such as Ghana (Effah Ameyaw & Chan, 2013) and China (Lee, 2010). Chou & Pramudawardhani (2015) also did a cross country comparison which included South Africa but these were very brief and based on limited information. The in depth interviews in this research has provided fresh and relevant insights into why PPPs have been extremely limited in the South African water industry.

The interview questions that prompted the responses aligned with this research question were:

1. Are there glaring risks in pursuing PPPs in the water sector in SA which stifles interest therein?
2. Why do you think we see so little PPPs registered with treasury in the water sector, despite the current water crisis and the lack of spend on water infrastructure?
3. Do you regard the PPP guidelines and policies by SA treasury as adequate and implementable to support PPPs to the degree where it can be regarded as an enabler?
4. Do you think SA legislation around PPPs adequately addresses the risks that may prevent private parties from pursuing them in the water sector?
5. Do you think that political agendas exist that rely on lower water prices and public job security that may influence a reluctance to providing degrees of autonomy to private sector?
6. Do you know of water PPPs that have been implemented in SA which were never registered with treasury?
7. If so, what is your opinion on why they have not been willing to follow the guidelines and procedures by treasury?
8. Have you reason to believe that water service authorities have recently reconsidered public participation in supporting their efforts?

9. Do you think that the DWS's intention to attract more private participation in the water sector is communicated clearly to water service authorities and that they are objectively changing strategy in line with government's intents?

After coding all interviews it became apparent that it would be logical to group these limiting factors into categories that related to:

1. National and provincial government,
2. Local government (Water Service Authorities), and
3. External factors and private parties.

All themes are still listed in one table and are not split into three tables according to these categories. This allows the analysis to still focus and discuss the most prevalent factors according to the number of occurrences amongst the interviews. These factors are listed in Table 4.

It is helpful to see which categories influence the results the most. The number of occurrences for each category is therefore calculated and can be seen in Table 3.

Table 3: Number of occurrences per category

Rank	Category	Occurrences
1	Water Service Authorities	50 (42%)
2	National/provincial government	38 (32%)
3	External factors and private parties	30 (25%)

For the presentation of results, focus is set on the seven highest ranking themes. The remainder of the themes are clarified and briefly substantiated.

Table 4: Factors limiting PPPs in the South African water sector

Rank	Theme	Frequency
1	WSA- Lack of political will for PPPs	13
2	WSA-Payment risk	12
3	Gov-Lack of government support	9
3	Gov-MFMA & PPP frameworks onerous and lengthy	9
5	Gov-Lack of government influence	7
5	WSA-Incapable of managing PPPs	7
7	Ext-PPPs mostly suitable for larger projects	6
8	Gov-Unstable government & policies	5
9	Ext-Financial strength of local private firms	4
9	Ext-High transaction costs for PPPs	4
9	Ext-Macro economic challenges	4
9	Gov-Constitutional rights limits revenue	4
9	Gov-Political opposition to private sector involvement	4
9	WSA-Lack of knowledge & confidence in PPPs	4
9	WSA-Traditional procurement inertia	4
16	Ext-Complicated supply and reporting chain	3
16	Ext-Market competition (demand)	3
16	Ext-Water infrastructure & legislation complexity	3
16	WSA-Lack of long term planning	3
20	Ext-Opposition from the public	2
20	WSA-Unstable government	2
22	Ext-Industry incapable of managing PPPs	1
23	WSA-Scope change	1

5.4.1 Lack of political will for PPPs

One of the key arguments that underlines this study is that key support mechanisms are in place to support PPPs and that government shows intent to pursue PPPs in the water sector, but that the resulting pipeline of PPP projects do not reflect this. Many WSAs do not have the intent or political will to do PPPs. This is strongly confirmed by being reflected as the number one limiting factor. As one interviewee put it, there is a lack of “buy-in”:

"I think the biggest [barrier] for me is political buy-in and creating the enabling environment. What I mean by enabling environment is at a political level, [for] municipalities to buy in. To say "yes, we are going to pursue this". To get that buy-in and take it through the various processes, council approvals, and all of that at a municipal level."

A prevalent underlying issue is that water tariffs are politicized. Being able to stay in control of tariffs is at stake when entering into an agreement with a private operator:

"There is this reluctance from water services authorities and municipalities because PPPs are long term projects and it will force them, in some ways, to increase the tariffs, because of the cost recovery mechanisms that need to be in place, so maybe on the ground there is reluctance to engage in that from a lot of the municipalities.'

WSAs are used to procure the way they have done for many years and embarking on PPPs will require them to change their way of doing things. The fact that they still get grants such as the Municipal Infrastructure Grants (MIG) to co-fund their projects, leaves them with less reason to consider private funding mechanisms. As one WSA member commented:

"The presentations that have been done to the municipality from companies regarding PPP projects did not really interest us because we still get the support from local government and MIG funding. So there is no use for us in going for the PPP in upgrading the water works [where] it is costing us a large amount of money, while we have funding from MIG to do the same project. And then it is grant funded."

I think [WSAs] have recognized that [there is a deficit in their budgets], and the [PPP] message is getting out there, but I think they are just still stuck in the way things have been happening in the past, and it is a challenge for the municipalities. So at the end of the day, historically they have just gotten free money, and now they actually have to up their game in order to get real money, if I can put it that way."

"But the long-term capital plans developed by the consultants, only deals with traditional procurement. The request from treasury and COGTA was to help them develop these long-term plans and they did not specify traditional procurement, but our market is so used to only procure on a traditional basis."

Ironically, municipalities that are in good positions to embark on PPPs do not do so, because they are confident that they have the internal capacity to manage without outside support.

"In the Western Cape, if you ask me subjectively it is more about the fact that "we can do everything, we got money etc. and we can do it". But my best example is Cape Town that should have done PPPs by now. And they have touched on it. And you would know that some of their Wastewater plants are run by private sector. But on short term contracts so there is very little risk transfer to the private sector ... they borrow because they can, but could they have borrowed less by now? Obviously. They could have done PPPs to the tune of R10 Billion without affecting their own balance sheets or credit position."

WSAs are in many cases opposed to involving the private sector to support their service delivery. There are numerous reasons, which include perceptions and control. The following quotes support this theme in more detail. The first issue is their perception of privatisation:

"[The lack of PPPs] is through naivety. Local Government, Provincial Government, National Government believe that it is privatisation. And I think that is the biggest [challenge]. The amount of ignorance we have at local government, the ignorance is so high that there is a philosophical fight against it."

The political issues include the perception from the public that may compromise counsellors' favour with the communities:

"That is how a municipality retains its presence in the community. Whether you look at it politically or otherwise because remember, municipalities were

established to provide these services. Then there is always fear that private operator comes into that space, there would be a lesser visibility of municipalities even though generally it is known that it is through the municipality that the services are provided. When it comes to the political terms of five years, people might find it difficult to be convinced that we have been providing them with clean water because that clean water was provided through the company that was hired. Is it because you are unable? Can you not hire people? Can you not put up business units? Own juniors, own scientists or whatever. It is becomes an issue of visibility."

"People presently in power ask themselves whether they will lose power when public parties participate. It comes to: who manages what, who contributes what? Am I still seen as the person who safeguards this town or not?"

There is the fear of giving up control of their assets and sources of revenue:

"We are now losing the control of the purse, something we can hold on to and something that determines our power if you like."

"it is all about the control of the revenues, and water is a low hanging fruit. People will scrape to the bottom of the barrel before coming to the PPP. And that is because PPP is an option."

"The risk to let somebody control one of the major contributors to your financial health is too high to benefit one or two small role players in the partnership."

Regular mention was made to the fear of giving up jobs in the public labour force in favour of private partner employees:

"But municipalities have problems with their existing workers if private people step in. Workers had to be taken into other departments such as emergency teams."

"The first risk is the instability of giving people work. The job loss risk for the population of the towns or areas"

Even in an existing PPP that has been running successfully for many years there is the issue of resistance against it. This is the sentiment found in many WSAs in South Africa, as the following quotation demonstrates:

"We find in Nelspruit, that they are putting pressure on that municipality to cancel the concession. Not understanding that if they were to cancel it, based on a political decision, they will need to put the private sector into the position as if the contract has run its whole period of time. It will cost them a R1 Billion. But they do not know that, and you'll find politicians putting pressure on employees to do things that are totally irrational."

5.4.2 Payment risk

This factor relates to the ability of private players to secure their revenue from the PPP projects. There are many issues that feed into this risk and overall this theme emerged in all but one of the interviews. Credit worthiness of municipalities is an issue to attract funding:

"At the end of the day [a PPP is] a commercial exercise. And whoever is funding the PPP needs returns on that funding. And the reality is, if you look at the Auditor-General's results of municipalities and the financial standing of most municipalities, very few of them are credit worthy for a start. So they cannot attract any sort of private sector funding. The risk of repaying that is just too high. I think that is probably the single biggest barrier."

Water tariffs play a big role in the feasibility of projects. Municipalities which are WSAs have a challenge to make water affordable if they have large communities in their regions that are poor. Municipalities have a difficult task to structure projects in such a way as to get private parties interested in complicated models where cross subsidisation does not put opportunities for payment at risk.

"You cannot just force people who earn a thousand rand a month to pay a hundred rand per kiloliter, because that is the cost of water. I do not think that that is preventing private sector investment. I think it is more a case of the municipalities that manage those basic services, perhaps do not have the capacity to structure projects in a way that it can meet both sides of the objective, by providing basic services to the poor and have it work on a cost recovery basis for service delivery to those who can afford it."

The collection of revenue was mentioned many times. Water revenues are not ring-fenced in municipalities. Revenues from different income streams end up in the same account. This means that even if private investors were willing to trust the WSAs for paying them for the water produced, metered and billed, that there is always the risk that these revenues would subsidize other non-profitable units within the municipalities. The WSAs also do not want to enter into concessions where the entire supply chain is handed over to the private party. Municipalities are high risk in these kinds of arrangements and in some cases low water tariffs are agreed to, for long periods with industrial off-takers, further reducing the chances of allowing for feasible projects.

"We have to deal with local government and local government is the highest risk, so where DWS is non-bankable at all because of its lack of cash flow and its issues - local government is actually, generally no different."

"The biggest challenge that we are finding is that the municipalities do not want to pass on the revenue collection. In order to get external funding for such projects you need security for the funding."

"There must be some level of confirmation that payments will be made at whatever intervals throughout the contract term. The common risk then is ring-fencing the revenue that would be used to service the transaction."

"Their biggest concern would be that the municipality does not pay them. Or it is just payment risk in general, it is consistently raising a big concern. They know that water revenues are not ring-fenced. They know that WSAs are actually providing water below cost."

"You know that they [municipalities] are defaulting against ESKOM in probably 80% of the districts. And it is the same philosophy, where in that case ESKOM went out and funded the new infrastructure. And they will not be able to get their funds from the end users, they are reliant on the municipalities to collect the funds and then for the municipalities to pay ESKOM. So the same kind of model [for water] is obviously a high risk."

"At the moment the risk is high, the other dilemma with these PPPs, in our country in terms of water, there are too many water users, big water users that are buying water for dirt cheap because they have historical agreements, 20, 30, 40 year agreements with government, so there is no motivation for them to look at re-use, re-cycle re-cover or alternative water sources….some of the pulp and paper mills still have deals of R6 to R7 per cubic metre. And the food and beverage sector is paying R25 per cubic metre because they are small. If you are going to treat the water at the central and Eastern basin, you have to sell that water at R20 per cubic metre at least, to cover the cost. And if you have off-takers that are buying at R7… there is a sensitivity around this, whether they are going to get off the ground. If the municipalities say your water is going to be R25 not R7, will the industry then threaten job cuts and disinvestment, and be held at ransom? At the moment, if the water tariffs continue as they currently are there is not sufficient money to be collected from revenue to cover for infrastructure for these PPPs."

The number one limiting factor cannot be disputed as these facts speak to the realities found in the South African context. WSAs are, generally speaking, in a poor financial condition but it seems as though their fear of giving up control of one of the biggest sources of revenue is stifling PPPs, regardless of the promise of increased revenues from better asset management and service delivery.

5.4.3 Lack of government support

WSAs are regarded as "local government" and in many cases, such as with water supply and regulation, rely on provincial and national government to support them in managing their service delivery models. This limiting factor was coded with the

distinct view that there are certain elements which WSAs should be able to rely on to support them. It became apparent that many structures and general support are lacking to enable WSAs to implement PPPs.

> *"The National Department for Water and Sanitation has the mandate for bulk water in SA, and the Department itself is in dire straits and bankrupt so they are not really in a position to co-fund … but the National Department is not in that space, neither the national fiscus and there are too many other entities draining whatever funding may be available, like ESKOM and TRANSNET and so I think we need a proper National Department, which is unfortunately not there."*

Surety is a major issue and is closely related to payment risk. It is clear that the lack of surety from treasury or national or provincial departments limits WSAs' contracting ability for pursuing PPPs. There is a perception that this kind of support is required from national treasury:

> *"Without treasury providing surety on such projects, I am very skeptical that they would give the grant. And treasury is refusing to put up surety and municipalities do not have the ability to put up surety. So that is one of the biggest challenges against a PPP being successful."*

> *"Treasury was never willing to provide surety for municipal projects. Treasury only guarantees provincial and national projects. That is coming from the very piece of legislation section 251 of the constitution that says local government is a sphere of government, thereby attributing some autonomy. And when you look at that practically, it prevents the National (the upper tier) government from providing surety over the lower tier government because there is that Chinese wall. There is no instrument, let me rather put it like that because it is not that treasury is blatantly refusing to support. But there is no instrument currently that can enable the National revenue fund to stand and cross that border over to local government, because the constitution has slashed that … That is why you find that there is a lot of international companies' investors that want to invest in municipal projects but instantly they want to come directly to us and seek sovereign guarantees. And that is what we are unable*

to provide because we want to invest in a sector that is removed from the central government."

Others also mentioned that DWS is supposed to provide support but are not able:

"The lack of commitment of the DWS makes it extremely difficult for municipalities because they do have funding models, but some of the money that was allocated in the previous financial year could not be spent because the department said that they were insolvent. They could not pay the money as gazetted to the municipality."

Then there are some supporting elements that are lacking which do not classify as financial. These involve other departments that need to process permits:

"The other thing is the environmental permitting side of things and all that. Government is just not equipped so it takes two to three years."

Whether there is sufficient support from national treasury or not is debatable, but some WSAs feel that the National Treasury's PPP process is daunting and that they need someone to guide them through it. Their perception is that support is lacking:

"I must compliment them [SA treasury] that it is a well-developed PPP criteria. It is just a question of the support base of how to implement that criteria."

In one of the interviews the notion of blame and credit for municipal counsellors was mentioned and explored. It seems as though PPPs are unknown and regarded as high risk. Councils are afraid of taking the bold step to embark on a procurement model such as a PPP because if it does not work the blame is regarded as being worse than the credit they would receive if it does work. Getting "political cover" from higher institutions and influential people in government is lacking. Having this "political cover" was previously demonstrated as a tactic which secured one of the few water PPPs in South Africa's history.

"The current [PPP] model is not working. Everybody knows it is not working, we need an alternative model. We are going to work within the legal

framework but we are going to have all these supporting parties help you get over the line and by the way we are giving local cover as you go along. In that sort of scenario, you have got for example: The Senior minister of COGTA and somebody meeting with the municipal manager saying that 'yes this is a good idea'. You must remember that when the concessions were formed, Thabo Mbeki flew down as the president of the country to Nelspruit and said "guys, you must get this project over the line". Some of them were not so sure, obviously there was no legal requirement, but he wanted to show that there was support from the top."

The responsibility of WSAs for water security was mentioned more than once as a grey area. WSAs used to rely on national and provincial government to look after water security. Now, with the lack of this support and finances from the tax base the WSAs are forced to consider projects which are more complicated than they are used to. There seems to be a reluctance to embark on projects that would warrant PPPs on WSA level as there is still an expectation that DWS and the water boards should provide sufficient water at qualities that are manageable for processing and distribution:

"…that is where the debate comes in. Is it the work of local government to do water security? Is it not a national/provincial task where we have better capabilities to do that? Are we not asking too much of the councilors on the ground to look at other stuff to make decisions to base decisions on national strategy? The legislation is very clear, our country has got very good water legislation that feeds through from a national to provincial to local government. The whole water services act. Everything's in place but it all depends on where you put the responsibility for future water security."

In summary, there are many supporting elements that are lacking in the South African context which limits WSAs' ability or willingness to embark on PPPs. These factors are numerous and reside within the power of provincial and national government structures to resolve.

5.4.4 MFMA & PPP frameworks too onerous and lengthy

WSAs do not have a lack of legislative documents to guide and support their decision-making processes. The main documents that are applicable to this study are the Municipal Financial Management Act (National Treasury of the Republic of South Africa, 2003) and the Treasury PPP guidelines (National Treasury of the Republic of South Africa, 2004, 2005, 2010). As pointed out in paragraph 5.3.4, these guidelines are in line with world standards. The issue is that these guidelines are onerous, and the processes involved with registering the PPPs at treasury takes a long time. The following quotations from interviews support this theme:

> *"To go through the PPP process takes energy and time, it is not simple, and the contract is more difficult. One needs the energy for PPPs, which is often missing."*

> *"No, we have got to change [the legislation]. Two years to register it – nobody's interested."*

> *"[In South Africa] you have got local government, you have also got district municipalities, you have got provincial government, you have got national government and treasury, that is very complicated. That has to change because that is why we do not have PPPs, apart from political will it is just cumbersome."*

> *"The usual reasons we get from other places is the rigorous nature of feasibility studies, requirement of feasibility studies and the time aspect of it. That the PPP project preparation takes too long versus availability of resources."*

> *"There is a perception around that once you registered at National Treasury, that it will take at least three years before you get the project to fruition. And if you, somewhere after you have registered, decide to follow a different finance and implementation mechanism you are pretty much stuck with your national treasury PPP route."*

"[The challenge is] the capacity for National Treasury to really support those projects, they do have a GTAC unit…But the challenge is why these things are not going through. And I think it is still not so much the policies and regulations but it is more the mechanisms the capacity to facilitate these."

"The Richards bay PPP - the writing is on the wall. The likelihood of it happening is fairly low because the process takes too long. One of the biggest things that has been looked at is how it gets accelerated without compromising the process."

A tendency of municipalities contracting for three years or less was identified throughout the interview process. It seems as though the WSAs are avoiding triggering the need for municipal council resolution that invariably also leads to treasury involvement. When this is triggered their work becomes much more and they try to avoid it:

"But basically, the three year thing is to avoid this need. Basically it means that municipalities can do their normal procurement and appoint a private sector party and do their works – or whatever it is – for three years and everybody can sign the contract and say goodbye. As soon as you want to go beyond three years, you need municipal council resolution. Which is the same clause that treasury put into the MFMA. But as soon as you go to a municipal level you have got to comply with that clause within the MFMA, around long-term contracts and you have got to comply with the consultation requirements of the municipal systems act."

These requirements are major burdens for smaller WSAs which have limited resources and funds. PPPs will not happen on smaller scale, without government support with the current nature of the guidelines and legislation.

5.4.5 Lack of government influence

This theme is slightly nuanced from "government support" in that it talks to provincial and national government's intent to drive for private participation in the water industry. The reason for this specific theme is that the literature review showed that

there is intent for more private participation but that we see no mention or action outside of the government plans or reports. There is a slight bias in the prominence of this theme due to some of the questions specifically referring to this topic.

The outcomes of the interviews, as per the quotations below, are aligned with the questions from the literature study and the reason for doing this research. It seems that DWS and national government are not taking PPPs seriously. They make mention of it and say they intend to involve private players in the water sector more but there is no real strategy to drive it. As the main authority on water in SA, DWS is also not embracing PPPs on a higher infrastructure level, providing no example or leadership for WSAs.

> *"But giving some indication, even by the President, that the private sector must become more involved, they have in my opinion not done their homework as to what exactly they want from the private sector. It is one thing to make a statement, but you must be very specific, apply in mind, in house, and then you go out and say exactly what you expect the private sector to do."*

> *"Is there any political leadership or guidance in this [PPP] space? No. Not from the minister or from anybody in the DWS."*

> *"It will be much easier for the department to do PPPs in the provincial or a national space where they have a mandate potentially, but the biggest issue that they have is that they can be the sector leader in so many things but when it comes to this particular topic [PPPs] they would argue that we need the same kind of legal reform or there has to be much greater centralised support."*

What makes influencing WSAs even more difficult is that there is no accountability between the WSAs towards DWS for following any prescriptions on projects. Especially knowing that the funds towards the WSAs are limited; if a WSA has to approach a project from its own balance sheet, it will do so at its own terms.

"From the DWS's side it is going to be difficult to enforce or to ask people to use PPPs because they know they are not doing their work on their side. If they were committed to projects and they funded it and had an additional portion or some of the projects were PPP projects, then I would say it is something else, but I would say at this stage that the commitment from the DWS is not there."

5.4.6 WSAs incapable of managing PPPs

National treasury has tried to make life easier for WSAs by providing frameworks to implement PPPs. But as we have seen up to now, these tools and processes still do not provide enough support for the average WSA to easily consider them. What this theme shows is that there are upfront costs involved to pursue a PPP and that many WSAs cannot afford this expense which may possibly be without any results. Also, the ability to understand technical documentation and manage contracts of a PPP nature requires the kind of skills that most WSAs do not have:

"The technical and financial management capacities of municipalities is also just not there. Most municipalities are just not able to manage the procurement process and complexity around contracting, and financing [PPPs].

"The municipalities do not have the skills, do not have the understanding of what is needed and do not have the ability to execute or think through such projects. And that is where the shortfall is."

"[PPPs] can only really work in a select group of municipalities where they have enough capacity to manage. Because they need the procurement budget and the ability to run the procurement process, do the feasibility study and then they have got to be able to manage the contracts to a reasonable level."

"If you do not have that budget to run that process of developing that feasibility study then you cannot access the project preparation. You are not even going to get to step one."

"Local governments do not have the skills on the ground in any case, neither do they employ transaction advisors to pull this through. So if they do not make it easier to do that [manage PPPs] it is going to fail, because we are also looking for investment into the country for infrastructure development and the typical concessions – the 10 to 20 year concessions are going to be the concessions that are going to save our country in terms of water security."

Recent contracts between WSAs and private parties were contracted very badly and some of them are being disputed in court. These contracts would have qualified as PPPs had they not been signed for less than a three-year period. But now WSAs are circumventing the need for treasury involvement and losing out on the support that could have avoided even more tax money being spent on legal fees:

"[The recent PPP] was, I think, the right concept but it was poorly executed. That is the problem. I am not saying that it was technically poorly executed, technically the plant is fine, it is running, but it was contractually poorly executed."

5.4.7 Other themes

5.4.7.1 Ext-PPPs mostly suitable for larger projects

The ideal PPPs are longer contracts involving bigger amounts. These are the kind of projects that attract private capital. We see that the smaller WSAs do not have projects that are at a suitable scale for the current anticipated nature of PPPs:

"Lots of the projects, just do not have the scale that is large enough to justify [a PPP]."

"We went through the due diligence and eventually we got tenders for about R70 Million and we were forced by our provincial PPP unit to go on the PPP, on advice [from someone who] was involved with a project that was around R1 Billion, which makes sense for a PPP. But with R70 Million you are just going to waste your time and money and you are not going to get people with

an interest of investing R70 Million over say, an 11-year period. There is not a win-win solution into a small amount like that."

5.4.7.2 Gov-Unstable government & policies

A great deterrent to PPPs has been the stability of national government and their policies that are supposed to support PPPs. National office has had frequent changes for the position of the minister of the DWS of late and the past ten years' planning has not inspired confidence with WSAs nor with the private sector.

"And maybe the problem is variability. Some minister will say that in SA we do PPPs and the next minister will say we do not do the PPPs."

"We have no valid national water strategy or valid national water and sanitation master plan. That is the first thing. There is no policy certainty, so that needs to be worked on. The second one is we need regulatory certainty. We do not have a regulator."

"The other risk would be that standards will become more onerous over time, for example waste discharge standards will change and now they have got to bear that cost potentially."

5.4.7.3 Ext-Financial strength of local private firms

Local industry does not necessarily have the capital to provide the funding to enter into PPPs. We have seen international players showing great interest in the larger projects, but it seems as though South African firms do not have the same level of capacity in their balance sheets.

"Many companies are not interested in following [the PPP] route, as money is involved, 20 to 30-year agreements, due diligence and finding experts, proper proposals, which few people have the appetite to do."

“What actually happened is the original tender that went out was for a Build-Operate project. But what happened is that during that time the partner struggled to get the funding.”

5.4.7.4 Ext-High transaction costs for PPPs

It takes a strong and expensive team to run a PPP project. There are high transaction costs involved to do feasibility studies, draw up contracts and interact with all the stakeholders applicable.

“One of the reasons why these transactions are so high is because there is a lot of feasibility and the contracting is complex, every PPP has a unique set of specialists studies and documents that need to be developed which increases the costs massively.”

“Your PPP takes a lot of time and legal and financial transactions; it costs a lot to put a proper deal together and for some it costs too much money.”

5.4.7.5 Ext-Macro economic challenges

Many mentions were made of the state of the economy. One of the issues is that some communities cannot afford to pay for their water. Aside from the payment risk, our local and national governments are not in a good financial position. Regardless of whether municipalities are willing to hand over the collection of tariffs, the private investors might not be able to extract the revenue from a low-income consumer base.

“The municipality is going to sell it at whatever rate, in the end they need to recover the fee for the municipality, and I do not want to be too pessimistic but the population cannot afford all these basic services which are increasing, and that is a big challenge.”

5.4.7.6 Gov-Constitutional rights limit revenue

South Africa's constitution calls water a basic human right. WSAs have difficulty attracting private investment when they have a big part of the population that do not have to pay for the services up to a certain amount per month.

> *"Water is a basic need, so half of the population need to get water free of charge, and you cannot cut it off, you still have to have a trickle system, rather than cut that water totally, even if the customers do not pay in the end, so that is a difficult and high risk area [for PPPs]."*

> *"[Water] is regarded as a basic service, everyone should have free access to a certain amount of water on the revenue model…there needs to be certainty to the revenue model. In water it is a bit difficult, especially on the municipal side. It has got a large population that needs to get six or whatever kiloliter free per month."*

5.4.7.7 Gov-Political opposition to private sector involvement

The political opposition towards PPPs in WSAs theme is discussed in paragraph 5.4.1. It ranks higher than this theme that relates to national government. It is worth mentioning this theme as a separate barrier in order to trace the rhetoric on a higher level. The perception of PPPs being privatisation is causing politicians to steer clear of this option. This kind of perception does not bode well in the current economic climate where we see a push for nationalisation of mines and assets in other private industries:

> *"A lot of it is political and you will notice that over the years, about 10-15 years or so, there has been a wave towards (I do not know whether it is socialism), as the politicians would call it, "the left". The left has become a bit vocal. And the left would be your labour forum, your socialist organisations, those that believe that PPPs are just a capitalist agenda of making sure that the basic tools of providing services rest within private hands. And the struggle is to pull this tool from private hands and make them accessible to everybody."*

"It is through naivety. Local Government, Provincial Government, National Government believe that it is privatisation. And I think that is the biggest. The amount of ignorance we have at local government, the ignorance is so high that there is a philosophical fight against it…within the ruling party there is an anti-government sentiment. So that is probably the biggest blockage that we have is in actual fact – and I do not want to trash labour, but it is the extreme factions within the ruling party is that labour is viewed as one of them where they see you are talking about privatizing but you are not. You are just leveraging off of private capital."

5.4.7.8 WSA-Lack of knowledge & confidence in PPPs

WSAs are, in many cases, misinformed about PPPs or totally ignorant. Both those who provide training and those in municipalities demonstrated the point.

As officials in municipalities put it:

"I think, to be honest with you, we are not really informed about PPPs".

"Municipalities are a bit cautious, maybe there are some case studies available in the country but not that we are aware of, but not that we are aware of (that there are) successful case studies."

And those in treasury and training organisations:

"A senior [official in a metro] did not know that we had [PPP] legislation. It is the lack of knowledge. The people just do not know…. We went to SALGA for PPP training and they said they are going to develop their own PPP regulations for this country. I mean they were so ignorant about PPPs – it is totally irrational."

"In one of the courses we had 12 municipalities and three water boards attending or represented, and all of them told us they were developing PPPs. Some of them just talk nonsense, they do not know better. But many people

see PPPs as 'I am working with your company to fix the pipes'. The leaks. They see that as a PPP."

5.4.7.9 Ext-Complicated supply and reporting chain

There are many organisations that involved in water infrastructure in South Africa. Some argue that this makes it difficult for WSAs and private parties to pursue PPPs.

"In Australia I am told that water and sanitation is handled by one organisation. That is it. Here you have got local government, you also have district municipalities, you have provincial government, you have national government and treasury, and that is very complicated. That has to change because that is why we do not have PPPs apart from political will, that is just cumbersome."

5.4.7.10 Ext-Market competition (demand)

The lack of service and planning by government in general is driving industries to re-use their water and for residents to make use of boreholes and rainwater systems. This is prevalent with those who are actually able to pay for their water and are the customers WSAs want. The market for treated municipal water is facing competition, leaving the WSAs with less money to cross subsidize the free water.

"In the Cape region in particular, more and more in the middle-class and upper-class areas, the guys are putting in boreholes and fitting their own filtration systems. They are less dependent on municipal water, which in one sense, is good…but it also means that there is little revenue flowing to the municipality…so the upper end of the market is taking care of their own needs and what the long term impact of that will be, we do not know, but it is a long term worry for municipalities."

"We are slowly seeing people getting off the grid; and more because of [water] security than from a cost perspective."

5.4.7.11 Ext-Water infrastructure & legislation complexity

This theme points to the fact that water projects are much more difficult to initiate and manage as PPPs. The legislation, with regards to water licensing and the political connotation to water pose a challenge to WSAs who want to enter into smaller PPP arrangements:

> *"Water is different and a little more complex than, for example, roads... The challenge is that the local municipality is essentially the distributor and reseller of that water and the manager of the water resources and services within that authority…but they have got to get funding and approval from National treasury. So, it is just a little bit more complex than some of the other infrastructure projects would be."*

> *"That is the issue. What is the PPP going to be about? A municipal entity applies for a water license for a certain amount of water to be used. Now, how do you anticipate the water use license is going to be handled if there is a small PPP that wants to produce a certain amount of water? It is not really part of the framework that makes it possible to fit in to apply for a certain type of license. Secondly, if you have got this entity and they are only going to add value to your existing water use license, it is difficult for the DWS to convene in this issue or initiate PPPs."*

5.4.7.12 WSA-Lack of long-term planning

In general, the consensus is that most WSAs do not do long term planning for water supply. And it seems that those who do long term planning, rarely take the forecast for demand increases and projects and work it into the long-term financial planning models of the municipality. This type of planning may point to the budget deficits and prompt a search into alternative funding solutions, such as those which could be offered by PPPs.

> *"Once the engineers have developed their long-term asset management plans, the finance guys need to do the same and typically that does not happen…You do PPPs when you are strong, and it is contrary to a public*

servant's idea. Because whilst you are strong you think you should do everything yourself. But that is the best time to do PPPs because then you are in a much better position to negotiate your conditions with the private sector. That is when you do it. Not when you are in trouble."

"Over the past year we have had that dreadful drought. That was when everybody was on their toes running around trying to secure water, when people were coming in numbers [to the PPP office] because there was a shortage in Western Cape specifically. After the draught they dropped the projects and went about doing their own thing. And now today there is not so much interest anymore."

5.4.7.13 Ext-Opposition from the public

Similar to the WSAs and national government being opposed to PPPs, the communities seem to carry the same sentiments. They also fear job losses and do not like to see their tax money being used to fund private companies:

"Especially unions are worried about job losses, working conditions and so that consultation process is very difficult"

"If you go the PPP route, about 20% of people will be less happy with the idea than they would be with their current service. It filters up from the community to the water counsellor. The water council is going to deal with that issue about why people do not like us privatizing water. People conflate PPPs with privatization."

5.4.7.14 WSA-Unstable government

Instability in municipalities and the turnover of senior personnel makes it a difficult environment for private investors to feel comfortable taking risks. A PPP is based on risk sharing, meaning the private party assumes much more risk than it would as a mere contractor. If there is no guarantee that the support for a project in which he will invest will endure, the risk increases.

"And what you often see, what I have experienced is, if you get initial buy-in; one or two years later that municipal official has left and you have new officials coming in and you have a delay in the process or just new political agendas. That project gets put on the backburner; you know."

"But then issues like political risk comes into play as well and that is why people are a bit scared. They say: "we see that the cash flows are good but what if, after the five-year council period, another council comes in that is crazy and wants to shift things around and cause our hard work at investment to lapse? We need protection."

5.4.7.15 Ext-Industry incapable of managing PPPs

The point has been made that South African companies may not have the financial strength to provide private capital. It is also a risk that South African companies are not mature enough in contracting to manage PPPs. The following quote came from industry:

"We are getting placed as a service provider in this funding model [PPP] role. So we may be engineers or scientists, we must understand to stay alive and to be able to provide the service. We also have to suddenly become financial and legal experts, to handle [PPPs]."

5.4.7.16 WSA-Scope change

The South African landscape with municipalities being amalgamated into metros and urbanisation causing increased populations in districts makes the scope of PPPs unforeseeable, adding to the risk for private investors.

"[Private parties worry] about changes in assumptions, or expectations of what they would [have to] do. So, things that people often said were that all of a sudden, they get asked to expand their area which they are going to provide to. Now all of a sudden, they deal with a whole bunch of informal

settlements or low-income households they have not planned to provide for, now it is their job. They have got to cost that in."

5.5 Conclusion

The outcomes of the interviews were very consistent, and most themes emerged multiple times between interviews. There weren't notable contradictions between statements. The data speaks of an environment that is grappling with this subject matter, and a sense of frustration that echoes the need expressed for this study.

CHAPTER 6 : DISCUSSION OF RESULTS

6.1 Introduction

The data collected from interviews and presented in Chapter 5 is now discussed and put in context of the literature that was reviewed earlier in Chapter 2. Chapter 5 and Chapter 6 follow the same theme structure.

6.2 Research Question 1: Discussion of Results

6.2.1 Solving for public budget constraints

Before embarking on the interviews it was clear that many of South Africa's WSAs and the DWS have budget constraints (Department of Cooperative Governance, 2018; Department of Water and Sanitation of the Republic of South Africa, 2018a; National Treasury of the Republic of South Africa, 2019). This has been confirmed by the research and has ended being the number one reason why PPPs should be considered for water infrastructure projects in South Africa. The vicious circle which is mentioned in paragraph 2.2.7 seems to be a reality in many WSAs in South Africa with a low willingness to pay and many examples of people going off the grid. The funding for projects will only decrease the ability to service infrastructure and uphold the constitutional right for all to have access to clean water. WSAs need access to finance which is the lifeblood of water infrastructure delivery as stated by Ruiters (2013).

Loxley (2013) stated that if there is a shortage of domestic funds and a government has high debt levels, PPPs can open up the door to private capital to support infrastructure development. South Africa has many backlogs in its infrastructure development and alternative funding models are the only way to carry development forward (Ruiters, 2013). What we have seen from the interviews is that this capital may not reside within South Africa but that there are plenty of international players who have the funds and are interested in investing in local PPPs. This can allow for reduction in debt burdens on WSAs and shifting it to the private sector.

Later on in this chapter, the financial status of government is mentioned as a risk as well but this can be overcome by allowing private investors to get direct access to the revenues from the projects. Like with any feasibility model the potential returns will provide a cash flow which will pay back the investment made. In this instance, the financial condition of our institutions is irrelevant, but we will have to allow outside parties to control metering and revenue collection.

Regardless of the status of a WSA's balance sheet, a PPP helps free capital for other expenses and projects. We should not believe that PPPs are only suitable for those WSAs who are "bankrupt". We need to get the message across that PPPs should be considered, especially when long term planning is made and when there is more bargaining power from a strong balance sheet. There is some capital being made available in the form of grants, and as some interviewees mentioned, using this money as leverage to attract and improve private investment is a much better way of using this capital, instead of trying to finance small projects ourselves. All of these arguments align with the findings by Ruiters (2013) that developing countries like South Africa have no other choice but to make use of alternative funding model in the pursuit of addressing backlogs in infrastructure by supplementing existing modes of funding.

6.2.2 Addressing technical and administrative capacities within government

To initiate and manage infrastructure projects requires skilled resources in the legal, financial, procurement and technical departments. In fact, the poor condition of our existing infrastructure has been attributed to the lack of these skills (Department of Cooperative Governance, 2018; Department of Water and Sanitation of the Republic of South Africa, 2014). The interviewees regularly referred to DWS and WSAs not having these skills, that are required to address the infrastructure backlogs. China embarked on involving the private sector, years ago, because of this very reason, the fact that they had a lack in management skills (Lee, 2010). Some interviewees' comments concurs with the reasons followed by other nations by saying that they do not foresee that South African WSAs will ever have the capacity to manage the advanced technologies in modern day re-use and desalinization plants.

The World Bank studies show that by involving private companies to support in the delivery of services, they have seen improved water quality, increased revenue collection and more efficient operations (Marin, 2010). All of the said improvements are areas where the interviews have shown that South African government is largely lacking. Therefore, not only in support for new projects but in maintaining existing infrastructure and systems can South Africa benefit a great deal from PPP arrangements. The interviews showed that skills transfer for new technologies has been very successful in instances where management contracts were implemented by the WSAs. This is supported by Chou & Pramudawardhani (2015) which states that PPPs allow for the development of managerial and technical skills. Refer to Figure 6: for a visualisation of some of the benefits PPPs could add to the skills shortage in the water sector in SA.

6.2.3 Taking hold of interest in PPPs in South Africa

Apart from government's calls for more private investments in public plans and reports (Department of Water and Sanitation of the Republic of South Africa, 2018a; National Treasury of the Republic of South Africa, 2019) there is no specific support for this theme in the literature, but it featured very strongly in the interviews. It may be that because South Africa is seen as one of the most advanced African countries and regarded as a "soft landing" into Africa that there is so much international interest in getting involved in PPPs in the water sector. There is interest from WSAs and local private firms to pursue this option as well. This was confirmed by parties on both sides throughout the interviews. The interest was evident from the stories about how many companies turned up for PPP tender briefings and how they would regularly include people who had flown in from other countries to represent international firms. This does not entirely tie up with the findings by Loxley (2013) that companies from the United States were rarely interested in water projects as their focus was mostly on telecoms, transportation and energy projects. It may be that water is becoming more attractive for investment opportunities.

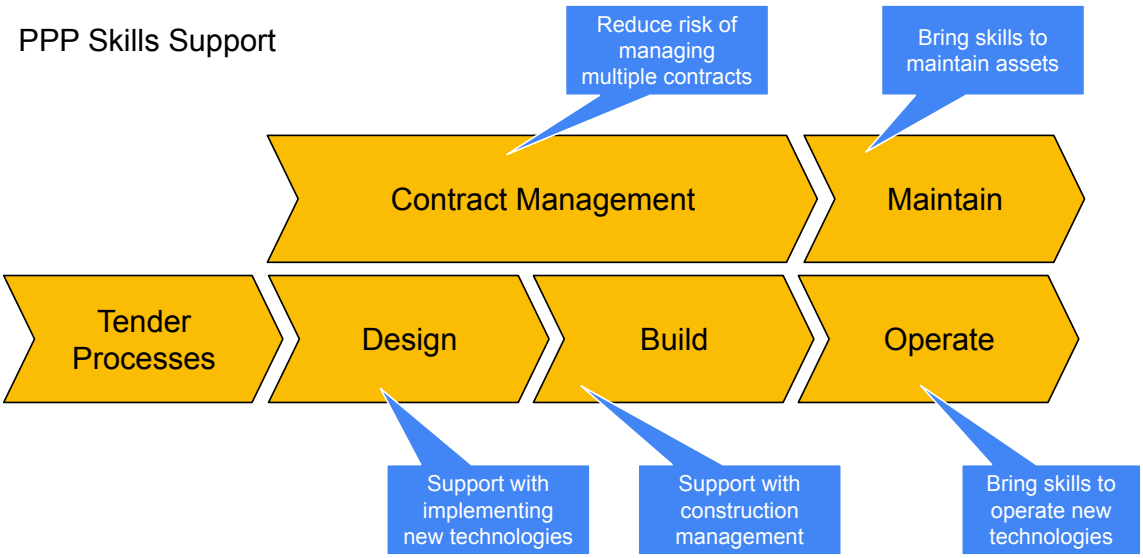

Figure 5: Support which PPPs can offer in terms of skills

6.2.4 Building on South Africa's existing frameworks and support for PPPs

South Africa has laid the foundation for PPPs in the PPP manual (National Treasury of the Republic of South Africa, 2004) and WSAs are supported and guided by the Municipal Financial Management Act and Municipal Systems Act (National Treasury of the Republic of South Africa, 2003; The South African Government, 2000). There are separate toolkits, including one for water in the PPP manual, and National Treasury has a dedicated department to support PPPs. Just because there are so few PPPs in water does not mean that this is the case for all industries. There are many examples of PPPs, especially larger projects, that have been executed successfully with the help of treasury. Loxley (2013) notes that South Africa has the "most sophisticated legal and institutional structures" for PPPs in Africa.

Despite the legislation being quite old, and have been stagnant in terms of their development through the years (Fombad, 2015), most interviewees felt that it could still be regarded as an enabler which will sufficiently address risks for PPP projects. They feel that there are people with knowledge in treasury and that there is the support to guide them through the frameworks. There is help but it remains an expensive exercise which is onerous and lengthy.

We therefore have good legislation, support structures and examples of successful PPPs in other industries. This is therefore a good reason why PPPs could be pursued in the South African water sector. Loxley (2013) does however mention that PPPs in water and electricity are found to be much more difficult to establish in countries like South Africa where a very large percentage of the population is poor.

6.2.5 Reducing the costs of water infrastructure and services

Loxley (2013) speaks of increased capital market discipline, more efficient operations, lower life time costs on projects and improved efficiencies on water infrastructure spending by making use of PPPs for water infrastructure. We also see a sense of competition that drives down costs between private entities as they compete for contracts (Marin, 2010), breaking the monopoly of government in providing these services. The interviews outlined that there is much to be gained from economies of scale and economies of scope in allowing concessions on water infrastructure operations which could save the government a lot of money.

By having access to larger sums of capital, new technologies, and international expertise, larger projects can be afforded which will allow for lower water treatment costs at scale. By allowing procurement experts to manage the construction of infrastructure, less money will be wasted on fixing mistakes and losing out on the best alternative contractors which will provide real value for money. Labour is more efficient and within private industry, employees and unions have less leverage on their employers to strike and bring services to a halt. This is a virtuous cycle where improved service delivery and cost-effective infrastructure feeds more revenue and eventually lower tariffs to consumers. The PPPs being pursued of late were very small and also cost the taxpayer a lot of money in terms of low economies of scale and wasted money on legal fees. If PPPs are implemented correctly, this virtual cycle can help South Africa get out of its infrastructure backlog. Lower water costs will benefit the consumers and help government to provide poorer communities with access to water at affordable rates which aids in the fulfilment of the objectives of the constitution.

6.2.6 Results from other themes

Some of the other themes that emerged and which builds a case for PPPs in the water sector has been grouped together in this section. There are many successful PPPs that have been completed over the years, such as the Gautrain and many toll roads, hospitals and prisons. Many of them are still registered with GTAC and new ones are on the horizon (Government Technical Advisory Centre, 2018). Mentions were made in the interviews regarding big concessions in Mbombela, Dolphin Coast, Ethikwini and Johannesburg Water, amongst others, which were signed in the 1990's and early 2000's. There are many lessons to be learnt from these projects and they have proven that PPPs can work well in the water sector. Having some case studies and workshops about these projects could help allay fears which are present in many WSAs at the moment.

WSAs do receive grants, like Municipal Infrastructure Grants, when DWS can afford it, provided they finance a big portion of the projects themselves. The WSAs do not often have access to big money, so projects are either very small or they do not happen. Private sector is also scared about having to absorb the constitutional right to water for rural communities and this makes private funding difficult for WSAs. These grants can be used more effectively by either allowing for a more equal risk share in the development capital of projects or it can be used to fund the "free water" component in municipalities to allow projects for private entities to become bankable.

PPPs provide for business opportunities (Chou & Pramudawardhani, 2015) and the expansion of coverage they offer (Marin, 2010) allows for more jobs to be created as the amount of clients grow and are enabled by clean water and sanitation. The interviews showed that there are fears of jobs being lost but this does not mean that the net outcome of the exercise will mean less jobs. In the case of Mbombela the amount of people employed for the water services almost quadrupled after the concession there had rolled out completely. More water also means more opportunity for agriculture (Baudoin, M. A., Vogel, C., Nortje, K., & Naik, M., 2017), which also leads to more jobs and food security. Lastly, the transfer of skills increases opportunities for operations and maintenance personnel to look after modern technologies in South Africa.

If private companies could improve service delivery there could be an increased willingness to pay. This was mentioned by some of the interviewees as a reason why PPPs can have a very positive effect in the economic cycle. Good service delivery can increase revenues if done professionally which could enable WSAs to capture more value and build their own capital funds for more projects. The World Bank did a study which confirms this very thing (Devicienti, F., Klytchnikova, I., & Paternostro, S., 2004) and this is a key reason to do PPPs.

As the information derived from the interviews show, payment risk in South Africa is a big concern. Securing repayments on their capital employed, is a big issue for private investors. A low tax base and many people being allowed free quotas of water, makes it even less appealing. However, existing, large PPPs in the country which have been able to overcome this issue by signing offtake agreements with industrial partners in the food and beverage, mining and paper and pulp industries. This secures the revenues for the investors and makes the project attractive and feasible. South Africa can capitalise on this successful model and get a portion of their water infrastructure upgraded and extended. This may relieve pressure on revenue collection and aid in addressing the water needs of more communities.

International, private investors are interested in the projects of around R1 Billion or more. There is definitely interest, but on the smaller projects, especially in smaller WSAs do not attract much attention. South Africa's budget constraints leave it with little opportunity to pay for large and long term water infrastructure projects and the country cannot keep up with demand created by the infrastructure backlogs by pursuing small projects. Private investment can unlock the larger projects which can allow for economies of scale in water production. Furthermore, many of the large projects are wastewater treatment works and acid mine drainage issues which are actively poisoning the environment. Private funding could help address these issues sooner and limit the effect on the environment. As Ruiters (2013) pointed out: PPPs have the ability to help accelerate infrastructure project investment and this can help curb issues relating to environmental damage sooner to curb the effects thereof.

6.2.7 Conclusion

The first research question wanted to explore whether there was a valid case for pursuing PPPs in the South African water sector. After analysing the results the answer is yes. PPPs can help South Africa which is in a difficult economic state with the fiscus under great stress. The moneys for infrastructure development are limited and our government is not in a position to use those funds effectively.

By providing additional funding for projects, improving service delivery and improving efficiencies, PPPs can unlock economic growth into a virtuous cycle. There is no question that the impact of PPPs will be much wider than just securing clean water, it has the potential to unlock crucially important economic growth.

6.3 Research Question 2: Discussion of Results

6.3.1 Introduction

The topic about risks of PPPs might be the most common field within PPP literature. The information available in the academic field with regards to South Africa's barriers is old and based on existing PPPs, not the current South African landscape which has particular challenges in the water sector and the general economy. The following paragraphs will show that our WSAs and national and provincial governments are the main cause for the lack of PPPs in the water sector and that these issues can be addressed.

6.3.2 Theme Groups

After coding the transcripts form the interviews it became clear that local government (WSAs) and the provincial and national governments have distinct responsibilities when it comes to water security and infrastructure. The former is coded separately with the prefix "WSA". National government, provincial government, bodies of treasury and water boards are grouped with the prefix "GOV". The remaining analysis was kept simple and grouped factors that are external and those that reside with private parties, under one group with the prefix "EXT".

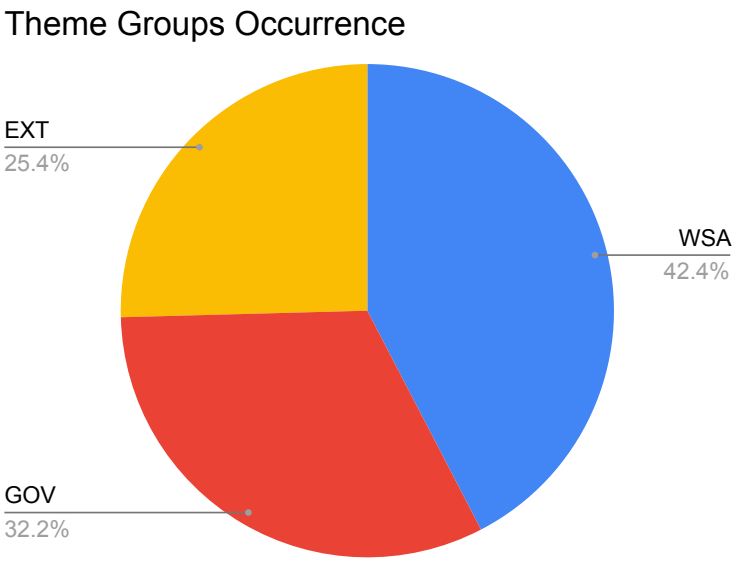

Figure 6: Theme groups occurrence

As shown in Figure 6, the barriers to implementing PPPs in South Africa's water sector, largely resides with government (75%). This gives an indication of where the main focus to initiate action should be, if PPPs were to be pursued further. The results clearly show that there are macro-economic factors which play a crucial role and may also be the underlying reason why local industry cannot finance these projects either. Arguably, these could be traced back to poor governance as well, since the economic impact of poor governance has an effect on the balance sheets of local businesses. A very surprising fact is that corruption was never mentioned, not even once, throughout all the interviews. This was found to be a risk factor in all of the papers that discussed PPP risks (Budds & McGranahan, 2003; Chou & Pramudawardhani, 2015; Effah Ameyaw & Chan, 2013; Fombad, 2015; Loxley, 2013; Todorova, 2015).

6.3.3 WSAs and their lack of political will for PPPs

The interviews show that there is more talk about and movement around PPPs in South Africa of late. There is a lack of proper understanding about what PPPs can do for WSAs leading to polarised views on the topic. There is a rhetoric around nationalisation, and this is proving to influence opinions about PPPs quite negatively. There are pressures from communities and political parties to stay away from anything that resembles privatisation. Communities fear there will be a loss of jobs

as the private sector moves in and takes over some of the duties. Senior officials are scared of what the community will think of them if they get private businesses to do the work they were elected to do, so there is a large portion of perceptions and voter support that play parts in this limiting factor. Municipalities do not want to give up control of their water revenues and fear losing control of their assets. They fear that the private sector will wreck their assets and give it back to them in an unserviceable state, once the agreement is done.

Councils do not want treasury to be involved in their business, leaving them without support that was initially created for PPPs and infrastructure development in general. WSAs are stuck with “procurement inertia” where they and their consultants only focus on traditional funding models. They have little reason to move beyond this if they are getting “free money” from government in the form of grants. But the issue here is that these grants are not always readily available and DWS is increasingly defaulting on their commitments. WSAs need a fresh approach and the perceptions about PPPs need to be shared with officials and communities. This all aligns with Effah Ameyaw & Chan (2013) which noted that mixed policy objectives are present in water sectors as it touches on health, politics, revenues, service delivery and financial aspects in the public space. These mixed objectives are difficult to control with private parties at the helm of service delivery.

6.3.4 WSA payment risks

Private investors are seeking returns from the projects and contracts they enter into. Water treatment and distribution is both a service and a business, which WSAs are struggling to do well. Firstly, municipalities are rarely credit worthy, so to share risk equally with upfront investment, is a challenge. Secondly, WSAs struggle with metering and billing, whether it is on purpose or just due to incompetence; accounting for all the water distributed is not a reality. Non-revenue water percentages are very high, meaning that either distribution networks are in a very bad state or revenue collection is a major issue. These issues can be solved by PPPs where private investors upgrade the networks and improve the metering, billing and collection efficiencies. If these issues are resolved, then private investors will be willing to take on the risk of making the investment by basing the risks of investment returns on the cash flow from future revenues.

WSAs, however, have historically refused to hand over control of the revenue collection from water. This is a major stumbling block to private investment as there is then no surety to cover the risk of the investment. In order to go this route of handing over the metering and billing to a private party, a concession is the most appropriate model. However, concessions are frowned upon by government and communities alike which are lending towards nationalisation of many other areas of the economy as it functions presently.

WSAs have commented that the principle of ring fencing, in itself, is already a challenging feat as municipalities build their financial models around the integrated service revenue. It is common to cross subsidize certain parts of a municipal area with the incomes from other regions, or use revenues from another source to subsidize a different service.

Lastly there is the issue of historical agreements with agricultural and industrial water off-takers. Combine this with large communities who are unable to pay and the free component of free water allowed by the constitution, and you end up with less opportunities for private investors to build a viable model. This is why it has been mentioned that the funds that are available from government, should be used to finance these subsidies. Water is already very expensive in metro areas and by improving efficiencies, the cost benefit can be transferred to cover for subsidies. A PPP should be able to bring down the cost of water and increase the revenues. Government can use its grant money to subsidize the shortfalls caused by the free water components and some of the historical agreements on fixed water tariffs. This could turn net loss into a profitable model for private investors.

6.3.5 Lack of support to WSAs for PPPs

Many state-owned entities are putting severe pressure on the national fiscus and this limits the support to WSAs. Especially when it comes to guarantees for investment from higher tiers of government or treasury. These entities provide no support in this regard, but the legislation and structures also do not allow them to. There is support in terms of the PPP frameworks and other acts, but financially they are only

supported with grants which can be accessed according to a specific set of criteria and may not be available, as DWS is in a poor financial condition.

6.3.6 Frameworks and legislation are onerous and lengthy

As Loxley (2013) and many others outline, the legal frameworks and policies that are clear is a must to attract private funding. South African treasury did develop good frameworks in the early 2000s and the WSAs are supported by clear instructions in other acts (National Treasury of the Republic of South Africa, 2003, 2004, 2005, 2010). It seems as though all parties interviewed feel that the process involved to register PPPs takes too long. The frameworks are complete and sophisticated, but they are too onerous. The frameworks have been in practice for almost 20 years but we have seen very few PPPs in water; and those we have seen of late are being structured in such a way as to avoid having to register with treasury or trigger municipal council resolution according to the MFMA (National Treasury of the Republic of South Africa, 2003). Fombad (2015) aligns with these findings in how he says the South African legislative frameworks that support PPPs lack practices that ensure private management, ownership and financing of infrastructure and that they have been stagnant for too long.

The project preparation time and expert resources required for this preparation is seen as a great barrier by WSAs. Especially the smaller WSAs know just enough about PPPs to scare them off. They know it takes time and money and they might not even end up with a secured project once all the feasibilities and other studies have been completed. It is said that it takes long to get permits and licenses from other government departments as well which makes the process even longer. GTAC is however set up in such a manner as to facilitate the PPP process with WSAs but to what extent is not known. Fombad's (2015) findings align with these outcomes and further notes that WSAs would much rather opt for partnership agreements in forms that do not align with PPP principles so they can approach it in their own ways.

6.3.7 The lack of government influence

National government bodies say they want more private investment to support infrastructure backlogs (Department of Water and Sanitation of the Republic of South

Africa, 2018b; National Treasury of the Republic of South Africa, 2019). Support for PPPs from the higher tiers of government seems to stop at the speech or the report. No clear strategy is set for involving the private sector more or inviting private investment from DWS. Fombad (2015) also says that there is a lack of mechanisms to enforce the different parts of the legislation that support PPPs.

The influence DWS can exert on WSAs is very limited as well, as there is no mechanism to force WSAs to initiate PPPs or even to force them to sign up with treasury's programme to support them. People feel that the leadership changes within treasury and DWS left the institutions without proper leadership and no clear strategies have emerged that could provide guidance or stability in the sector. The lack of this support also speaks to the notion of political cover which is lacking for municipal officials. If there is no clear strategy from DWS, the presidency or other influential and respected governing bodies to pursue PPPs, the officials will be seen as pro-privatisation and be ousted in the current political climate. WSAs will never successfully pursue PPPs without this high-level influence.

6.3.8 WSAs being incapable of managing PPPs

The literature has shown that developing countries often struggle with the technical capacity to manage PPPs, they need to know whether it is a value for money when compared with traditional procurement methods (Loxley, 2013). Water projects are complex in itself and difficult to develop and manage (Effah Ameyaw & Chan, 2013). WSAs therefore are required to have strong teams that understand the technical scope of modern and large water infrastructure projects. They need strong financial and procurement teams to determine the suitability of different funding models. They need strong legal expertise to manage complex PPP contracts. Our WSAs are unfortunately, mostly, not capacitated to manage PPPs. GTAC is said to provide this support in these instances, but the question is, how many resources do they have available to help 144 WSAs? The NBI reports (National Business Initiative, 2019a) support these findings in that it shows that the initial setup costs and the cost of management PPPs need to be addressed to overcome barriers keeping WSAs from entering into PPPs.

6.3.9 Discussion on the remainder of findings

After talking to some of the WSAs it was clear that the projects they had in the pipeline were not large enough to justify PPPs. The reasons being that if you have, for instance, a sub R100 Million project, the upfront costs and feasibility costs can easily amount to 10% of the total budget over the two to three year period of development. At this scale, less private investors seem to be interested. It is therefore a clear that PPPs are more suitable to high value projects and contracts which limits them to WSAs serving larger populations.

Both on WSA level and on higher governmental levels, the instability and personnel turnover of key positions have deterred a lot of interest in foreign investment. The sentiments towards PPPs vary from office to office. With a water and sanitation master plan that is very outdated and by some regarded as invalid, the political uncertainty of the economy is reinforced on department level. State-owned entities have put severe strain on the fiscus, leaving the water sector to stand in a que for funds to capacitate itself and contribute towards infrastructure.

One can get carried away with how WSAs and other spheres of government are the main causes of PPPs being stifled, but the private sector in South Africa is, however, not necessarily strong enough to financially back investment in projects. This was seen with a water reclamation plant in Beaufort West, where the private entity could not get the financing and another national department provided the funds to the municipality, turning the PPP into a service contract. The construction industry in South Africa has also taken a turn for the worst with most of the largest players experiencing major financial difficulties. This is a risk for water infrastructure in general as well, not only PPPs. Private parties are also required to have strong contractual and procurement expertise that is suited to managing complex projects such as PPPs. One may argue that those who have enough money to invest will have the capacity to back the project, but from the interviews it is also clear that managing a PPP is a specific skill of which the lack of, has caused conflicts between WSAs and industry.

Treasury provides training on PPPs and the South African regulations. Also, the NEPAD Business Foundation offers training on the World Bank PPP curriculum.

Despite this, there seems to be a lack of knowledge about PPPs in the water sector. So much so that some have planned to draft their own regulations. Many have asked for case studies to familiarise themselves with the concept and application of a PPP, but there are, in fact, such case studies available from treasury. Many have limited knowledge about PPPs and many of those who have undergone information sessions and training, still do not feel confident to pursue it.

It is interesting to note that some WSAs have found it very easy to implement management contracts and Design-Build-Operate contracts very recently, but that other WSAs in close vicinity of these have no idea about how their water licences with DWS will allow the same arrangements. There is a complicated structure in the South African water sector, with DWS looking after water security on a national level and water boards providing water to WSAs. WSAs get a license from DWS, but are also required to now fulfil functions of both these departments as water security is compromised and funding is low. Water itself is largely politicized, the infrastructure is capital intensive and the technologies are not easy to manage. PPPs in this space are therefore much more difficult than it is in other services like electricity where there is only one customer (ESKOM) and one type of “product”.

What is worth mentioning, separate from payment risk, is the latest move towards being “off-grid”. This is being pursued by private households, office buildings and industrial businesses. This movement is mostly spurred on by the fear of water security but also by people being more conscious of the environment and conserving water. The net result is that those who are key revenue drivers for WSAs are using their capital to treat their own water and tap from boreholes themselves. With less, high income clients available to offtake a WSA’s product, the less viable a business case will become for private investment in the long run.

Long term planning is seen as a major threat to infrastructure development in general. There seems to be limited long term planning within WSAs and that only the bigger metros are starting to improve on this. The long-term planning issues do not stop with technical forecasts, but need to be translated into financial plans and projections on finance for future projects. PPPs will never be considered if the larger, long term projects are not identified and the financing thereof is not investigated with purpose. The recent droughts in Cape Town has seen the City of Cape Town hastily

involve private funding to meet immediate water needs but this has turned out to be very expensive for the taxpayer, as the projects were not of sufficient size to allow for economies of scale and some are ending up in court, causing a lot of high legal fees. As an expert on PPPs noted, WSAs should be considering PPPs while they are in a strong position, so they have leverage for a good deal. PPPs should be considered over the long term to improve the services and coverage of a WSA while freeing up finance on the balance sheet for other critical needs.

A common risk with PPPs is that, because they are mostly long term, there are always risks of unforeseen scope changes. These changes can come in the form of the increase in a population to serve, especially rural, non-paying communities. It can also come in the form of regulation and technical standard changes for drinking water and effluent discharges. This has happened in South Africa before, in the Mbombela concession.

6.4 Conclusion

What the results of research question 1 has shown is what Chou & Pramudawardhani (2015) call “key drivers” for PPPs. No other literature specifically focused on these key drivers but are mostly focused on the risks involved with PPPs. Secondly, the results of research question 2 were very much aligned with the notion of PPP risks such as outlined in Chapter 2 (Effah Ameyaw & Chan, 2013; Fombad, 2015; Lee, 2010; Loxley, 2013). PPPs, especially in water infrastructure were confirmed to be very limited and getting a real sense of what the real risks are would be based on limited data. Therefore the approach was to look at “limiting factors”. The outcomes of these two questions helps us understand whether we should consider PPPs more seriously for water infrastructure and also shows us why we see so little of them being implemented.

All results are packaged and presented in such a way as to attempt to describe South Africa’s unique environment in water infrastructure and how it struggles to relate to PPPs. There were very strong themes and these will be discussed by comparing results from Chapter 5 with the findings from literature in Chapter 2.

CHAPTER 7 : CONCLUSION AND RECOMMENDATIONS

7.1 Principal findings

7.1.1 PPPs offer a solution to many of South Africa's water infrastructure needs

The findings have illustrated that there are a host of reasons for South Africa's water sector to pursue PPPs, both in existing operations as well as in development of new infrastructure. The local challenges strongly align with those of countries who embarked on a route of including more private organisation involvement to enable sufficient infrastructure development, as was done in China and Ghana. It is worth noting that developed economies have also made use of this mechanism of which the benefits of PPPs reach much further than financial contributions. With increasing complexity in technologies, increasing water security threats and a shortage of local capacity and funding, Design-Build contracts are hardly possible. PPPs can offer a mix of elements that can bring the sector back to a strong position.

7.1.2 PPPs need central support

Even if WSAs decided to actively pursue PPPs tomorrow, there is not a strong enough foundation in the current government structures to manage them. There is some support in treasury, but how many WSAs can they really support? As has been seen with PPPs in South Africa's power sector, a central body of support is the only way to enable the roll out of a series of successful PPPs. This body can assist with feasibilities, standard contracts, technical knowledge and standardised templates to gain economies of scale and scope to reduce the costs, time and risk on these projects. Having this kind of support could bring down the threshold of the level of capital required to justify PPPs, making them more accessible and less daring to smaller WSAs. This body should be independent of WSAs, DWS and water boards. The independent power producer office was established some years ago with the DBSA, Department of Energy and National Treasury to pursue independent power producer projects, and this can be a helpful model to replicate. Independent water producer projects will be more difficult than electricity projects to implement as water is much more complicated than electricity to produce, buy and sell. Water is not centrally regulated and there are many "customers" (many WSAs and water boards).

Regardless of whether the same type of model will be pursued as with renewable energy, the water sector needs this central support office if government becomes more serious about pursuing PPPs.

7.1.3 PPPs have the potential to unlock economic growth in South Africa

This report shows how PPPs offer many benefits. The insights gained has shown that there are only three major contributions a PPP needs to make, that will have spill over effects that will eventually unlock economic growth in the South African economy. Firstly, if private companies improve efficiencies in the delivery of water services the and maintain assets better, the cost of water will come down, which can increase customers' willingness to pay and improve economic competitiveness of local industry. Lower water costs mean lower input costs and higher profits or lower selling prices. This will lead to economic growth as the business case for many businesses is improved and business growth creates jobs. Secondly, by improving the quality of service delivery, the end users, especially the lower income tier, will be more willing to pay their bills which will improve revenue collection. More revenue can help WSAs grow their capital for future expansion and strengthen their balance sheet position. Thirdly, the financial investment by private parties will bring much-needed capital into the system which will unlock the opportunity for more large-scale projects. Larger projects can improve economies of scale and further drive down the cost of water. Water projects earnestly requiring attention to address environmental pollution, are mostly large-scale and in addressing these issues, the economy will benefit, and natural resources will benefit the health of residents. This investment can help expand the coverage of services which will grow the size of the service business, requiring more labour, thereby creating jobs and economic growth.

Figure 7 depicts this cycle and shows how the different spill over effects eventually lead to economic growth. We know that the factors in this picture, which PPPs can provide, is an issue in WSAs currently. PPPs can solve the "chicken and egg" problem by kick starting the cycle with money and skills to unlock the potential in the water industry, to support the economy.

How water infrastructure PPPs can create a virtuous cycle of economic growth

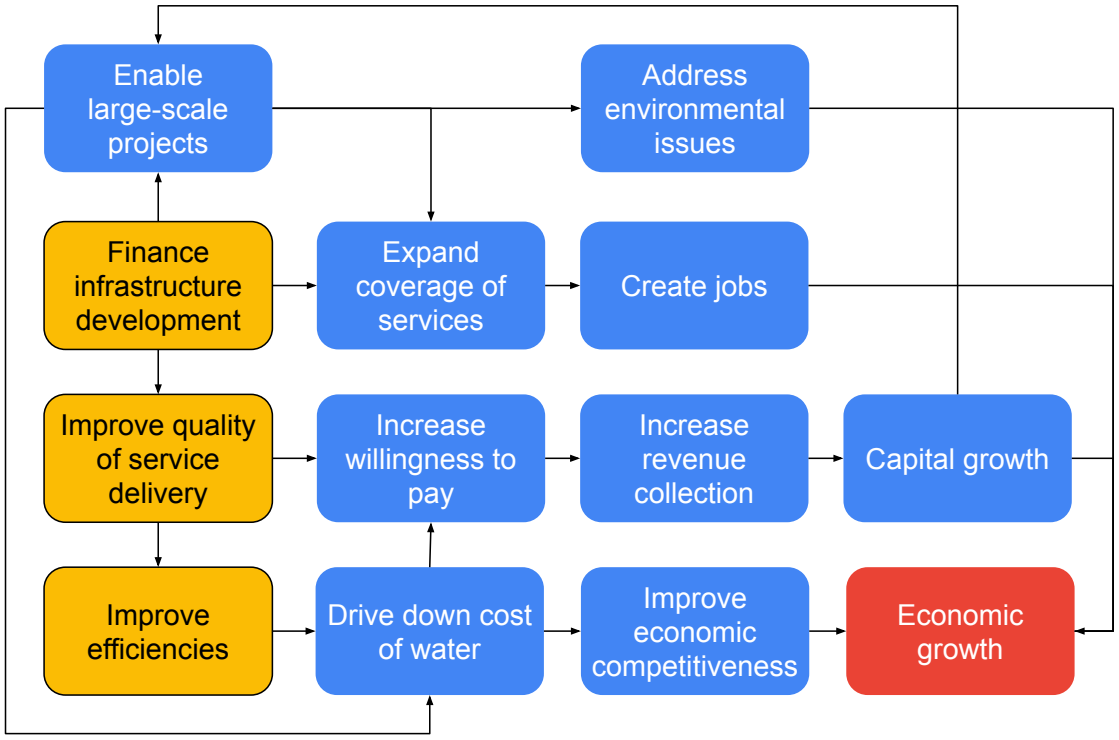

Figure 7: The virtuous cycle of PPPs in water infrastructure

7.1.4 WSAs are the main contributors to the lack of PPPs for water infrastructure Access to revenues

The research shows how little PPPs we see in the water sector and highlights the most prevalent factors. It is clear that WSAs contribute to the most barriers, followed by national and provincial government. Many of these concerns can be addressed without investment or changes in structures but by changing their attitude towards PPPs. The rhetoric of privatisation in a political environment that is asking for more nationalisation is also driving the labour unions' and communities' perception that jobs will be lost. There are cases where municipal workers will have to be reallocated or replaced, but the bigger picture of improved service delivery and expanded coverage has been proven in South Africa before and many more jobs were created through this. Municipal officials need to be informed of PPPs and case studies about well-performing PPPs to date.

The general poor financial condition of WSAs prevent the option of providing surety to investors. Giving private investors direct access to water revenues is one of the

only ways to address the infrastructure backlogs of WSAs. Private firms have shown themselves to be more efficient and effective and can allow for the “water service as a business” to recover. If WSAs can find the political will and suitable arrangements for PPPs to tie in with their water license models, many of the large stumbling blocks will be addressed.

7.1.5 Available money from DWS can be leveraged for more investment

Many WSAs rely on traditional methods to procure new infrastructure and in turn on the grants available from national government to fund it. There is always a portion of the required capital which needs to be provided by the WSA and they rarely have the means to fund it themselves or get loans for it. This approach is not working as WSAs can apply for less than they need because they cannot borrow enough to unlock more money from DWS. Available funding can be used to share risk equally with private investors, then a WSA does not have to provide the financing from their balance sheets but the grants can be unlocked with private capital.

The free basic water component (which has its roots in South Africa’s constitution) and long-term tariff agreements with big water off takers, deters private investment as there is lost revenue, making it difficult to reach feasibility. Figure 8 shows how payment risk can be addressed (aside from handing over the right to revenue collection) by means of using government funding to subsidize projects.

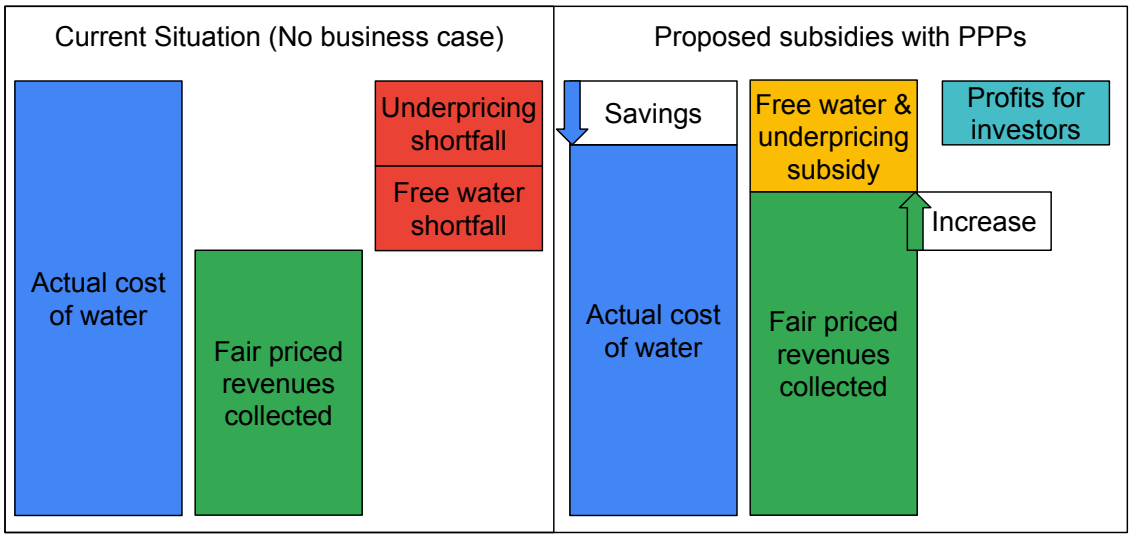

Figure 8: Proposed subsidy model to improve bankability of water PPPs

7.2 Implications for management and other relevant stakeholders

The outcomes of this study show that there is a solution to infrastructure backlogs and general water security in South Africa. Albeit not the “silver bullet”, PPPs is a very good alternative model to also use in the bigger scheme of our strategy for water infrastructure development, operations and maintenance. WSA officials need to conscientize themselves of the positive aspects and the local support for PPPs. National government, especially DWS, should seriously consider paving the way, as sector leaders, to pursue PPPs. They should build stronger ties with national treasury and the DBSA to actively support and roll out PPPs on all levels of government, especially seeing that there is international interest in private investment opportunities in local infrastructure.

It is worth noting that China had similar issues to that of South Africa in the 1970s when private sector involvement was strongly opposed in the communist regime. They also strived for water access to all residents such as with South Africa’s constitutional ideals. Water quality and services deteriorated up until reform gave way to privatisation, and decentralisation. The effect of these policies provided the outcomes that were needed. It bridged the gaps to address their water sector challenges. South Africa can do the same.

7.3 Limitations of the research

Some of the best minds on PPPs in the country were interviewed and their depth and variety of knowledge on the subject matter is confirmed in the analysis of their interviews. This study was focused on municipalities in the Western Cape in order to keep the scope manageable for the purposes of the master’s requirements. This meant that only a small sample of municipalities could be interviewed, and it was clear that their knowledge about PPPs and perceptions towards it varied. The outcomes of the study might not differ greatly if more representatives from municipalities, and the DWS were to be interviewed. Limits to the depth of the outcomes leads to a lack of identification of real root causes. The nature of these interviews means that the opinions of the interviewees may be subjective and focus groups could have helped counter this, given more time and resources.

7.4 Suggestions for future research

Future research should definitely include gathering data about unregistered PPPs in South Africa's water sector. There are many projects which classify as PPPs but were never registered. The major issues on this topic revolve around political will in government. Future studies could seek exploring solutions to this issue.

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APPENDIX A: INVITATION LETTER WITH CONSENT FORM

Gordon Institute of Business Science
University of Pretoria

INFORMED CONSENT LETTER

INTERVIEW REGARDING THE FACTORS LIMITING PUBLIC-PRIVATE PARTNERSHIPS IN THE AILING WATER SECTOR OF SOUTH AFRICA

Dear interviewee,

I am currently a student at the University of Pretoria's Gordon Institute of Business Science and completing my research in partial fulfilment of an MBA.

I am conducting research on Public-Private Partnerships (PPPs) in the South African water sector, and am trying to find out more about the factors that limit participation of industry to support national water infrastructure development, operations and maintenance.

Our interview is expected to last about an hour, and will help us understand how South Africa can better prepare to involve private partners to increase investment in water infrastructure. Your participation is voluntary and you can withdraw at any time without penalty.

You have the option for your identity to not be disclosed in the research report, if so, please indicate on the form below. In this case your name and that of your organisation will be omitted from the information conveyed in the report but note that this does not ensure confidentiality. If you have any concerns, please contact my supervisor or me. Our details are provided below.

Gerhard Viljoen (Researcher)
gerhard.viljoen@safwater.co.za
0823905717

Richard Meissner (Supervisor)
rmeissner@csir.co.za
0716776262

Signature of participant: _____

Date: _____

I would like my identity to be omitted from the report: Y / N

Signature of researcher: 

Date: _____

APPENDIX B: INTERVIEW GUIDE

Gordon Institute of Business Science
University of Pretoria

INTERVIEW/DISCUSSION GUIDE

Dear interviewee. Thank you for taking the time to meet with me to discuss the topic of "Factors limiting public-private partnerships in South Africa's water sector". You have been selected as you are regarded as being a relevant candidate to help uncover these factors.

The following questions will be used during our interview and you are requested to read through them briefly, a day or two before the meeting, in order to prepare you for a productive discussion. Note that the interview will be recorded for transcription and that you are to advise on whether you would like the interview to be handled as confidential.

1. Which funding models are most common in water infrastructure and services projects and operations in SA?
2. Are PPPs a sensible option to pursue funding for water infrastructure, operations and maintenance in SA's current economic climate?
3. Are there glaring risks in pursuing PPPs in the water sector in SA which stifles interest therein?
4. Why do you think we see so little PPPs registered with treasury in the water sector, despite the current water crisis and lack of spend on water infrastructure?
5. Do you regard the PPP guidelines and policies by SA treasury as adequate and implementable to support PPPs to the degree where it can be regarded as an enabler?
6. Do you think SA legislation around PPPs adequately addresses the risks that may prevent private parties from pursuing them in the water sector?
7. Do you think that political agendas exist that rely on lower water prices and public job security that may influence a reluctance to providing degrees of autonomy to private sector?
8. Do you know of water PPPs that have been implemented in SA which were never registered with treasury?
9. If so, what is your opinion on why they have not been willing to follow the guidelines and procedures by treasury?
10. Have you reason to believe that water service authorities have recently reconsidered public participation in supporting their efforts?
11. Do you think that the DWS's intention to attract more private participation in the water sector is communicated clearly to water service authorities and that they are objectively changing strategy in line with government's intents?

Thank you. I look forward to meeting you in person and discussing these matters in the light of supporting our water sector.

Gerhard Viljoen

APPENDIX C: ETHICAL CLEARANCE LETTER

Gordon Institute of Business Science
University of Pretoria

01 July 2019

Viljoen Gerhardus

Dear Gerhardus

Please be advised that your application for Ethical Clearance has been approved.

You are therefore allowed to continue collecting your data.

Please note that approval is granted based on the methodology and research instruments provided in the application. If there is any deviation change or addition to the research method or tools, a supplementary application for approval must be obtained

We wish you everything of the best for the rest of the project.

Kind Regards

GIBS MBA Research Ethical Clearance Committee

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University of Pretoria

APPENDIX D: COPYRIGHT DECLARATION FORM

Gordon Institute of Business Science
University of Pretoria

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UNIVERSITY OF PRETORIA
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Denkleiers • Leading Minds • Dikgopolo tša Dihlalefi

19.1 COPYRIGHT DECLARATION FORM

Student details			
Surname:	Viljoen	Initials:	G
Student number:	25013956		
Email:	gerhard.villion@gmail.com		
Phone:	0823905717		
Qualification details			
Degree:	MBA	Year completed:	2019
Title of research:	GIBS Factors limiting public-private partnerships in South Africa's water sector		
Supervisor:	Dr. Richard Meissner		
Supervisor email:	rmeissner@csir.co.za		

Access

A. My research is not confidential and may be made available in the GIBS Information Centre and on UPSpace.

I give permission to display my email address on the UPSpace website

Yes	X	No	

B.

	My research is confidential and may NOT be made available in the GIBS Information Centre nor on UPSpace.

Please indicate embargo period requested

Two years		Please attach a letter of motivation to substantiate your request. Without a letter embargo will not be granted.
Permanent		Permission from the Vice-Principal: Research and Postgraduate Studies at UP is required for permanent embargo. Please attach a copy permission letter. Without a letter permanent embargo will not be granted.

Copyright declaration

I hereby declare that I have not used unethical research practices nor gained material dishonesty in this electronic version of my research submitted. Where appropriate, written permission statement(s) were obtained from the owner(s) of third-party copyrighted matter included in my research, allowing distribution as specified below.

I hereby assign, transfer and make over to the University of Pretoria my rights of copyright in the submitted work to the extent that it has not already been affected in terms of the contract I entered into at registration. I understand that all rights with regard to the intellectual property of my research, vest in the University who has the right to reproduce, distribute and/or publish the work in any manner it may deem fit.

.

Signature:	Date: 11/11/2019
Supervisor signature:	Date: 11/11/2019

APPENDIX E: APPROVAL FORM - INFORMATION

G. APPROVALS

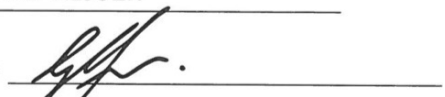
The applicant must please ensure that the supervisor has signed the form before submission.

RESEARCHER/APPLICANT:

24. I affirm that all relevant information has been provided and that all statements made are correct.

Student/ Researcher's Name in capital letters:

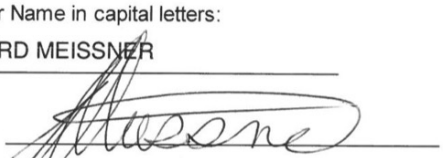
GERHARD VILJOEN

Signature: 

Date: 11/11/2019

Supervisor Name in capital letters:

RICHARD MEISSNER

Signature: 

Date: 11/11/2019

Note: GIBS shall do everything in its power to protect the personal information supplied herein, in accordance to its company privacy policies as well the Protection of Personal Information Act, 2013. Access to all of the above provided personal information is restricted, only employees who need the information to perform a specific job are granted access to this information.

APPENDIX F: LIST OF CODES USED IN ATLAS TI

Codes used for “Reasons for PPPs”:

1. Address environmental issues
2. Address public technical and administrative capacity
3. Benefit local economy, create jobs
4. Build on foundation of existing frameworks & support
5. Build on successful PPP examples in SA
6. Facilitate development of large-scale projects
7. Improve revenue by improving service delivery
8. Leverage existing funding mechanism
9. Reduce cost of water infrastructure and services
10. Solve for public budget constraints
11. Take hold of interest in SA PPPs
12. Take hold of opportunity to secure revenue for PPPs from industrial water users

Codes used for “Factors limiting PPPs”:

1. WSA- Lack of political will for PPPs
2. WSA-Payment risk
3. Gov-Lack of government support
4. Gov-MFMA & PPP frameworks onerous and lengthy
5. Gov-Lack of government influence
6. WSA-Incapable of managing PPPs
7. Ext-PPPs mostly suitable for larger projects
8. Gov-Unstable government & policies
9. Ext-Financial strength of local private firms
10. Ext-High transaction costs for PPPs
11. Ext-Macro economic challenges
12. Gov-Constitutional rights limits revenue
13. Gov-Political opposition to private sector involvement
14. WSA-Lack of knowledge & confidence in PPPs
15. WSA-Traditional procurement inertia
16. Ext-Complicated supply and reporting chain
17. Ext-Market competition (demand)

18. Ext-Water infrastructure & legislation complexity
19. WSA-Lack of long term planning
20. Ext-Opposition from the public
21. WSA-Unstable government
22. Ext-Industry incapable of managing PPPs
23. WSA-Scope change