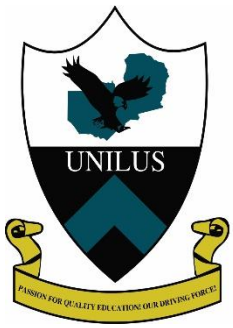

UNIVERSITY OF LUSAKA

SCHOOL OF POSTGRADUATE STUDIES

Viability of Public Private Partnership Procurement Method in Zambia Water Sector: A Case study of Lusaka Water Supply and Sanitation Company.

BY

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SUPERVISOR:

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Submitted to the school of postgraduate studies in partial fulfilment of the requirements for the award of the Degree of Master of Science in Project Management.

DECLARATION

I **NYUNDU NGOMBO** do hereby declare that this work is my own, and that all the findings and work of others used in this report has been duly acknowledged and declared.

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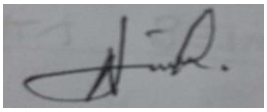
Signature : 

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Signature : 

Date : 20.01.25

DEDICATION

To my late parents Betty Mwila and Yembe Ngombo.

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It is with profound gratitude, honor, love and respect that I put up words of this particular section. They say, it takes a community to raise a child, I am excited to mention that I have lived up to this. it is thus worth mentioning here that I have been privileged to have a great community epitomizing my academic journey at university of Lusaka. For the moral, financial and academic support I remain grateful and forever indebted. First and foremost, I am exceedingly grateful to my supervisor, Dr Ethel Tembo-Mwanaumo for her guidance, corrections, and invaluable knowledge. I considered myself lucky to have her as my supervisor. Her dedication, understanding and encouragement have assisted me to accomplish my dissertation very successfully and to overcome many obstacles with less difficulties.

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Lastly, yet most important I am extremely thankful to God almighty for the gift of life and to my family for the invaluable moral support.

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ACRONYMS

ADB	Asian Development Bank
AfDB	Africa Development Bank
BLT	Build-lease-and-transfer
BOOT	Build-own-operate-and-transfer scheme
BOT	Build, Operate and Transfer
BT	Build and Transfer
BTO	Build-transfer-and operate
CFI	Contractor Finance Initiatives
EIB	European Investment Bank
EIB	European Investment for Contractors.
IMF	International Monetary Funds
IT	Institutional Theory
IWHT	Institute for Work & Health Toronto.
LWSS	Lusaka Water Supply and Sanitation
OSS	On-Site Sanitation
PAT	Principal Agent Theory
PPI	Private Power Investment
PPP	Public Private Partnership
PRMC	Policy Monitoring and Research Centre
ROT	Rehabilitate-operate and transfer
SPV	Special Purpose vehicle
SSA	Sub Sahara Africa

TCE	Transactional Cost Economics
UNCTAD	United Nation Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
ZDA	Zambia Development Agency
ZIRPA	Zambia Institute for Policy Analysis and Research

ABSTRACT

Governments world over increasingly recognize the provision of safe water and sanitation as one of the major development challenges of the time. This challenge is even more severe in developing economies such as Zambia, a low-income country characterized by unprecedented urbanization. In light of the adventures to make available social needs, Public-Private Partnerships (PPP) have gained popularity and have become a preferred procurement tool for governments. Despite the procurement method being prevalent and of acknowledged importance, research in its applicability, acceptance and suitability has been on going. This academic undertaking took a qualitative approach and used semi-structured interviews which served as the data collection tool. The interviewees consisted of experienced experts from the public and private sector sampled purposively. The analysis of the field data diagnosed the institutional maturity to handle PPPs and identified the strengths as well as inadequacies in the PPP in the sector of interest. Thus, the first two objectives sort to assess the weakness and strengths of PPP. Also, the study assessed some perceived strengths which included among others, enhanced Innovation and technology transfer, improved efficiency and effectiveness, better risk management and increased private sector investment. The study found that lack technical experts or a better mix of expertise in implementing Agencies, corruption and underdeveloped institutions are major challenges hampering the implementation processes in the water sector. It was also observed that, some of the utility infrastructure deteriorated shortly after installation. This to some extent was attributed to poor design and maintenance practices, and to some extent, confirms opinions by some schools of thought that, Private sector expend less significance to quality as compared to profit maximization. The study recommends that clearer and more transparent guidelines and policy framework for PPPs be formulated and that there is need for more community engagement. Future studies may be conducted to determine effective implementation of PPP programs in the Zambian water sector.

Key words: ***viability, procurement method, capacity building, sustainability, stakeholder management.***

CHAPTER ONE
INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Introduction

Access to clean water and lack of adequate sanitation in Zambia significantly impacts human development; hence it remains a critical challenge in Zambia, with over 60% of the population lacking access to improved sanitation facilities, (World Bank, 2020). According to World Bank (2020) by the year 2012, Zambia was losing about 1.3% of GDP due to poor sanitation, primarily due to illness and premature death from the public health impacts of poor water, sanitation, and hygiene.

This chapter introduces the study by providing insights prompting the study. Thus, the chapter provides the preface of the topic and elaborates the statement of the problem necessitating the study. The objectives, significance, the scope of the study and definition of terms used in the study have also been discussed.

1.2 Background of the Study.

The economic burden of inadequate water supply and sanitation falls heavily on the poor who are likely to have inadequate sanitation facilities (WHO, 2020). To this effect, the Government of Zambia has recognized the importance of addressing this challenge using alternative procurement methods, including Public Private Partnerships (PPPs) (ZDA, 2014). The Lusaka Water Supply and Sanitation Project, launched in 2015, is one such initiative.

Figure 1.1: Floods as a results of improper drainage system or clogged drainages. Source: (LWSSC website).

The government had since secured the assistance of the World Bank working in co-operation with the African Development Bank (AfDB), Kreditanstalt fur Wiederaufbau (KfW), and European Investment Bank (EIB) to realize LWSC's efforts in achieving the Lusaka Sanitation Program, which took a comprehensive approach to Lusaka's sanitation challenge (World Bank, 2020). The program sought to implement investments consistent with the Lusaka Sanitation Master Plan and develop the LWSC's capacity to manage all aspects of sanitation, from conventional sewerage, to condominial, to on-site systems and fecal sludge management (World Bank 2020). However, despite the potential benefits of PPPs, there are limited understanding of its viability in Zambia's context, let alone water sector.

The success of PPPs depends on various factors, including: institutional capacity, regulatory frameworks, and stakeholder engagement among others. The Lusaka Water Supply and Sanitation Project presents an opportunity to examine the effectiveness of PPP financing method in addressing Zambia's water and sanitation challenges. This study in particular aims to provide a comprehensive understanding of the viability in terms of social, institutional capacity and governance structure of PPP financing models in Zambia's water and sanitation sector, informing policy decisions and future initiatives.

The application of Public Private Partnership model as a means of financing infrastructure development has become a normal practice observed in many governments, for developed and developing countries alike. The principal policy imperative of any government seeking PPP is the increasing emphasis on improving the efficiency and quality of public services and the most important driver for PPP development is the increasing recognition of the role that the private sector can play in achieving these objectives of improved quantity and quality of public services (Ojebode, 2016). PPP offers the opportunity to capture private sector efficiencies and introduce appropriate risk sharing mechanisms between the public and private sector (EIB, 2004).

Zulu and Muleya (2019) asserts that, PPP's rely on the expectation that the private sector is better suited to provide an infrastructure or public service through: Higher operating efficiency, better service quality/reliability, cost-efficient use of public money on other public services, better value for money, transfer of selected risks to the private sector and transparency. World Bank (2023) says that, PPP enable governments to procure and deliver public infrastructure/services and leverage the resources and expertise of the private sector – through risk-sharing arrangements.

Due to the above expectations the popularity of PPPs has grown over the past few decades. ZDA report (ZDA, 2014); note that, the government has increasingly welcomed the idea to encourage private financiers and investors to take care of some public provisions. Therefore, to get more quality infrastructure services to more people, PPP are commonly used in Zambia. Abadie and Howcroft (2004), states, there is evidence that, if appropriate and properly procured, PPPs can provide significant improvements over the results that can be achieved from traditional forms of procurement. However, there should be no presumption that PPPs are a panacea or that they are appropriate in all circumstances (Abadie and Howcroft, 2004).

Therefore, it is as well worth noting, Zambia's PPP experience is not free of challenges. Capacity constraints, Regulatory framework limitations, Funding and financing difficulties and Community engagement and social impact concerns are common setbacks that have eluded the minds of implementers of these public projects (Devex, 2008). However, despite these challenges, Zambia continues to explore PPPs as a means to bridge the

infrastructure gap, promote economic growth, and improve public services. According to PMRC report (2023), PPPs in Zambia have undoubtedly been a driving force behind the country's infrastructure development, but like any ambitious endeavor, they have come with their fair share of challenges and valuable lessons. The report further states that, "These experiences provide valuable insights into the intricacies of PPP implementation and underscore the significance of crafting well-rounded legislative frameworks".

This research analyzes the implementation process, the prospects and constraints faced with regards to Lusaka Water Supply and Sanitation Company. The Lusaka Water Supply and Sanitation Project is multimillion dollar project which took a Concession Agreement type of Public-Private Partnership (PPP). This type of PPP allows a private company to operate and manage a public asset, in this case, the water supply and sanitation system, for a specified period. The private company is responsible for the maintenance, upgrades, and expansion of the system, while the public sector retains ownership and regulatory oversight. This partnership model enables the private sector to bring in expertise, financing, and efficiency, while ensuring public interests are protected. Arguably, when properly designed and executed, PPPs can create social value generating efficiency gains and offering innovation in project design, incorporation of expertise, and accessing new sources of capital. Conversely, poorly designed and executed PPPs can fail to deliver on these promises (World Bank, 2023)

With reports citing low tariff levels with potential to hinder or prolong time for the private sector recouping the cost in some completed projects in various sectors amid proclaimed benefits, this study sought to examine the viability of PPP model at LWSC.

1.3 Statement of the problem

In pursuit of economic development and infrastructure improvement, developing countries often turn to innovative financing models (PMRC, 2023). According to ZIPAR report (2017) PPP model stand out as a potential solution, fostering collaboration between the public and private sectors. As such, Zambia, like many other developing nations, has expressed interest in utilizing this model. The model has a widely acknowledged importance and relevance in closing the gap. Accordingly, Krishnaswamy and Stuggins, (2001) state that, the importance of using PPP models lies in the ability to leverage private

sector expertise and resources to address infrastructure needs efficiently, stimulate economic development, and enhance the overall quality and sustainability of public services. However, the inherent complexities and contextual challenges raise concerns about the viability of PPPs in the Zambian context. Despite significant strides made to improve the outlook of PPP such as the enactment of the PPP act no. 14 of 2009, the (ZDA, 2014) highlights challenges which includes among others, Lack of capacity in Government to undertake PPP Projects, and lack of clear guidelines and regulations to guide contracting authorities and the private sector in the implementation of PPPs (ZDA, 2014).

A study by World Bank (2008), entitled “Zambia Growth, Infrastructure, and investments Role for Public Private Partnership”, revealed that, in the water and electricity sector, the situation was bleak”. According to the study, this was evidenced by the worsening of the financial performance of the utilities. It continued to assert that, “water and sanitation services in rural areas covered recurrent costs through tariff revenues, while capital costs are covered by external grants and concessional loans”. As a result of this, it was observed further that, public utility companies operate in chronic deficit, affecting the quality of the services provided and their long-term sustainability. Against the foregoing backdrop, the public sector continuously sought for partnership with the private sector to develop Lusaka’s water and sanitation infrastructure.

The number of failed or delayed projects amid successful ones in the water and sanitation sector prompts critical questions with regards to its suitability. The world bank mission as stakeholders has conducted and published progress evaluation reports since 2017 in line with implementation processes. However, there is limited contextual knowledge on the applicability of the procurement method in the sector of interest. It is therefore sort to be necessary to explore the contextual strengths, challenges and generally factors affecting the PPP programs in the water sector. Hence, this study sought to examine the capability of LWSC in terms of institutional capability to fully leverage on this model to close the gap in the water and sanitation sector amid severe challenges embedding the implementation process as recognized above. To achieve this, the researcher utilized qualitative empirical approach to gain an in depth understanding of the application of the PPP

financing model approach with a view of proposing ways of achieving more success in the implementation of PPP projects especially in the water and sanitation sector.

1.4 Research Objectives:

1.4.1. General objective:

Examine the viability of PPP financing model at LWSC in addressing the infrastructural need.

1.4.2. Specific objectives:

1. Assess the strengths of PPP financing model in infrastructure development at LWSC.
2. Assess the weaknesses of PPP financing models in infrastructure development at LWSC.
3. Determine the factors affecting the implementation of PPP projects at LWSC.

1.5 Research Questions:

1. What are the strengths of PPP procurement method in infrastructure projects at LWSC?
2. What are the weaknesses of PPP procurement method in infrastructure projects at LWSC?
3. What factors influence the utilization of PPP projects at LWSC?

1.6. Significance of the study.

The study provides an assessment of the project's impact on water quality and accessibility, analysis of the project's social, environmental, governance and institutional capacity and offer recommendations for improving the project's efficiency and effectiveness as valuable insights for project team to deliver within the specification. This study is useful for policy makers and practitioners in ensuring that future projects are designed and implemented effectively. The study is also important for the community in general as the outcome of successful implementation of water and sanitation projects directly impacts society who would access clean water.

The study's findings contribute to the development of PPP frameworks that attract investment, create jobs, and stimulate economic growth. Additionally, it will contribute to

the body of knowledge on PPPs in the water sector, addressing the gap in existing literature on the viability of PPPs in developing countries like Zambia and more specifically in water sector for further studies. This way, this study highlights lessons learnt from the Lusaka Water Supply and Sanitation Project, as a benchmark for other similar PPP projects.

1.7. Scope of the study.

Primarily the study was carried out in Zambia's capital city – Lusaka at LWSC. It examined the specific contextual factors, policies, and water supply and sanitation needs relevant to Zambia's development landscape, its strength and weaknesses within a water sector context. In this regard, the study focused on environmental, social and institutional and governance structures as factors influencing implementation PPP projects at LWSC. This study did not include financial viability as its effects may vary depending the type of the project, which thus further limit the generizability of the study.

1.8. Definition of terms.

Financing model refers to a structured approach to securing and managing funds for infrastructure projects or public services, outlining the roles and responsibilities of various stakeholders (EIB, 2020).

Concession is a contractual agreement granting a private entity the right to operate and manage a public asset or service for a specified period, typically 15-30 years, in exchange for investment and operational responsibilities, (Spackman, 2022).

Private sector refers entities owned and operated by individuals or companies, driven by profit motives (World Bank 2021).

Public sector Government-owned and operated entities, responsible for providing public goods and services (World Bank, 2021).

Risk allocation is the process of assigning and managing risks between public and private sector partners in a PPP project, ensuring each party bears risks they are best equipped to manage (World Bank, 2021).

Regulatory frameworks in the context of PPP refer to Legislations, policies, and guidelines governing PPP projects, ensuring: Transparency, Accountability, Fair competition and Protection of public interest, (Spackman, 2022).

PPP Council is a high-level advisory body providing strategic guidance on PPP policy, project prioritization, and stakeholder engagement, typically comprising, (Fajar, 2009).

PPP Tech Committee is a specialized team responsible for: Project evaluation, Technical assessment, Risk analysis and Contract negotiation, (ZDA, 2014).

Special Purpose Vehicle (SPV) is a separate legal entity from parent company created to serve a specific, narrow purpose or project, often with its own assets, liabilities, and risk profile.

1.9 Chapter Summary

The chapter presented the background of the viability of PPP procurement method, specifically in the water sector. It also highlighted the problem statement, general and specific objectives, research questions which were formulated in line with the specific objectives of the study. The significance, and the scope of the study were documented. Finally, the definitions of key terms used in the study were elaborated.

CHAPTER 2
LITERATURE REVIEW.

1.1 Introduction

This chapter provides an overview of the current state of knowledge, identifies gaps and inconsistencies, and sets the stage for further research. This way, it establishes the context for the research, informs the research question, and provides a framework for the study. Hence, the empirical studies provide valuable insights into the implementation, performance, and challenges of PPP projects in Zambia, then narrows down to the focus of the study being the LWSC.

2.2. Empirical Review.

2.2.1. The concept of Public Private Partnership.

Although there is no standard definition of the term Public-Private Partnership (PPP), it can simply be view as a collaborative agreement between a government agency (public sector) and a private sector company to deliver a project or service (Amekudzi et-al, 2008). The concept takes several permutations into consideration from building, operation, management to transfer of ownership of the project. According to Amekudzi et-al, (2008), private partner involvement arrangements in PPPs differ between each other depending on the level of responsibilities and risks transferred to the private partner.

The term PPP covers a range of different structures which can be used to deliver a project or a service. Depending on the country and the politics of the time, the term can cover a spectrum from relatively short term management contracts (with little or no capital expenditure); through concession contracts (which may encompass the design and build of substantial capital assets along with the provision of a range of services and the financing of the entire construction and operation); to joint ventures and partial privatizations where there is a sharing of ownership between the public and private sectors (Abadie and Howcroft, 2004).

The PPP includes the following activities: designing, building, financing, maintaining, operating, and owning the facilities (Ismail and Harris, (2014). Therefore, the concept is a spectrum of possible relationships built on the basis of these activities between public

and private actors for the co-operative provision of traditionally public-domain services. Therefore, there are several PPP arrangements that can be adopted, depending on the nature of the infrastructural project in question. These include: Build-and-Transfer (BT), build-operate-and-transfer (BOT), build-own-operate-and-transfer (BOOT), build-lease-and-transfer (BLT), build-transfer-and-operate (BTO), lease-develop-and-operate (LDO), as well as rehabilitate-operate-and-transfer (ROT), (Grimsey, 2004).

With a public management perspective Linder and Rosenau, (Linder and Rosenau, 2000) defined public private partnership from as “the formation of cooperative relationships between government, profit making firms, and non-profit private organizations to fulfills a policy function”. The use of collaboration leads to a blending of public sector and private sector resources. These arrangements permit for the mutual leveraging of resources and the blending of public and private attributes in ways that might not be possible in more conventional structural arrangements (Peter and Pierre, 1998) or permit each side to use resources that would not be at its disposal if it were to remain on its own (Peters and Pierre, 1998).

Hemming (2006) states that in addition to private implementation and financing of public investment, PPPs have two other key characteristics: emphasis on service provision as well as investment by the private sector; and identified risk is transferred from the government to the private sector. PPPs are involved in a wide range of social and economic infrastructure projects, but they are primarily used to build and operate hospitals, prisons, schools, selected roads, bridges and tunnels, rail networks, air traffic control systems, and sanitation and water plants, (Lyambai, 2018).

In order to achieve this, private sector consortium forms a special company called a "special purpose vehicle" (SPV) to develop, build, maintain and operate the asset for the contracted period, (Ikpefan, 2004). In cases where the Government has invested in the Project, it is allotted an equity share in the SPV (Chilala, 2019). The consortium is usually made up of a turnkey contractor, a maintenance company and equity investor(s). It is the SPV that signs the contract with the Government and with subcontractors to build the facility and then maintain it.

Abadie and Howcroft, (2004) observed that, by that year, PPPs had become a reality in Europe and many other Member States and are an identifiable 'market' in Europe. However, they noted that PPPs are complex and difficult to procure. While there is evidence that if done well PPPs can provide significant benefits to the public sector and taxpayers, if the project is poorly procured then, given the generally long-term nature of such contracts, the public sector will suffer the consequences for many years to come, (Abadie and Howcroft, 2004).

2.2.2 PPP Global Trends

According to the World Bank (2016), as of 2016, the previous 10 years had seen a rise of PPPs in developing countries, with private sector investments in developing countries contributing between 15 and 20 percent of total investment in infrastructure. World Bank (2016), continue to assert that, looking more specifically at PPPs, after experiencing a slowdown from 1997 to 2004 as a result of the Asian financial crisis, PPPs are back on the rise in the aftermath of the 2008 global financial crisis. PPP investments peaked in 1997 at $60 billion, and then accounted for only $30 billion per year on average during financial year 2002 - 2006 (FY02–06); they subsequently increased to $79 billion per year on average during FY07–11.

A study by Spackman, (2022) asserted that, PPPs had spread across the globe and it was reported that, about 134 developing countries had implemented new PPP projects in infrastructure alone between 2002 and 2011. World Bank (2019) states that, although initially restricted to infrastructure, PPPs have increasingly moved into the provision of "social infrastructure," such as schools, hospitals, and health services. When comparing countries, much of the growth of PPPs has been captured by middle-income countries (MICs) and in two regions, Latin America and the Caribbean and East Asia and Pacific (World Bank, 2019). However, this global trend has not been without challenges.

In their 2004 evaluation of PPP performance in EU and member states (Abadie and Howcroft, 2004), commented that, there is generally a poor level of understanding of PPPs, at both the EU and Member States level. As PPPs are a new means of procurement, public sector officials do not have experience of implementing such projects, (Abadie and Howcroft, 2004); they therefore need to develop new skills and

capabilities in order to undertake PPP procurements effectively. This requires an investment on behalf of the public sector. There is a need for better sharing of knowledge and experience between different parts of the public sector. This will help to ensure efficiency in the development of PPP approaches and processes and consistency in procurement, (Abadie and Howcroft, 2004).

According to Gobikas and Čingienė, (2021), “The absence of a strong institutional environment leads to the failure of PPP programs”. Coinciding with the assertion, a survey was conducted in Malasiya on PPP projects. According to the findings of this named survey by Ismail and Harris (2014), weak institutional environments was found to be among the most crucial factor that slows down the implementation of PPP projects. Non-effective supervisory frameworks and weak regulatory policies reduce project quality and increase PPP costs.

Suhaiza et al. (2014) conducted a research to scrutinize the challenges in implementing PPP by examining the factors that hinder the successful adoption of PPP in Malaysia. According to her findings, ‘lack of Government guidelines and procedures on PPP’, was perceived as the most important factor that impedes the implementation of a project via PPP out of the top five. The remaining four factors were perceived as important hindrance factors in respect of adopting PPP. The factors included: lengthy delays in negotiation, higher charge to direct users, lengthy delays because of political debate and confusion over Government objectives and evaluation criteria. Suhaiza et al. (2014) listed and ranked these factors in the table below.

Table 2.1: Perceptions of Survey Interviewees Concerning the Relative Importance of Constraints in adopting PPP Projects.

No.	Constraints	Public		Private		Overall	
		Mean	rank	Mean	Rank	mean	Rank
1	Lack of government guidelines and procedures on PPP	1.4	1	1.48	1	1.45	1
2	Lengthy delays in negotiations	1.52	2	1.77	2	1.66	2
3	Higher charges to the direct users	2.17	3	2.13	3	2.15	3
4	Lengthy delays because of political debate.	2.19	4	2.15	4	2.16	4
5	Confusion over government objectives and evaluation criteria	2.3	5	2.19	5	2.25	5
6	High risk relying on private sector	2.83	1	2.40	6	2.61	6
7	High project costs	2.40	6	2.84	10	2.62	7
8	A great deal of management time spent building	2.71	8	2.64	7		8
9	Transaction high participation cost	2.77	9	2.79	9	2.67	9
10	Lack of experience and appropriate skills	2.63	7	2.93	11	2.80	10
11	Very few schemes have actually reached the contract stage (aborted before contract end)	3.0	1	2.73	8	2.84	11

12	Excessive restriction on participation	2.87	1	2.94	12	2.91	12
13	Reduce the project accountability	3.06	1	3.11	13	3.09	13
14	Less employment positions	3.87	1	4.14	14	4.02	14

Source: Suhaiza et al (2014): Challenges in implementing Public Private Partnership (PPP) in Malaysia.

2.2.3 PPP programs in Africa

In Africa Public private partnership has long been advocated and analyzed as a potential organizational solution to pressing societal problems that call for the comparative advantages of government, business, and civil society (Brinkerhoff and Brinkerhoff, 2011). A study entitled "Public-Private Partnership (PPP) as a Mechanism for the Provision of Affordable Housing Delivery in Nigeria" by Akinniyi (Akinniyi, 2016) highlighted Nigeria's mixed experience in the development and execution of PPP projects, and how it has recently taken concerted action to improve aspects of the operating environment or to boost institutional capacity. According to his findings (Akinniyi, 2016) Nigeria has undergone significant regulatory reform, with the ratification of new PPP acts, while at the same time developing institutional frameworks from the ground up. However, the study also noted that, regulatory frameworks and institutional arrangements in Nigeria are not yet robust. There is however, a good level of political will towards deploying PPP as a means of boosting much needed affordable housing investment (Ohiani, 2014).

Although Africa's population size is growing at an increasingly higher rate than any other part of the world (OECD, 2015:4), its infrastructure remains the most stagnant, the least developed and inadequate to meet the citizens' increasing needs. The annual infrastructure gap for Sub-Saharan Africa alone is as high as US$48 billion, a signal that there are a lot of inefficiencies in the processes of planning and decision-making, and weaknesses in the actual infrastructure investment strategy implementation (OECD, 2015). According to a study by Thaddeo Mugarura (Mugarura, 2019), it was observed

that, unless African governments change from their so “seemingly fixed and slow” to “real steady and accelerated progress” practices in the planning, financing, building, maintenance and operating of road infrastructure facilities, the current transport challenges will undoubtedly remain far from extinction. Based on the above analysis, it can be confidently suggested that the African road infrastructure development needs can best be met through PPP arrangements.

2.2.4 Application of PPP programs in Zambia.

Despite a relatively late start, Zambia has made efforts to leveraging PPPs in infrastructure development since 1997 when the country made its first major PPI commitment, (World Bank, 2008). According to World Bank (2008), “a key priority in attracting private investment is to devise a regulatory regime, which facilitates the move to cost-reflective tariffs and hence permits operators to attain revenue adequacy, which is the revenue level necessary to be able to attract financing in order to maintain, replace, modernize, and, where appropriate, expand their facilities and service”.

According to a study by Nadir (2023), “Scaling up and sustaining a successful pipeline of PPP transactions over time, requires attention to critical building blocks across the project cycle. These include: i) a robust policy, institutional & regulatory framework, including on assessment and management of fiscal risks and contingent liabilities; ii) an extended pipeline of bankable projects, identified through clear processes prioritize and screen projects for PPP suitability; iii) solid project preparation and structuring capacity (considering commercial viability and risk allocation government support and affordability); and iv) strong transaction support and contract management capacity.

The expectation when it comes to encouraging private sector participation is that, well-designed PPP frameworks would facilitate the mobilization of infrastructure financing and the optimal allocation of risks, and ensure sound public investment management. In support of these expectations, according to EIC (2006) as cited by Public Private Infrastructure Advisory Facility (PPIAF, 2009, p:23)“Since Portugal initiated a comprehensive program of road infrastructures in 1995, the country experienced a booming PPP market in this sector which attracted both national and international sponsors, financiers and consultants.

With this understanding, Zambia has made efforts to enhancing the PPP profile by enacting legal and intuitional frameworks. According to chilala (2019), the strategic objective of these frameworks is to facilitate the provision of infrastructure and effective delivery of social services using PPP arrangements in order to ensure that economic growth was attained through enhanced productivity, improved competitiveness and wealth creation.

According to the World Bank, (2021) paper, in the quest to leverage PPP model and ensure its successfulness the following legal frameworks have been put in place in Zambia which include: The 2009 PPP Act of 2009 and subsequent amendment act of 2018 and amendment act of 2021; The Public Procurement Act, 2020. Other applicable sectoral laws include: The Energy Regulation Act, 2019; The Electricity Act, 2019; The Railways Act, 2002; The Zambia Development Agency (ZDA) Act No. 11 of 2006.

In the same vein the country has established the following units to ensure effective utilization of PPPs:

i. PPP Department under the control of the Ministry responsible for Finance
ii. PPP Council
iii. PPP Tech Committee
iv. ZDA.

Table 2.1. Provide an overview of practical examples and performance of PPP projects implemented so far in Zambia.

Table 2.2: Practical examples of PPP in Zambia.

Name of project	SECTOR	Year	Amount ($ millions)	Status.
University Teaching Hospital (UTH) Expansion.	HEALTH	2015-2020	100	Delayed and facing financial challenges.

Kafue Gorge Lower Power Station (2015-2020): A PPP project to develop a 750 MW hydroelectric power station.	ENERGY	2015-2020	2,000	Successful
Lusaka Water Supply and Sanitation Project: A PPP project to improve water supply and sanitation services.	WATER	2010-2015	345	Successful
Kenneth Kaunda International Airport Expansion: A PPP project to upgrade airport infrastructure.	TRANSPORT	2015-2020	360	Successful
Zambia Railways Network Rehabilitation: A PPP project to rehabilitate railway infrastructure.	TRANSPORT	2013-2018	120	Delayed
Maamba Coal-Fired Power Plant : A PPP project to develop a 300 MW coal-fired power plant.	ENERGY	2014-2016	800	Successful
Itezhi-Tezhi Hydroelectric Power Station : A PPP project to develop a 120 MW hydroelectric power station.	ENERGY	2016-2022	250	Successful

Zambia-Tanzania Railway Line Rehabilitation: A PPP project to rehabilitate railway infrastructure.	TRANSPORT	2013-2018	100	Unsuccessful
Lusaka Water Supply and Sanitation Project Phase II: A PPP project to improve water supply and sanitation services.	WATER	2015-2020	150	Completed / under implementation.
Kitwe Water Supply and Sanitation Project: A PPP project to improve water supply and sanitation services.	WATER	2018-2023	50	Delayed
Kafue Bulk Water Supply Project	WATER	2002-2007	60	Successful.
Levy Mwanawasa General Hospital PPP project to develop a 500-bed hospital.	HEALTH	2010-2015	50	Successful
University Teaching Hospital (UTH) Expansion: A PPP project to upgrade hospital infrastructure.	HEALTH	2015-2020	100	Delayed / unsuccessful
University of Zambia (UNZA) Infrastructure Development: A PPP project to develop university infrastructure.	EDUCATION	2015-2020	50	Delayed

Zambia Institute of Technology (ZIT) Infrastructure Development: A PPP project to develop institute infrastructure.	EDUCATION	2018-2023	20	Under implementation / delayed.
MpulunguHarbour Corporation Concession	TRANSPORT	2000		Cancelled in 2010

Source: ZDA, (2014); World Bank, (2021)

2.2.5. Factors affecting the implementation of PPP projects in Zambia.

The ZDA report (2014), indicated an improvement in the uptake of PPP model after the enactment of the PPP Act of 2009. However, despite this perceived improvement associated with the PPP, some studies conducted after these regulatory frameworks still noted the level of uptake as lower than expected and in some case poor performance of this model. A study by Mweemba (2019), indicated that there is still low uptake of this particular model in Zambia. This has prompted studies that sought to determine factors affecting implementation of PPP projects as this sub section is set to discuss.

In line with the forgoing, a study by Nachengwa et al (2019), indicates the Non-financial viability due to poor traffic volume as a challenge that leads most private sector participant to drag their feet when considering entering such an agreement with the public. According to the study, interviewees in this study who represented about 75%, raised as a major concern, the ability of the concessionaire to recoup costs given the volume of traffic, which was argued to be too low for profitable levels for most of the roads in Zambia.

According to UNECA (2023), the country is facing a deep economic crisis and budgetary constraints that do not provide a positive short-term outlook for the development of government-funded PPPs". According to the same assessment, one of the main issues undermining the business environment in Zambia, which is currently not conducive to the development of new PPPs, is the lack of expertise in government agencies, which leads to delays in decision-making, problems in project preparation, and difficulties in conducting feasibility studies and dealing with unsolicited proposals.

A study "Assessment of Public-Private Partnerships in Zambia: A Case Study Approach" by Banda, et al. (2018), evaluates the implementation of PPP projects in Zambia using case studies. It examined factors influencing the success or failure of PPPs, such as stakeholder engagement, risk allocation, and financial viability. Some of the major challenges noted in this study includes: Lack of government guidelines and procedures on PPP, lengthy delays in negotiation, lengthy delays because of political debate, and lack of experience and appropriate skills.

A study was carried out by Raivy Chilala entited “Challenges in Implementing Public Private Partnership (PPP) Projects in the Road Sector in Zambia” according to this study there were confirmed prevalence of implementation challenges in the road sector in Zambia, among others topping the list was: Non-financial viability of the concessions due to low traffic volume, (Chilala, 2019). In as much as this was done in the road development sector, it is of paramount importance to this study as it helps the researcher appreciate Zambia’s PPP experience. The table below shows challenges according to Chilala’s study.

Table 2.3: Description of PPP Challenges

Description of Challenge	**Responses**		Percent of cases
	N	Percent	
Lack of Funds and Treasury Approval	9	4.9	26.6
Lack of Policy Direction from the Highest Government Level	12	6.5	35.3
Change in Priority by Government	6	3..3	17.6
Lack of Interest by the Private Sector to Implement PPP Projects	12	6.5	35.3
Non Availability of Long Term Financing	17	9.2	50.0
Biased Procurement Guidelines towards Traditional Methods	3	1.6	8.8
Inconsistent and Unclear Policy directions on PPP	21	11.4	61.8

Inadequate Regulatory Framework	3	1.6	8.8
Low Political Commitment	9	4.9	26.5
Lack of Adherence to the Regulatory Framework by Road Authorities	6	3.3	17.6
Lack of Capacity	22	12.0	64.7
Lack of Resources within the PPP Unit to Promote PPPs	8	4.3	23.5
Inadequate understanding of the Regulator role	7	3.8	20.6
Low Interest from the Private Sector	11	6.0	32.4
Non Viability due to poor Traffic Volume	24	13.0	70.6
PPP Projects take too long to materialize	14	7.6	41.2
Total	184	100	

Source: Chilala (2019)

2.2.6 Lusaka water supply and sanitation PPP program.

LWSC is an institution responsible for water supply and sanitation in Lusaka Province. With the mandate to provide water and sanitation services to a rapidly growing population of over 2.2 million urban residents of Lusaka Province, the utility company faces among others, capacity challenges (WHO, 2016). LWSC was formed in 1988 as a Private Limited Liability Company owned by the municipal councils of Lusaka (60%), Kafue (20%), Chongwe (10%) and Luangwa (10%) LWSC has 86,000 connections serving 1.7 million people (World Bank, 2017).

Figure 2.1: maintained water generating plant. Source: (LWSSC2025)

To level up to its mandate, LWSC has made significant improvements in the financial viability of the company, and in strengthening the institution for future investments (WHO, 2018). The World Health Organisation report however mentions that LWSC still faces significant challenges, such as high non-revenue water (45 percent compared to a desired level of less than 25%) and inefficient staffing (Staff Cost in relation to Billing and Collection). Further, the report states that LWSC is at 50% as compared to benchmark of 40%). In this regards, the utility company has sought support of private sector in order to improve delivery of its services through various projects.

The Millennium Challenge Cooperation's (MCC) Zambia Compact (2013-2018) is a $332 million investment that funded the $293 million Lusaka Water Supply, Sanitation, and Drainage (LWSSD) Project to rehabilitate and extend infrastructure and strengthen the institutional capacity of Lusaka's municipal government responsible for drainage and the local water and sanitation utility. According to MCC, (2023) report, these investments were anticipated to swell access to, and improve the reliability of, water supply and sanitation, and improve drainage services in select urban and peri-urban areas of the city of Lusaka in order to decrease the incidence of water-borne and water-related diseases, generate time savings for households and businesses and reduce non-revenue water in the water supply network.

Figure 2.2: flood areas due to floods in the CBD of lusaka. Source: (field survey, 2025)

However, final performance and impact evaluation revealed that, key outcomes of technical assistance to the water utility did not occur. According to MCC (MCC, 2023) final performance evaluation report the evaluators observed that, despite the asset management technical assistance, many elements of the infrastructure were already starting to deteriorate due to lack of preventative maintenance. Another key finding showed that, as of the end of 2022, the utility had connected just less than half the targeted 27,000 new customers (MCC, 2023).

It was latter observed that the Millennium Challenge Corporation (MCC) grant focused more on water supply and drainage with little investment in sanitation (World Bank, 2017), adding that, the increased supply of water without corresponding improvements in sanitation created an additional public health risk. Due to this reason, LWSC strong-willed to scale-up its labors in increasing access to improved sanitation. The World Bank in cooperation with KfW, EIB, and AfDB – sought an implementation of the “Lusaka Sanitation Program”, with a total investment of about $282 million. The (2015-2020) “Lusaka Sanitation Project”, US$50 million was designed specifically to focus on increasing access to sustainable sanitation services for the poor and most vulnerable.

An initial (2017) overall implementation progress rating by the World Bank mission was maintained at moderately satisfactory by 2017 (World Bank, 2017). According to the report by the World Bank (2020) it state that, although there has been some progress

since the last formal mission in June 2016 (especially the signing of the first works contracts under the sewerage component), the mission concluded that the progress registered since then does not justify an increase in the rating, given the persistent delays on both the On-Site Sanitation (OSS) and institutional strengthening components. The general rating was downgraded to moderately satisfactory.

2.2.7 Strengths of PPP Procurement Method.

As aforementioned above from Zulu and Muleya (2019) point of view, PPP's rely on the expectation that the private sector is better suited to provide an infrastructure development or public service more effectively. World Bank (2021) equally eludes that, "a key advantage of having the private sector provide public services is that it allows public administrators to concentrate on planning, policy and regulation. The private sector, in turn, is empowered to do what it does best, and in particular improve the efficiency and quality of service. Thus, PPP model comes with several strengths which include the following:

Firstly, PPP promotes project risk sharing between the public and private sectors, enabling more effective management of project risks (ADB, 2021). The shifting of some of the project risks to private partners is one of the key incentives generated by PPPs and directly results in a better control by the public sector of the overall project cost, delivery time frame and quality of outputs, (Sasi and Prasad, 2004). Sasi and Prasad, (2004) assert that, by allocating risks to the party best able to manage and mitigate them, the public sector is minimizing the probability of the risk occurring and the impact in the event that it does occur and is thus obtaining overall efficiencies for the project, translated by a lower overall cost over the lifetime of the project.

Secondly, a report by the European Investment Bank (EIB, 20017) states that, PPP is a better option for optimizing funding as PPPs provide access to private sector financing, thereby reducing reliance on public funds. According to this report, PPPs financed by the private sectors allow the spreading of the project cost for the public over a longer period of time, in line with the expected benefits. Public funds are in this way, freed up for investments in other social needs. The figure below by EIB demonstrates the above

assertion by showing the distribution of cost and benefits over project life cycle for public financed projects and private financed projects.

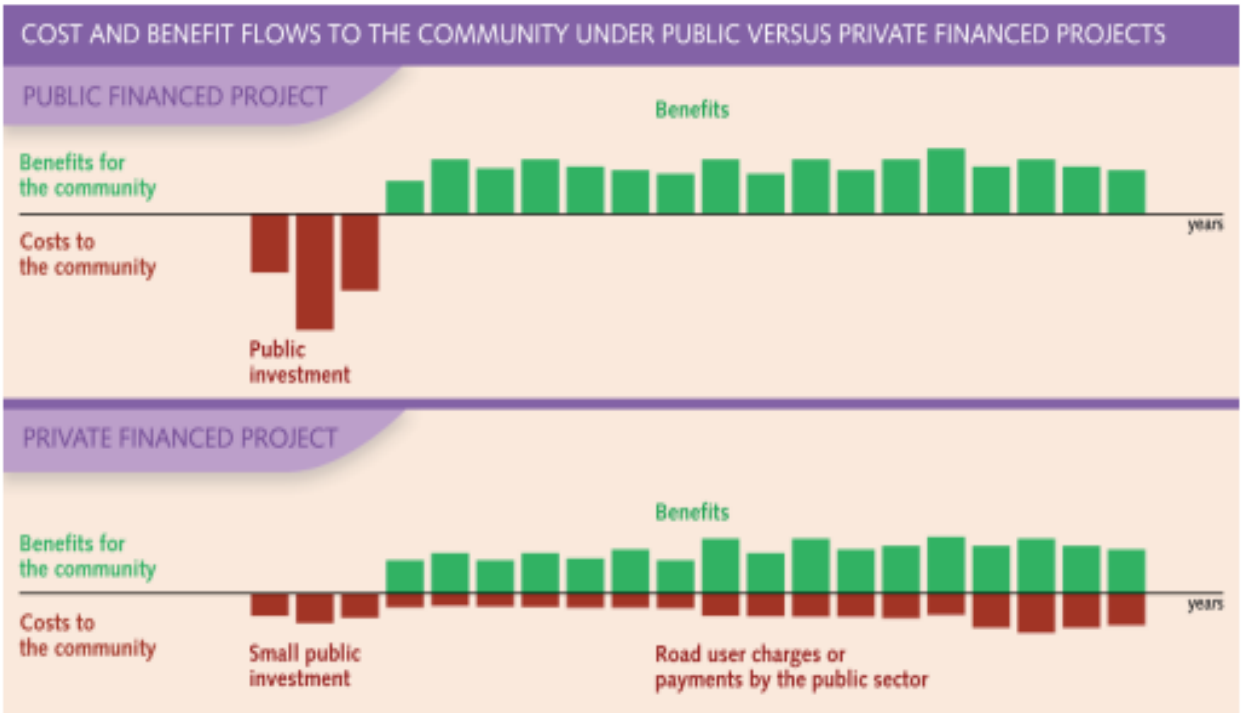

Figure 2.3: Cost and Benefit flow to the community under public versus Private financed projects. Source: *European Investment bank (2005)*

Word Bank (2021) noted that, Private sector involvement brings operational efficiencies and cost savings. The efficient practices of the private sector are already recognized by conventional procurement practices which outsource construction, maintenance and design activities to the private sector, (Word Bank, 2021).

Additionally, this mode of finance aids in accessing private sector expertise and enhanced Innovation. According to World Bank (2021), PPPs leverage the private sector's expertise and efficiency in project design, construction, and operation. In the same vein, PPPs foster innovation by encouraging private sector creativity and investment in new technologies and solutions.

Lastly, it is noted that, PPP are preferred on assumption that Private sector partners have incentives to maintain assets efficiently while ensuring faster Project Completion falling

within set timelines a trend noted across different projects. Private sector involvement often accelerates project timelines (EIC 2005).

These strengths enable PPPs to deliver infrastructure projects and public services more efficiently and effectively.

2.2.6 Weakness of PPP model.

Although PPPs offers a number of advantages, this method of procurement like any other, comes with it a number of weaknesses.

It is observed that, PPP are highly complex compared to traditional procurement (OECD, 2019). European Investment for Constructors (EIC, 2006) states that, the procurement cycle under PPPs covers not only the construction of infrastructure but also the operation and maintenance of the project over a long period. Due to its complexity, PPPs are not just at risk of failing or spiraling out of control in terms of schedule and scope, they are likely to have an increased transaction cost (EIC, 2006).

According to IMF (2020), PPP projects are highly prone to economic conditions which vary from one country to the other. According to the Engel et al (2011) report, volatile economic conditions in developing countries highly affect the implementation process raising uncertainties affecting private participation rates. Engel et al (2011) notes the following as the major economic factors that influence the implementation of PPP projects: High inflation rates (usually between 20-30%), Currency fluctuations (ZMW/USD), and Limited access to financing and high interest rates (15-20%). The study further states, these poor economic leads to: increased project costs, reduced private sector participation, renegotiation of contract terms and delayed project completion.

PPP models are generally complex in nature and may require adequate preparation, and skill to have a successful PPP program (World Bank, 2021). A study by World Bank (2023) states that, “In practice, a sound PPP legal and institutional framework is but one of many complex drivers for the success of PPP programs”. The study further states that: countries with historically successful PPP programs and extensive pipelines (for instance: South Africa, Chile, Brazil, Australia, South Korea) have developed over time robust legal frameworks in place (whether PPP-standalone or non-PPP specific legislation). However,

the study has equally noted that the formulation or establishment of PPP laws and Units alone are not sufficient. The study further states that, accordingly, a robust legal framework needs to be accompanied by adequate institutional arrangements, political commitment and broader reforms to resolve underlying infrastructure governance issues.

Therefore, considering the complex nature of PPP model and the contextual challenges in organizational culture, politics and economic conditions faced in most developing countries like Zambia, a successful implementation of PPP laws and institutional frameworks has proven to be challenging leading to poor implementation of PPP projects (Nadir et al,2023).

Table 2.3: summary of strengths and weakness of PPP programs.

Strengths	Weaknesses
Risk sharing: promotes project risk sharing between the public and private sectors.	Prone to economic conditions
faster Project Completion allowing consumers to access the services immediately	Increased transactional costs owing to its complex nature and generally long period.
Access to private sector expertise and enhanced Innovation	Inadequate regulations affecting PPP viability.
Access to private sector financing, thereby reducing reliance on public funds.	Private sector more interested in profit. Leaving project service quality to chance.
Private sector partners have incentives to maintain assets efficiently.	Less concerned with social and environmental concerns.

Source: World Bank, (2021)

2.2.7 Efforts to make PPP laws and institutions effective to ensure viability.

As of the year 2023, according to UNECA (2023) report entitled "Infrastructure Public-Private Partnership Diagnostic Study Report on Zambia", Zambia has a good legal framework for PPPs in place, however, the track record of PPPs to date shows a large number of unsuccessful projects.

International experience offers useful insights on how to ensure the viability of PPPs program. According to Nadir et al (2023), The World Bank has recently studied in detail these issues under the initiative **Building Stronger Institutions to deliver better PPPs** that resulted in the publication of six practice notes, one of them focusing on the role of the PPP framework. Nadir et al (2023) further states, based on all this understanding and experience, the World Bank has also developed the **Guidance on PPP Legal Frameworks** with practical advice on drafting PPP-specific primary and secondary legislation. It is thus, essential to take a comprehensive approach to creating a supportive environment for PPPs and the contribution of PPP laws and units will vary depending on country context and design conditions (World Bank, 2023).

In line with the foregoing, the government of Zambia is acutely aware of the challenges affecting the implementation of PPP programs (MoFNP, 2024). To this effect, the Ministry of Finance and National Planning (MoFNP) working in conjunction with United Nations Economic Commission for Africa (UNECA) and United Nation Conference on Trade and Development (UNCTAD) has previously conducted a series of capacity-building workshops on PPPs in Zambia, with a focus on specific sectors such as the transport sector. According to MoFNP (2024), the capacity-building workshops on PPPs in Zambia are intended to build on the "Action Plan for PPP Implementation" strategy developed by UNECA. In a bid to enhance the viability of PPP programs UNECA identified five key actions to support the Government of Zambia's efforts in improving its capacity to implement and manage sustainable PPPs to close the infrastructure gap and deliver better public services to the population as in the table below:

Table 2.4 capacity building key actions.

No.	Key Action
1	Strengthen the PPPs policy and legal and regulatory framework.
2	Train more staff in project design, selection, evaluation, structuring, and contract administration
3	Reform the PPP department into an autonomous one-stop PPP facility under the Ministry of Finance and National Planning.

4	Increase the awareness of PPPs as infrastructure and service/products delivery options.
5	Improve the participation of local investors, financiers, and project developers in the PPP cycle.

Source: MoFNP, (2024).

2.3. Theoretical framework

To provide a better understanding of the viability of PPP financing model in Zambia, this study is anchored onto a combination of Transaction Cost Economics, Principal-Agent and institutional theories.

2.3.1 Transaction Cost Economics (TCE) theory

As proposed by Oliver Williamson, TCE focuses on the costs associated with transactions between economic agents but mostly TCE focuses on minimizing transaction costs. Skelcher (2005) states that, TCE helps analyze the decision-making process regarding the choice between public provision, private provision, or a combination of both. According to, Joskow, (2014), TCE helps explains the costs associated with transactions, contracts, and governance structures, which has the direct influence on the quality of the project. According World Bank, (2023), high transaction costs likely resulted in increased charges (toll fees and tariffs) on the local communities, and ultimately influenced PPP program choices.

When analyzing the impact of PPP financing on tariffs with regards to water and electricity, can be misleading, because the impact is heavily dependent on prevailing tariff policies (World Bank, 2024). Tariff hikes are not necessarily a bad thing for customers when they translate into wider access to better services. In many developing countries like Zambia it is observed that, low water tariffs mostly benefit the connected middle class and work against the interests of the unconnected urban poor, who need to access water from often unsafe and/or more expensive sources (World Bank, 2024). A study conducted at the University of Zambia by Masambo (2017) in Hillview area of Lusaka which is one of the areas where this PPP project is being implemented found that, regarding tariffs 49 percent of interviewees were happy with the water tariffs, while 29 percent were seen to

have been very happy and 13 percent were very unhappy with tariffs and complaints were associated with false or inaccurate meter readings, leaking meters and high bills even in dry seasons when water supply was extremely erratic. These findings implied that 78 percent satisfactory levels with regards to new tariffs under the PPP arrangements.

A 2008 study (Smith 2008), equally asserts that, the evidence from the literature on the impact of PPPs on tariffs is largely inconclusive. Smith (2008) further claims that, local factors greatly affected costs, such as water availability. Therefore, comparing tariff levels between private and public utilities can be misleading because of differences in the legal, administrative, and financial frameworks in which the two sets of utilities operate.

Claude, (2013) further explains that, TCT addresses costs that might arise from uneven information distribution between public and private partners. Thus, it ensures both parties have sufficient information to make informed decisions. Claude (2016) further alludes that, it evaluates the efficiency of governance mechanisms, such as partnership agreements and proposes in advance possible dispute resolution processes. Therefore, in the context of this study, this theory helped to explore the effects of transaction costs on the governance structure and contractual arrangements of the Lusaka water supply and sanitation project. It further, explored, cost effective avenues that do not compromise on the quality of the project.

2.3.2 Principal-Agent Theory (PAT)

PAT is a fundamental economic theory used to analyze relationships where one party, the principal, delegates work or decision-making authority to another party, the agent, who acts on behalf of the principal, Zhang et al. (2020). Further, PAT explores the challenges that arise due to the misalignment of interests between the principal and the agent, often caused by information asymmetry, differing risk preferences, or moral hazard. Albalate and Bel (2017) alludes that, Principal-Agent Theory is widely applied in various contexts, including corporate governance, public administration, finance, and organizational behavior. He further states that, in the realm of Public-Private Partnerships (PPPs), PAT helps analyze the dynamics between government agencies (principals) and private sector partners (agents) involved in delivering public services or infrastructure projects (Bernhold and wiesweg,2021). It explores how contractual arrangements,

incentives, monitoring mechanisms, and risk sharing strategies are designed to address agency problems and improve the efficiency and effectiveness of PPPs.

A study by Suebvises (2017) highlights the differences between the public and private sector as one of the causes of failure in PPP arrangements and states as follows: “it is clear that public organizations are very different from those in the private sector in terms of organizational structures, missions, processes, cultures, and communication styles. For instance, public sector organizations are likely to have bureaucratic structures, whereas private sector organizations have more flexible structures”. Therefore, the differences in organizational features make partnership particularly challenging.

The above assertion by suebvises (2017), give credence to and relevance of PA theory in understanding the determinants of PPP programs’ success. According to Iossa and Martimort (2016), Principal-Agent Theory (PAT) is highly relevant to the study of PPP projects, as by virtue of explaining the relationships between public sector and private sector and its significance to the project, it equally informs optimal contract structure, guides risks distribution between principal and agent and ensures incentive alignment. In their article, “The Role of Principal-Agent Theory in Public-Private Partnerships" Albalate and Bel (2017), Outlines the following as the benefits of this theory: Improved contract design, enhanced risk management, increased efficiency and better value for money. Therefore, this theory will help in investing the relationship between contracting party and concessionaire and its effects on the water project.

2.2.3. Institutional theory (IT)

Robert, (2019), states that; IT is a prominent perspective in contemporary organizational research. The theory is often used to explain the adoption and spread of formal organizational structures, including written policies, standard practices, and new forms of organization. It focuses on the influence of formal and informal institutions on organizational behavior and outcomes, Robert (2019). In the context of PPPs in Zambia, institutional theory helps examine the role of regulatory frameworks, legal systems, norms, and cultural factors in shaping the design, implementation, and performance of PPP projects. In the case of LWSC it helped to explores how institutional pressures and isomorphic processes affect PPP practices and outcomes. Equally, the theory was used

in the study since it assisted in determining the implications of the current LWSC'S regulatory frameworks, and the implementation process as well as performance of LWSS project.

During the course of the Lusaka Sanitation project, LWSC had, with support from the World Bank mission, reviewed and developed a detailed draft five-year Institutional Development Action Plan in the year 2019 (GRZ, 2020). The plan was aimed at addressing issues and gaps identified through the institutional assessment of LWSC maturity level and to develop the Utility's capacity to grow to higher levels of maturity.

2.4. PPP Conceptual Framework.

World Bank (2024) says, PPPs involve complex process management on a number of fronts (legal, political, social and so on) that require a programmatic approach in order to establish PPPs as a recurrent option for appropriate projects. Different countries have different approaches to framework documentation (European Commission. 2020). Therefore, the approach chosen will mainly depend on two factors: the legal system of the country, and the degree of development in terms of PPP experience and use (European Commission. 2020). The application of PPP programs in Zambia with comparatively minimum experience to the water sector may come with unique challenges. While financial viability and generally macroeconomic conditions may have influence on the project sustainability, their influence varies with regards to the project type and location. Therefore, the primary focus of this study is to understands how institutional and governance as well as social aspects of LWSS project interact to influence sustainability.

With regards to PPP program governance, in a study on PPP programs in Zambia by World Bank (World Bank, 2008) it was noted that, in the water sector, the multiplicity of agencies often creates coordination problems. Owing to this observation the Government had adopted an institutional framework in 2004 where the Ministry of Local Government and Housing (MLGH) was entrusted with the overall responsibility of planning, implementation and coordination of the national program, and provide policy guidance, setting standards, criteria for service provision and funding in the sub-segment. Timely communication leads to improved stakeholder engagement which enhances project acceptance and legitimacy, stakeholder understanding and support, foster collaborative

relationships and build trust and credibility among other crucial reasons (World Bank, 20124).

Poor quality of the contractual environment, especially contract transparency, enforcement and dispute resolution is one such a crucial concern affecting PPP programs (Asian Development Bank. 2019). An assessment by the World Bank mission observed a number of unresolved policy and regulatory issues that were critical to achieving project objectives related to sustainability of sanitation services (GRZ, 2017). These issues may be addressed by a broad range of policy instruments, starting from improvement in the overall legal and regulatory framework to improvements in contract regulation (model contracts), contract enforcement and dispute resolution and contract regulation frameworks, (ADB, 2019).

The figure below shows how factor interact to influence the viability of PPP programs.

Conceptual Framework

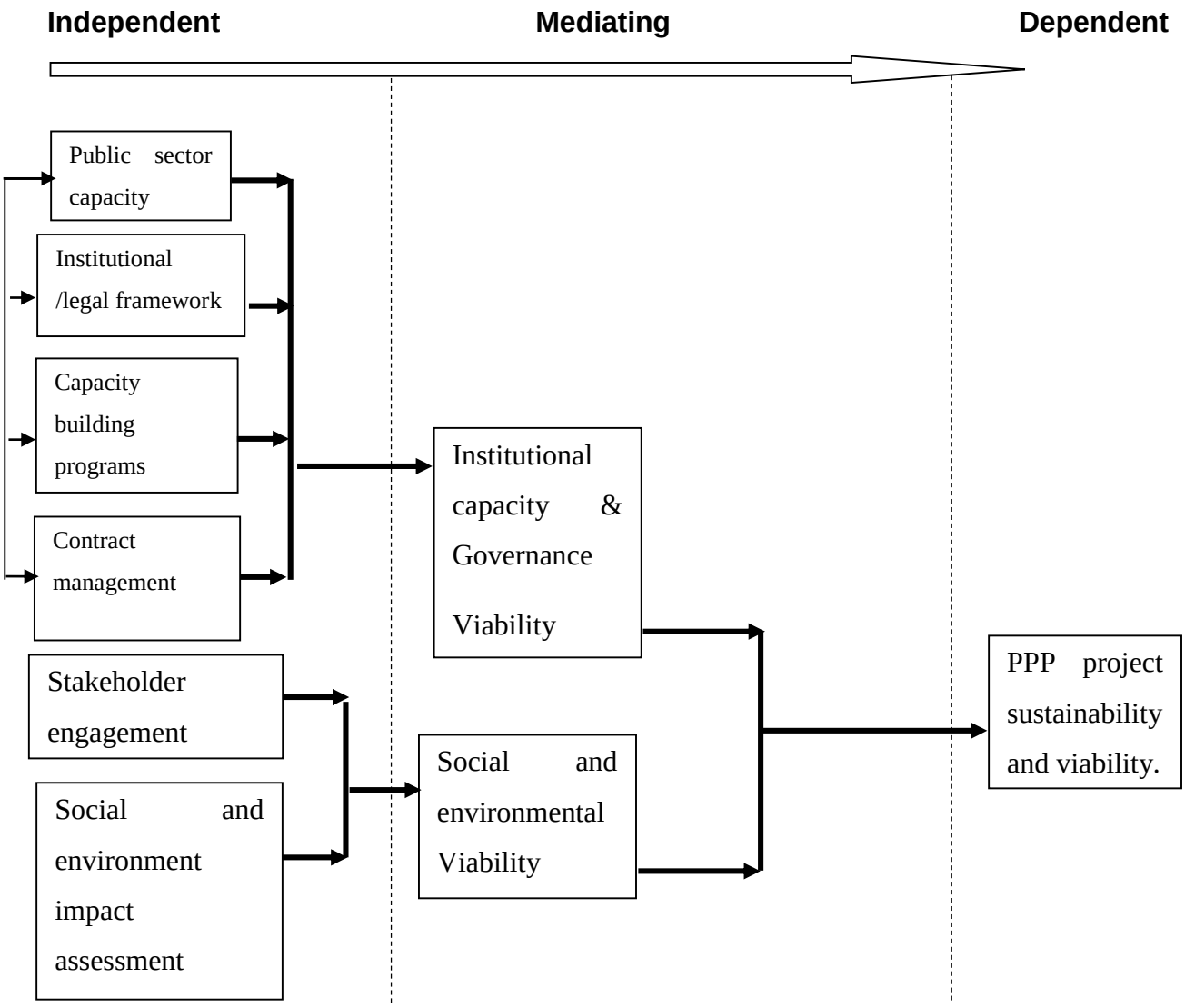

Figure 2.1 Factors Affecting the Viability of Lusaka Water project.

2.4. Operationalization of Variables

2.4.1.1 Independent Variables:

These are variables that have a direct influence on the outcome of the project in this case the dependent variables. In the above conceptual framework, the researcher has used as independent variables factors that affects overall capability of the model to effectively

address public sector service provision constraints, which in this is case is water supply and sanitation. These factors include:

1. **Stakeholder engagement** is the extent to which stakeholders are involved and satisfied with the PPP project, (PPP Knowledge Lab, 2020). The LWSS project involves a number institutions working together, therefore coordination could be challenging. It is thus, crucial in the examination of PPP program viability as it has a direct influence on partnership effectiveness (social viability) in the delivery of sustainable quality of water supply services. Stakeholder engagement is vital in ensuring alignment with stakeholder needs and encourages active participation and feedback from which improvement in water service delivery is possible. Therefore, stakeholder engagement in this study was limited to how eengaged stakeholders are able to provide valuable feedback, support project goals, and work on how challenges can be overcome. Poor engagement may result in misunderstanding and resistance to change; hence project delays (PPP Knowledge Lab, 2020).
2. **Environment and social impact assessment (ESIA)**: The impact assessment ensures projects are done in a way that meets community expectations while ensuring environmental regulation compliance (Asian Development Bank, 2019). This way, the project implementers avoid the consequences which may arise as a result of conflicting interests. In other words, ESIA ensures community acceptance. Community acceptance (social viability) which is the level of adherence and support from local communities, is a buy-in strategy that encourages public participation (Asian Development Bank, 2019). With respect to LWSS project and this study, this variable helps project works are implemented within schedule and `may not be delayed due to any conflict of interests, for instance due displacement to pave way for project works.
3. **Public sector capacity** refers to the ability of government institutions, agencies, and organizations to effectively deliver public services, manage resources, and achieve policy objectives (World, 2020). In this case public sector capacity entails an effective collaboration in delivering quality water and sanitation services by the following institutions: LWSC's service provision, operations, and maintenance;

Ministry of Water Development, Sanitation and Environmental Protection responsible for policy, regulation, and oversight; Lusaka City Council helping in local government coordination and support; and lastly National Water and Sanitation Council offering regulatory oversight and standards enforcement. The effective collaboration will ultimately lead to institutional and governance viability: improved service delivery through PPPs, increased investment in water supply and sanitation infrastructure and strengthened regulatory framework among others.

4. **Institutional frameworks:** established robust institutional capacity entails strong institutions and governance structures that ensure effectiveness, and accountability, ultimately leading to improved development outcomes (UNDP, 2020). UNDP. (2020) says, frameworks bring an aspect of stability and predictability in terms of what stakeholder must expect, hence improved decision making among participants. Following the project assessment in 2017 the LWSC had with support from the World Bank mission developed an Institutional Development Plan (IDP). The IDAP was designed to contribute to overall performance of the utility by, among others, promoting a positive organizational culture and productive work environment; addressing long standing structural issues; enhancing staff capabilities; improving operational processes and systems, as well as strengthening LWSC's ability to influence the external policy environment (GRZ 2017). These efforts only show how important the need to enhance institutional capacity in PPP programs is in achieving PPP program viability. Therefore, in light of this study, institutional.
5. **Contract management**: International Organization for Standardization (ISO) define contract management as the process of managing contracts from initiation to closure, ensuring all parties meet their obligations (ISO, 2020). In this study it referred to concessional agreements that ensure effective dispute resolution mechanism which will ultimately lead to project governance viability. By putting in place effective contract management in LWSS PPP project, stakeholders can ensure effective partnership, mitigating risks, and achieve project objectives with ease. Ideally, the PPPs provide equal bargaining power to all the stakeholders since all involved parties bring something meaningful to the project (Muhammad,

2020). The private partners bring finances, knowledge, whereas the public partner provides land and delegates the authority of public service provision to the private party on its behalf (Muhammad, 2020). Pooling resources in such a way helps to share risks and responsibilities.

6. **Capacity building programs** refers to the process of enhancing the abilities, skills, and competencies of individuals, organizations, or systems to effectively perform their functions, achieve their goals, and sustain themselves over time (UNESCO, 2020). Capacity building enhances project management skills, leading to better planning, execution, and monitoring, (PMI, 2020). In the context of this research, it is analyzed to the extent it influences project performance.

2.4.2 Dependent variable(s).

From the conceptual framework above, the dependent variables are project sustainability and PPP programs viability.

1. **Project sustainability** refers to the ability of a project to maintain its benefits, impacts, and outcomes over time, beyond its initial implementation phase (UNESCO, 2018). In this study, it was limited to the long term impact of the project services: water coverage and accessibility, water quality and safety, sanitation coverage and accessibility, customer satisfaction and financial performance (revenue, expenses, ROI), environmental impact (water resource and waste management), social impact (health, education, livelihoods) and institutional capacity (training, staffing, governance) (PMI (2020).
2. **PPP program viability** refers to the feasibility and sustainability of a partnership between the public and private sectors to deliver a project or service (PPP Knowledge Lab, 2020). In the context of this study it entails, the extent to which LWSS project contribute to the infrastructure development in Zambia.

2.4.3 Mediating Variables

Mediating variable is a variable explaining the mechanism between independent and dependent variables. For this study the mediating variables are environmental and social viability, and institutional and governance maturity.

1. **Social environmental viability –** refers is the extent to which the project complies with norms, beliefs and all other human standards as well as environmental regulations observed in the location of implementation (Asian Development Bank, 2019), which in this case Lusaka urban. This can be measured by the level of project's public acceptance through their participation, improved communication and stakeholder engagements. Therefore, in this study, social environment viability refers to the extent to which Social and environment impact assessment and effective stakeholder engagement influence Lusaka water and sanitation project performance.
2. **Institutional and governance maturity** according to United Nations Development Program refers to the extent to which institutions are strengthened to perform their individual roles and subsequently improved coordination among them to achieve project success (UNDP, 2019). The efficiency and effectiveness will translate into improved project performance (quality of water and sanitation services delivered) as immediate outcomes and ultimately lead to project sustainability in a long term. For this study, institutional and governance maturity referred to how public sector capacity, institutional frameworks and good contract management, creates an enabling environment that encourage private sector participation, which ultimately lead to desirable project performance.

CHAPTER 3:
METHODOLOGY

3.0. Introduction

The purpose of this chapter was to outline the research methodology employed to investigate the viability of PPP financing models in Zambia's water supply and sanitation sector, with a specific focus on the Lusaka Water Supply and Sanitation Project. This chapter provides an overview of the research approach, research design, data collection methods, and data analysis techniques applied for this study. It further states, ethical consideration, reliability, validity and limitation of the study.

3.1 Research Approach

This study employed a qualitative research method. There are different approaches to qualitative research – case study, ethnography study, phenomenological study and grounded theory study, each quite distinct in their procedures for data collection, interpretation and theoretical development, (Leedy and Ormrod, 2010). The process of research involves emerging questions and procedures, data typically collected in the participant's setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data. Fajar, (2009) qualitative research methodology involves a systematic and subjective approach to understanding social phenomena through the collection and analysis of non-numerical data, (Fajar, 2009). Thus, it is designed to gaining insights, meanings, and experiences from participants' perspectives. It leveraged on in-depth interviews, content analysis as well as observation.

3.2 Secondary Data Sources

Secondary data was drawn from existing literature to supplement the primary data. Secondary data compliments existing body of knowledge as informed by data collected from the field, thus used for gathering information and develop a strategy for execution of this study. This process involved researching and extracting relevant information from various documents. Documents reviewed include documents from Lusaka Water and Sewerage Company Limited (LWSC) (for example, Project Reports, and Project Design

Literature), the Ministry of Local Government and Housing (MLGH) (for example, the National Urban Water Supply and Sanitation Program (NUWSSP). Other documents were obtained from the National Water Supply and Sanitation Council (NWASCO), World Health Organization (WHO), World Bank (WB), Africa Development Bank (AfDB), Water Online, Sustainable Sanitation and Water Management (SSWM) and various journal publications from several researchers on water supply, particularly on institutional capacity and governance of projects.

3.3 Research Design.

This study used a case study design. This design involves an in-depth examination of LWSS projects, exploring stakeholders' experiences, challenges, and perceptions using a case study protocol and PPP implementation guides at LWSC. A Case Study Protocol (CSP) is a set of guidelines that can be used to structure and govern a case research project (Yin, 1994). Yin (1994) further states, CSPs are particularly useful in ensuring uniformity in research projects where data is to be collected in multiple locations over an extended period. The researcher explored stakeholder's perspectives, experiences, and perceptions of the strength and weaknesses associated with PPPs in delivering quality water services. The researcher particularly utilized Instrumental case study design. This type of case study emphasizes on understanding a theoretical question or problem. The primary importance of this type of case study design is to generate greater insight into the theoretical explanation that underpins an issue (Pandey, 2019).

3.4 Data collection/instrument.

The study used a robust and comprehensive data collection mechanism in order to inform the analysis and conclusions. CSP is a combination of document review/analysis, observation and interviews, (Yin, 1994). In this regard, this study utilized the CSP process to gather data, namely, document analysis, observation and interviews.

Document analysis involved reviewing of existing documents, reports, policies, and legal frameworks related to PPPs in Zambia. This includes government documents, project agreements, feasibility studies, financial statements, and evaluations of past project reports. Instruments for this process were: Document review checklists, coding schemes

for thematic analysis, and templates for summarizing key findings. A study by Muhammad Uzair, (2020), on the topic, “Public-Private Partnerships In The Light of The Principles Of Good Governance: Pakistan's Case” used document review to scrutinize secondary sources such as books, journals, government reports, policy, and legal documents to identify the existing philosophical academic material.

Whereas, interviews involved conducting semi-structured interviews with key informants and experts in PPPs, infrastructure financing, and relevant government agencies in Zambia. In a study sought to investigate the suitability of PPPs for road infrastructure development in Uganda conducted interviews to collect primary data on a particular objective. Thirty interviewees were used (Mugarura, 2019). Interviews with the knowledgeable stakeholders of the PPP projects are usually preferred in navigating stakeholder experiences and in-depth understanding of the subject matter. Similarly, this study used Interview guides with open-ended questions covering topics; stakeholders' views on PPPs, factors influencing project viability, challenges in implementation, and recommendations for improvement.

A case study Observation is a research methodology that involves an in depth examination of a single case or small number of cases to gain detailed insights and understanding of a phenomenon, event or process, (Merriam, 2018). This was particularly appropriate for this study because it helped the researcher gain a real world insights and an opportunity to validate finding of the interview processes and document analysis which may not speak to the real time situation as applauded by (Patton, 2022). Data will be collected by visiting the plants to observe the quality of water supplied and by conducting informal interviews with community members in the area where the project is being implemented.

3.5 Research Population.

The study primary involved stakeholders with technical knowledge on the application of PPP model and the project at large. A similar study by Chandan (2019) entitled, “Exploring Public Private Partnerships in Zambia, Focus: Tertiary Level Hospitals & Districts”, had key managers (Chief Executive Officers and their deputies, operations and human resource managers in each hospital were eligible for the study. This study followed the

same approach. This way, improved data quality, Enhanced validity and Cost-effective technique were achieved (Patton, 2002).

Accordingly, participants in this study included officials from: Lusaka Water and Sewerage Company (LWSC), Ministry of Water Development, National Water and Sanitation Council (NWSC), Private sector partners, Project financiers (World Bank, African Development Bank) and Ministry of Infrastructure and development. Thus, the target Interviewees were individuals in the organization with hands on experience of PPP projects. Interviewees included, Project managers, financial analysts, Engineers, and Policy makers as well community leaders.

The population size for experts in these institutions were Lusaka Water and Sewerage Company LWSC (35), Ministry of Water Development (20), National Water and Sanitation Council NWSC (10), Private sector partners (40), Project financiers (World Bank, African Development Bank) (13) making a total population size of 118.

3.6 Sample Size.

According to Institute for Work & Health Toronto (IWHT, 2008), sample size refers to the number of participants or observations included in a study. This number is usually represented by n. The size of a sample influences two statistical properties: 1) the precision of our estimates and 2) the power of the study to draw conclusions. IWHT (2008) further asserts that, no matter how careful a researcher is about choosing a sample, there will still be some margin of error in the study results. This is so because not everyone in population of interest could have their views taken. However, while we cannot always do away with the error completely, researchers suggest that we can reduce the sampling error by increasing the sample size. The larger the sample size the closer to precision is the conclusion to the reality, (Chilala, 2019).

This project has five (6) key stakeholder (institutions) involved directly or indirectly. These are:

1. Lusaka Water and Sewerage Company (LWSC): Service provision, operations, and maintenance.

2. Ministry of Water Development, Sanitation and Environmental Protection: Policy, regulation, and oversight.

3. Lusaka City Council: Local government coordination and support.

4. National Water and Sanitation Council: Regulatory oversight and standards enforcement.

5. Private sector partners responsible for the design, building, operation, expansion and maintenance as well as financing of the project.

From the 118 total experts 40 interviewees were drawn through purposive sampling.

Thus, the distribution was as follows: Lusaka Water and Sewerage Company (LWSC) = 10, Ministry of Water Development=5, National Water and Sanitation Council (NWSC) = 6, Private sector partners = 4, Project financiers (World Bank, African Development Bank) = 4 and Ministry of Infrastructure and development = 2, ministry of finance's PPP unit = 9. This brings the total to forty (40) interviewees.

3.7. Sampling Technique

For this study, purposive sampling technique was used. Purposive sampling is where the researcher deliberately targets a group of participants believed to be relevant and reliable to the study (Chilala, 2019). The purposive/judgmental sampling was used to get views from the target group with PPP experience. A sample of 40 interviewees was arrived at based on the number of interviewees meeting the above criterion (technical knowledge on LWSS project and experience on PPP programs).

3.8. Data Analysis

Data Analysis involved, conducting thematic analysis of qualitative data obtained through semi-structured interviews with expertise. The process involved identifying recurring themes, patterns, and trends related to the strength and weaknesses of PPPs in Zambia as well as factors that influences adoption and implementation of LWSS PPP project; Coding of qualitative data based on predefined categories or themes relevant to the research objectives; analyzing textual data from interview transcripts and project

documents to extract relevant information and lastly, summarize key findings and insights derived from qualitative data sources.

Table 3.1 shows predefined themes for this study.

Themes	Sub themes
Institutional Capacity and Governance	• Perceptions of LWSS institutional capacity • Effectiveness of governance structures • Coordination among stakeholders • Challenges in maintaining LWSS infrastructure
Community Engagement and Participation	• Levels of community involvement in LWSS decision-making • Effectiveness of community outreach and education programs • Perceptions of LWSS responsiveness to community needs • Barriers to community participation
Sanitation and Hygiene	• Practices and attitudes towards sanitation and hygiene • Impact of LWSS on sanitation infrastructure • Accessibility and maintenance of sanitation facilities • Behavioral changes resulting from LWSS interventions
Health and Wellbeing	• Perceived health benefits of LWSS • Reduction in water-borne illnesses • Impact on mental health and wellbeing • Changes in health-seeking behaviors
Social and Cultural Factors	• Cultural attitudes towards water and sanitation • Social norms influencing water and sanitation practices • Impact of LWSS on social cohesion

Lessons Learned and Future Directions	• Best practices and successes • Challenges and areas for improvement • Recommendations for future water and sanitation projects • Sustainability and scalability of LWSS model

3.9. Reliability

The researcher acknowledged potential limitations of the study which include: researcher bias, Limited generalizability due to single-case study design, Dependence on participant willingness to share information. In this way, to ensure the reliability of this qualitative study, the following measures were taken: Firstly, Data was collected from multiple sources, including: Semi-structured interviews with key stakeholders (n=20), Observations of water plants (n=5) and community engagement sessions (n=20) and Document analysis of project reports, policies, and contracts (n=15). The use of three data collection methods was on the principle that no single data collection method can adequately cure the shortcomings of a discovery or testing (Mouton & Marais, 1990: 206). Accordingly, the deployment of a wide range of interconnected methods provided a better fix of the problem or subject matter under investigation (Denzin & Lincoln, 1994: 2). Secondly, besides using purposeful sampling that conveniently sampled well informed individuals in the field, the researcher informed the participants in good time to allow them to adequately prepare.

3.10. Validity.

This study adopted CSP which provide a set of guidelines that ensures uniformity. Data collected from document analysis, observations and interviews was triangulated with the aim to reduce biases. Triangulation is said to overcome the intrinsic bias and errors associated with single methods by cross checking the data and findings (Denzin, 2019). Data collected from observation is useful in providing insights that reveal up to date real-world behaviors, practices, and interactions (Creswell, 2018). This way it validated the findings of the other methods.

3.11. Ethical Aspect.

The Researcher got ethical clearance to conduct research in the respective institutions. The researcher reached out to the participants before the survey through direct phone calls, requesting their participation in the study. Participants that agreed to take part in the research were assured of the ethical boundaries such as anonymity and confidentiality.

3.12. Limitations of the Study.

This study has several limitations that should be acknowledged. Firstly, the single case study design limits the generalizability of findings to other PPP projects in Zambia. Secondly, reliance on secondary data and limited access to sensitive information may compromise data quality. Further, regulatory frameworks and economic conditions in Zambia may highly influence the viability of PPP. Lastly, results from the study were not generalized to other sectors which implemented the PPP programs in Zambia because expert sampling was used, which is a non-probability sampling.

These limitations highlight areas for future research consideration.

3.9 Summary of the Chapter 3.

This chapter presented the research methodology and methods and/or techniques that were used for data collection and analysis.

CHAPTER 4:
PRESENTATION OF FINDINGS AND ANALYSIS.

4.1 Introduction

The previous chapter presented the research methodology and techniques used to achieve the data collection and analysis. This chapter presents data obtained from interviewees during the field research. It is then analyzed in order to draw conclusions and recommendations for the research.

4.2. Survey - Results and Analysis.

Based on the planned sample of the population as identified and reported in the methodology 45 interviews were administered to the target interviewees at NWASCO, LWSSC, PPP unit, LCC, Consultants. The interview involved interviewees who had either a direct or indirect involvement in the water sector.

4.2.1 Paricipants' details

Section 1 of the interview guide required the interviewees to indicate to which age group, education level, profession, institution or sector they belonged to. The data was intended to show the source, distribution of responses and subsequent interviewees' levels of contribution to the research once analyzed. The sources were indicative of the levels of knowledge of PPPs adduced to respective key target institutions.

4.2.2 Participants gender

interviewees were asked to indicate their gender. The sample consisted of 26 males which represented 65 % of the interviewees and 14 females, representing 35%.

4.2.3. Years of experience.

Interviewees were asked to indicate the number of years of experience. The results showed that majority of the interviewees had between the 10 - 20 years of experience in the implementation of PPP projects, an indication that the interviewees had the expertise and experienced. This represented 76 % of the total interviewees. The results were in line with the methodology which required use of experienced experts in the sector.

4.2.4 Category of Management

Interviewees were asked to indicate the category of management to which they belonged. The results indicated that 50% of the interviewees were at strategic level of management while another half represented middle and lower management respectively. All interviewees had levels of knowledge expected to respond on the subject matter. The higher percentage at middle levels is considered normal in that, most functional organization structures have fewer numbers at the strategic apex and more at the middle level. The lower management employees were equally purposively selected to participate in this research based on the number of years served in their respective institutions and for their knowledge of the subject matter.

4.2.5 Highest Level of Education Completed

Interviewees were asked to indicate their highest level of education. The results indicated that majority interviewees had a Bachelor's Degree, with a percentage of 46 % seconded by those with PhDs, accounting for 30% and those with Masters degrees representing 25%.

4.3. STRENGTHS OF PPP PROCUREMENT METHOD

The study revealed several strengths of the PPP procurement method, presented as follows:

4.3.1 Improved Efficiency and Effectiveness

With regards to the first specific objective of this study, Assess the strengths of PPP financing model in infrastructure development at LWSC, a dominant theme in the narrative was the Improved Efficiency and Effectiveness of project delivery. Majority of participants highlighted the ability of PPPs to improve efficiency and effectiveness in project delivery.

Table 4.1. Improved Efficiency and Effectiveness

Theme	Code

PPP programs improves project efficiency and effectiveness in the service delivery.	interviewee 23 pointed out *“"PPP projects allowed for better risk management and allocation" (Interviewee 3)”* interviewee 4 shared that: *“private sector has improved work culture. therefore, such collaboration can encourage exchange of knowledge, technologies and effective strategies”* interviewee 6 stated *“PPP program comes with Capacity building programs which enhances effective project implementation”*

This theme stressed the emphasis on Institutional capacity & Governance viability which is as result of effective risk and contract management. Improved efficiency and effectiveness translate to improved project performance (quality of water and sanitation services delivered) as immediate outcomes which ultimately lead to project sustainability in a long term. 27 out of 40 interviewees noted a positive effect of PPP programs on project delivery. The results were consistent with the objectives encapsulating the implementation of PPP Act of 2009. In a bid to condense the shortage of infrastructure, thereby to improving access to quality and affordable infrastructure service, the Zambian government since 2008 has been promoting PPP Projects across industries which included water sector (ZDA, 2014).

The study through observations done to some selected water points found out that the state of most water points were in an improved state confirming the quantitative research findings by Masambo (2017) which discovered that, 88 percent of the interviewees indicated that the water was sufficient, while only 11 percent of the interviewees mentioned that the water was not sufficient for their daily needs.

4.3.2 Enhanced Innovation and Technology Transfer.

A second recurring theme is Enhanced Innovation and Technology Transfer. In the semi structured interview most interviewees emphasized on the potential of PPPs to bring in new technologies and innovative solutions.

Figure 4.1: water plant. (source: field survey, 2024)

Table 4.2. Enhanced Innovation and Technology Transfer.

Theme	Code
Enhancing innovation and techonology transfer.	Interviewee 5*: PPPs provided an opportunity for the public sector to leverage the expertise and innovation of the private sector, leading to better outcomes.*
Ensuring sustainability	Interviewee 32*: use of technology can lead to better built, maintained and operated infrastructure, which improves the quality of water supply and sanitation services.*

Source: field survey, (2025)

This particular theme emphasized on how PPP arrangement can be used to harness private sector technology to effectively address public infrastructure needs. In line with this theme, Participants emphasized the potential of technology and how it can be used to improve the quality and availability of water and sanitation services. These assertions are directly in tandem with Word Bank (2021) noting that, Private sector involvement brings operational efficiencies and cost savings. The partnership allows for the proficient practices of the private sector that are already recognized by conventional procurement practices.

Private sector partners have incentives to maintain assets efficiently while ensuring faster Project Completion falling within set timelines a trend noted across different projects. Private sector involvement often accelerates project timelines (EIC 2005).

4.3.3 Better Risk Management.

This section represented the risk management aspect of the PPP project implementation. Two themes were identified and responses are presented in table 4.3.

Table 4.3: Better Risk Management.

Theme	**Code**
Risk management for effective project delivery	Interviewee 35*: "Risk management helps ensure that the PPP project is delivered on time, within budget, and to the required quality standards"*. Interviewee 12*: Projects have so many risks ranging from scope, schedule to budget. Hence a degree of competency and specialization is required to manage them.* Interviewee 8: *risk management has led to Improved project delivery and quality of services.*

Risk allocation according skills and ability of the sector.	Interviewee 7*: "allocating risks to the party best equipped to manage them, ensure that each party's risk exposure is aligned with their expertise and resources."* Interviewee 1: *public and private have different strengths, a partnership between the two ensures that one party is not overclouded with risks they have no strength to handle.*

Source: field survey, (2025)

Another strength Participants noted is that, PPPs allow for better risk management and allocation between the public and private sectors which provides an opportunity for risk management which plays an important role in ensuring the viability of PPPs procurement method. A general perception (representing 90% of the total interviewees) of risk management and its benefits according to the interviewee is that, effective risk management reduces the risk exposure of all parties involved, ensuring that the PPP project is more viable and sustainable.

4.3.4 Increased Private Sector Investment.

Table 4.4: Increased Private Sector Investment

Theme	Code
Increased private sector investment	**Interviewee 31** noted*: PPPs provide a framework for private sector investment in infrastructure, which is critical for economic growth and development.*
faster Project Completion allowing consumers to access the services immediately	interviewee 10 noted: *allowing the private sector take care some infrastructure development this may accelerate time of completing the project.*

	Interviewee 14*: Private sector involvement brings operational efficiencies*
Ensures delivery of quality services	Interviewee 16: *Access to private sector expertise and enhanced Innovation* increased quality of water supply and sanitation services. Interviewee 39**:** *Private sector partners have incentives to maintain assets efficiently.*
Access to private sector financing,	Interviewee 9: *PPP is a better option for optimizing funding as PPPs provide access to private sector financing*. Interviewee 6: *reducing reliance on public funds. This allows the government to concetrte on other social services*.

Source: field survey, (2025)

Interviewees highlighted the potential of PPPs to attract private sector investment in infrastructure development.

The foregoing perception support the assumption that PPPs financed by the private sectors allow the spreading of the project cost for the public over a longer period of time, in line with the expected benefits. Public funds are in this way, freed up for investments in other social needs.

4.3.5 Other PPP strengths

The study sought to identify innovative solutions and technologies introduced in PPP projects at LWSSC as practical example of PPP strength at LWSSC. In this regards interviewees were asked to identify innovative solution and technology. The findings are presented below.

4.3.5.1. Advanced Water Treatment Technologies:

Interviewees highlighted the introduction of advanced water treatment technologies in LWSSC PPP projects. Specifically: - "The use of membrane bioreactor technology in the wastewater treatment plant has improved effluent quality and reduced environmental impacts." (Interviewee 2) and secondly - "The introduction of ultraviolet (UV) disinfection technology has enhanced water safety and reduced chemical usage." (Interviewee 5)

These findings suggest that PPPs offer several strengths, including improved efficiency and effectiveness, enhanced innovation and technology transfer, better risk management, increased private sector investment, and improved public services.

Figure 4.2: water tank. (source: field survey, 2025)

4.4.0 Weaknesses of PPP procurement model.

The study revealed several challenges that interviewees have encountered or foresee in implementing the PPP financing model. These challenges are presented below.

4.4.1. High procurement costs

Table 4.5: High procurement costs

Theme	Code

High procurement costs.	Interviewee 22: *"PPP project usually have a high upfront costs and financing risks, resulting in high ultimate cost."*
	Interviewee 19: *Difficulty in securing funding from private investors, as a result of financial uncertainties*
	Interviewee 36*: Complexity in structuring PPP deals, which escalate the project cost*

Source: field survey, (2025)

With regards to financial challenges interviewees highlighted a number concerns that impends the implementation of PPP projects, these financial challenges include among others private sector willingness to commit investment, and high upfront cost. The narrative highlights PPP financial challenges that threatens the desire to utilize this method of procurement. All the 40 interviewees agreed that, PPP financing method is relatively expensive owing to its complexity.

4.4.2 Institutional and Regulatory Challenges.

Table 4.6: Institutional and Regulatory Challenges

Theme	Code
Institutional and Regulatory Challenges	Interviewee 18: *Inadequate regulatory frameworks and policies to support the PPP processes.*
	Interviewee 24: *"Lack of institutional capacity and expertise to support the implementation process, is a challenge that need attention."*

Source: field survey, (2025)

The study found that LWSSC has made significant progress in managing the PPP program, however, there are still some capacity gaps that need to be addressed. LWSSC needs to strengthen its capacity in areas such as contract management, risk management, and stakeholder engagement. Based on a predefined theme on institutional

capacity and regulatory frameworks, 23 out of 40 interviewees conformed institutional inadequacies stressing that, the issue of institutional capacity needs to be addressed if PPPs are to be properly developed, procured and implemented.as one interviewee recommended that, research and studies into the actual outcome of PPP projects and program should be considered. Adding that, this may aid both the development of evidence-based policy and the ability to undertake a proper public debate on PPPs.

4.4.3 Social and Environmental Challenges

Table 4.7: Social and Environmental Challenges

Theme	Code
Social and Environmental Concerns as well as stakeholder management	Interviewee 8: *Community resistance and lack of public acceptance.*
	Interviewee 11: *the risk of sewage contamination,*
	Interviewee *6: there is as well a risk of supplying unsafe water for human consumption as result of misusing technology.*

Source: field survey, (2025).

According to the findings of the current research, the 85% of the interviewees confirmed that social and environmental challenges has the potential to delay, or completely hinder PPP projects due to conflict of interests. Interviewees equally noted difficulties in balancing economic, social, and environmental objectives which are essential for public acceptance.

4.4.4. Insufficient government support and commitment.

Table 4.8**:** Insufficient government support and commitment**.**

Theme	Code
Low political commitment in the water sector. Lack of Policy Direction from the Highest Government level.	Interviewee 6: *There is low political will to support PPP programs in the water sector. This is evidenced by delays in funding and approvals*.
	Interviewee 4: *Lack of political will to enforce strong by-laws related to sanitation concerns.*
	Interviewee 15: no stringent measure to curb *corruption and poor governance issues.*
	Interviewee 7: *The lack of precedents and availability of information on some number of PPP projects*. Interviewee 6: *"*

Source: field survey, (2025)

Through this study, interviewees stressed lack of precedence and availability of information to make informed decisions. On the clarity of policies and guidelines, 33 out 40 interviewees confirmed that the PPP policy and guidelines were unclear. To achieve all this, government needs to consider allocating financial resources to enable the PPP unit to establish a stronger PPP system.

4.5.0. Participants' perspective on the performance of PPP at LWSC.

In line with institutional theories, interviewees were asked to comment on the performance of PPP at LWSC regarding various aspects of PPP programs at LWSSC. The study used predetermined themes as outlined below.

4.5.1. political commitment

It was discovered that political leadership had influence on the success of PPPs in Zambia. A good number (34 out of 40) of interviewees indicated that the current political commitment to PPP especially in water sector in Zambia was still very low, this was despite the political pronouncements.

4.5.2. Funds and treasury approval

Some interviewees indicated that the treasury approval was not granted for some transactions due to lack of room to commit more debt by Ministry of Finance. One interviewee noted. As one interviewee shared:

> *"The ministry of finance is usually reluctant when it comes to approving concession mainly due to the stress they put on the economy and particularly the communities."*

4.5.3. Availability of resources within the PPP unit to promote PPPs

When interviewees were asked about the availability of resources within the PPP unit to promote PPPs and help support implementing agencies to originate and implement PPPs, five (5) interviewees with experience or aligned to the organization, indicated that the PPP Unit did not have enough resources to do all that is needed to be done to foster successful PPPs.

4.5.4. Availability of resources and skill set to devise and implement PPPs

The interviewees indicated that PPP process is complex which require a combination of special skills mix in financial analysis and modeling, transaction structuring, commercial legal expertise, sector knowledge and transaction management which were nonexistent in some implementing agencies.

As interviewee 17 indicated that:

> *"Generally staffs of most implementing agencies lacked the skills, knowledge or ability to originate a PPP or manage a PPP transaction as well as, the authority to make critical decisions in managing PPPs. These inabilities in my own view are major existent challenges imminent in PPP programs implementation".*

The current study confirmed another study by (Morgan, 2018) asserting that, poorly formulated projects by Contracting Authorities resulted in PPP concessions being cancelled and projects being reverted to Government or failure to achieve transaction closure in the first instance. Interviewees were sked to comment on the major causes of failure of some preceding PPP project failure. Interviewee 33 shared that:

> *"Unclear formulation of contracts terms and conditions is a major reason most projects fail".*

4.5.4. PPP Projects take too long to materialize

Participants indicated that although there were estimated time for completion of PPP projects, most of the projects took longer than estimated. Transactions were relatively taking too long to materialize. One of the interviewee revealed that,

> *"due to several capacity challenges for procurement of PPP transactions, they ended up taking too long to be completed. This ended up affecting the chances to completing the project due to the fact that the projects were exposed to soo many risks as a result of changes in the schedule."*

Therefore, it is imperative for Zambia to devote resources to capacity building for procurement processes and implementation of PPPs in Zambia.

Another interviewee shared that:

> *"lack of expertise in government agencies, leads to delays in decision-making, problems in project preparation, which ultimately affects the project timeline*."

4.6.1. Application of PPP model at LWSSC

interviewees were asked to share their view specific to the application of PPP programs at LWSSC. The findings of this study suggest that the PPP model has helped LWSSC improve water supply and sanitation services in Lusaka in several ways. Interviewees noted that the PPP model has achieved the primary purpose of PPP which is bringing in private sector expertise and investment despite the progress being inadequate to meet

the public expectation. However, PPP has relatively enabled LWSSC to improve the efficiency and effectiveness of water supply and sanitation services.

interviewee 34 stated:

> "*This type of financing has facilitated access new technologies and management systems that have upgraded the quality of our water supply and sanitation services."*

While interviewee 1 shared:

> *"The PPP model has qualified us to increase our revenue collection, which is paramount for re-investment in new infrastructure sustainability and enhanced services."*

4.6.2. Impact of PPP programs on tariff levels at LWSSC.

A study by Chilala (2019) in the road sector revealed that poor traffic volume was a major challenge to implementation of PPPs in the Road sector in Zambia. This theme was equally used in this study to determine its prevalence in the water sector however, in terms of tariffs. The current study established that, despite Lusaka being densely populated, there was a concern by the interviewees on the ability of the concessionaire to recoup costs given the levels of tariffs, which was argued to be too low for profitable levels for most water utilities in Zambia. Interviewees indicated that the ability to recoup investment was a serious consideration for private sector investment. It was found that poor tariffs would subsequently make the project unprofitable.

The findings of this study suggest that the PPP program has led to an increase in tariff levels. Interviewees noted that the introduction of PPP programs in the water sector has affected the tariff levels, which is reported to be high. However, this increase has been received with a mix of perceptions. Whereas 14 interviewees have argued that, tariff increases have been necessary to ensure the financial sustainability of the water supply and sanitation services, about 8 participants noted that, the increase has come an additional stress on the part of the community in which the projects are implemented and the economy at large.

Interviewee 1 stated:

> *"PPP program has led to an increase in tariff levels. However, the tariff increases have been essential to ensure the financial sustainability of the water supply and sanitation services."*

Interviewees have however alluded that measures have been put in place to ensuring that the impact of the said increase is cushioned. As interviewee 8 shared:

> *"While the tariff increases have negatively affected the beneficiaries of the water supply, tariffs have been phased in over time to minimize the impact on customers. Furthermore, the private sector partner has implemented measures to improve the efficiency and effectiveness of the water supply and sanitation services, which has helped to reduce the burden of tariff increases on customers."*

In other words, the foregoing justifies the increase as worth the quality of service as a result of the programs.

4.6.4. Efforts to improve effective management of PPP programs at LWSSC.

The findings of the current study are that, LWSSC has made significant progress in developing its capacity to manage PPP programs. interviewees noted that LWSSC has established a dedicated PPP unit, which has helped to build capacity and expertise in PPP management. However, interviewees also noted that there are still some capacity gaps that need to be addressed. One interviewee stated:

> *"While LWSSC has made significant progress in developing its capacity to manage PPP programs, there are still some capacity gaps that need to be addressed. For example, LWSSC needs to strengthen its capacity in contract management and risk management as well as allocation." (*interviewee *10)*

4.7.0 Observation Findings

4.7.1. Assessment of quality of water and Sanitation infrastructures

As part of this study, the researcher made some observation on the quality of water and sanitation infrastructures. These findings were made at selected water and sanitation

areas in Lusaka, Chongwe and Kafue district. These observations were made over a week period, which includes water treatment plants, pumping station, and supply lines.

It was observed during this study that there was improvement as a result of the preceding PPP projects. However, the quality of water supply and sanitation services provided by LWSC were not up to the expected standards and could not justify investment so far made. Some of the observations made by the researcher includes the following:

Water quality: through a visit at some water treatment plant observations revealed that, the quality of water was generally good, with proper treatment and disinfections in place. However, at customer premises observations revealed that the water quality was at some point compromised as a result of leakages and old (with rust) pipes allowing contaminants to enter the water supply. additionally, in some areas observations revealed that water had some dust particles and bad odor indicating possible contamination. Nevertheless, this was not the generally situation. The researcher visited some areas where, quality of water supplied were generally satisfactory.

Figure 4.2: leakages and old pipes. Source: field survey, (2025)

With regards to sanitation, the researcher discovered a number of clogged drainages with liters within Lusaka Central Business District (CBD). This was generally attributed to failure by LCC to manage garbage collection and failure to enforce sanitation related bylaws considering Lusaka's population.

CHAPTER 5:
DISCUSION OF FINDINGS

5.1 INTRODUCTION

The previous chapter on data analysis presented the weaknesses and strength as well as factors that affects adoption and utilization of PPP programs in the water sector. This chapter provides a detailed discussion of the findings presented in the previous chapter, relating them to the objectives of the research and existing literature. While it has been noted that the method has been adopted for use nearly in all projects in the sector in recent years through projects such as the Lusaka water supply and sanitation project, and Lusaka Water Supply, Sanitation, and Drainage (LWSSD) Project, there is still an existing gap in the literature with regards to its viability in the water sector. Therefore, sub section of this will discuss the findings to ascertain the programs viability in the water sector.

5.2. Validating the Source of Information

The first section of the previous chapter sought to interrogate the source of the primary data to be used for this study. This study employed a qualitative approach, and data were collected through in-depth interviews with 40 participants. The interviewees comprised 26 males and 14 females, with ages ranging from 30 to 55 years. Most interviewes held senior positions in their organizations, including directors, and managers. Therefore, the interviewees' details highlight the significance of making an allowance for the viewpoints and experiences of several stakeholders in the water sector. Suffice to say, the results presented in this study are grounded in the experiences and expertise of the interviewees, providing a nuanced understanding of the complex issues adjacent with PPP programs in the water sector.

The participants had extensive expertise and experience in the water sector, particularly in PPPs. Most interviewees had worked in the sector for over 10 years, and some had experience working in multiple PPP projects. The interviewees' details run a rich context for understanding the themes that emerged from the data. The diversity of interviewees backgrounds and experiences enriches the results by providing a comprehensive understanding of the issues surrounding PPPs in the water sector.

5.3. Viability of PPP Procurement Method.

To examine the viability of PPPs this study has used popular themes as suggested by previous. This study confirms the earlier narratives suggesting that the viability of the PPP procurement method generally is a complex and multifaceted issue. The dominating perception of the study's participants is that, the viability of the PPP procurement method depends on a number of factors, including alignment with government policies and objectives, private sector interest and participation, institutional capacity and regulatory framework, public support and acceptance, as well as contract and risk management. The water sector particularly the LWSSC is not an exception.

5.3.1. Alignment with Government Policies and Objectives

Interviewees emphasized that the viability of PPPs depends on their alignment with government policies and objectives. The government's policy framework for PPPs is critical for the PPP programs' viability. As suggested in the study by Suebvises (2017) the differences in terms of organizational structure between the public and private sector is one of the major causes of failure in PPP arrangements.

If the government is committed to supporting PPPs, they are more likely to succeed. The general perception of interviewees of the study indicated a minimum government commitment or political will. Hence, uncertainty and unclear policy direction being major causes of the seemingly misalignment with government policies and objectives. Therefore, it is imperative for government agencies to design explicit guidelines supporting PPP programs in Zambia. This conclusion is in tandem with the PA theory which explores how contractual arrangements, incentives, monitoring mechanisms, and risk sharing strategies designed to address agency problems and improve the efficiency and effectiveness of PPPs.

5.3.2 Private Sector Interest and Participation

According to the dominating view of the interviewees, the private sector interest and participation are critical to the viability of PPPs. The private sector must be willing to participate in PPPs for them to be viable. However, it is as well true to say, private sector investment is dependent upon a favorable business environment and attractive

investment opportunities. The influx of capital at LWSSC as a result of private sector participation has comparatively positive impact on the utility performance driving-in innovation, as private sector investors has introduced new technologies and approaches to the table, enhancing project efficiency and effectiveness. Establishing clear regulatory frameworks that incentivize private sector investment while safeguarding public interests is crucial for unlocking the potential of private capital to drive inclusive and sustainable development, (**Downie, 2024).**

It is believed that, private companies are believed to operate efficiently to maximize productivity in a competitive market. Their focus on profitability incentivizes them to optimize resources, and streamline processes, leading to increased competitiveness, better use of finite resources and enhanced economic output, **Downie (2024).** In this regards the utility company has comparatively received more technical assistance, aimed at improving utility performance. Thus, expected to perform better.

Contrary to this, the researcher through the current study has observed poor systems especially with sanitation. This point to poor maintenance practices and the need for adequate human resource development. This therefore calls attention to expertise engagement in managing contracts as well as risks to ensure PPP contracts does not only attract private sector investments, it must as well not jeopardize the quality of the project deliverables or put the public at loss. Good maintenance practices can only be possible if the efforts are backed by bylaws.

5.3.3 Institutional Capacity, and Regulatory Framework.

Experts emphasized that institutional capacity and regulatory framework are essential for the viability of PPPs. A strong institutional capacity and regulatory framework are necessary for the viability of PPPs, this includes a clear and transparent regulatory framework, as well as strengthening of institutions to support PPPs. To achieve this, a PPP unit need not only established but empowered as a point of coordination, quality control, accountability, and with specialized management personnel that provides information related to PPPs, either within a single sector or across a range of sectors (Mugarura, 2019). Thus, a political will is required.

Lusaka Water and sanitations' institutional capacity, which includes its organizational structure, human resources, and systems, has affected its ability to manage PPPs effectively. institutional capacity has played a significant role in the implementation of Public-Private Partnership (PPP) programs at Lusaka Water and Sanitation Company (LWSC). One key area where institutional capacity has impacted PPP implementation is in contract management. LWSC's capacity to negotiate, monitor, and enforce contracts has been essential in ensuring PPP projects' timely completion and attainment of required quality standards.

However, despite these great milestones, institutional challenges relating to contract management to ensure viability of PPP programs remains. A review of supporting documents and responses of the in-depth interview has found that, While LWSSC has made significant progress in managing the PPP program, there are still some capacity gaps that need to be addressed. In this regards, LWSSC needs to strengthen its capacity in areas such as contract management, risk management, and stakeholder engagement even more. During 2017 World Bank mission assessment it was observed that there are a number of unresolved policy and regulatory issues that were critical to achieving project objectives related to sustainability of sanitation services at the time. These poor outcomes have been persistent over time as similar results were reported in the MCC evaluation brief report of 2023.

Equally, this study has discovered that the company still faces difficulties in managing non-revenue water, collection ratios, and tariff adequacy. To address these challenges, LWSC has received technical assistance from various partners, including the Millennium Challenge Corporation (MCC) and the World Bank. These efforts have aimed to strengthen LWSC's institutional capacity, improve its financial management, and enhance its ability to manage PPP projects effectively.

Furthermore, it was discovered that the utility company has put in place capacity building programs to equip the PPP delivery team. Through the private sector partners the PPP program has a training program that includes modules on PPP management, contract management, and stakeholder engagement. The training program is designed to

enhance the PPP delivery team with the skills and knowledge needed to effectively manage the PPP program.

5.3.4. Public Sector Support and Community Acceptance

According to an assessment by Abadie and Howcroft (2004: p31), “The wider economic benefits of infrastructure development do not directly benefit the private sector and it is therefore unreasonable to expect the private sector to expend significant effort in structuring such hybrid projects.” It is therefore, the responsibility of the Zambian government to do so in the interest of its citizens to enhance growth. Interviewees noted that public support and acceptance are fundamental for the viability of PPPs to reach the institution maturity levels.

It has been determined through this study that, if the public is not supportive of PPPs, they are unlikely to succeed. Hence, the need to ensuring the delicate balance among the economic, social and environmental aspects of the project. An assessment of this particular theme in this study was based on how engaged stakeholders are able to provide valuable feedback, support project goals, and work on how challenges can be overcome. In this regard, the study has established that, despite efforts to improve stakeholder engagement, the implementing agencies has yet to establish an effective system to curb the information asymmetry challenge arising from poor stakeholder engagement to ensure public acceptance as well as lack of precedence of some PPP projects. This is amid concerns of a risk that PPP projects can exacerbate existing social and environmental inequalities, particularly if they are not designed with the needs of local communities in mind.

Kalpana, (2014a:24) outlines the Public sector’s responsibilities which include, but are not limited to: defining public services required and the availability of resources to undertake them; specifying the project priorities, targets and outputs; executing procurement processes; setting performance standards and monitoring performance; taking corrective action in case of failure of any party to comply with standards; managing community expectations; providing an enabling environment for PPPs to flourish, and issuing permits, licenses, authorizations, contracts and any other documents that are within its powers for project work to be pursued.

This study has used the foregoing themes to assess public preparedness to handle PPP programs. These themes are however feared to be currently challenging in the water and sanitation sector. It has been noted that, some PPP project activities were inconsistent with the project goal, therefore, leading to challenges in resource leveling and generally project coordination. As a result of inadequacy of specialist and stakeholder consultation in the designing of PPP programs,

5.3.5. Stakeholder Management.

A stakeholder is an individual or organization that affects the success of a project or is affected by the implementation of a project. Thus, from a PPP perspective, a stakeholder is any institution or individual that has interest and/or the power to influence project transactions and outcomes. In this regards, according to Martin et al. (2013:17) PPP projects are unsuccessfully implemented because of lack of a sense of project ownership and commitment from the public. On one hand, effective stakeholder engagement in decision making processes promotes a shared vision, minimizes project opposition, improves investment needs assessment, strengthens citizens' trust in government actions, enhances project partners' credibility, and encourages commitment from politicians and citizens for public investment projects (OECD, 2015:22; Felsinger, 2011:20-21). In fact, full support from all the project stakeholders is a recipe for effective provision of public infrastructure facilities and services through faster and quality project deliveries, and minimized project conflicts and cancellations.

This study has confirmed that, PPP programs at LWSSC considered community engagement and stakeholder participation by providing a framework for stakeholder engagement and participation. In this regards, the private sector partner has established a stakeholder engagement plan that includes regular meetings with stakeholders. Except it has been observed that the implementing agencies has expended less attention to community engagement, inadequate to resolve conflicting interests of the intended beneficiaries. The aim of stakeholder engagement is to enable the private sector partner to understand the needs and concerns of stakeholders and to incorporate their feedback into the management of the water supply and sanitation services.

From the assessment It has been observed that there is a minimum improvement in the communication and advocacy of PPP programs except it being inadequate to grantee effective PPP project management. The project still faces substantial stakeholder's coordination risks, that require a proactive management by LWSSC.

5.3.6 Contract and Risk Management concerns

To better appreciate the concept of contract and risk management in PPP programs the study has brought into perspective Principle Agent theory (PAT). PAT suggests that the agent (private sector partner) may have different goals, priorities, and risk tolerance than the principal (LWSC or government). This can lead to agency problems, such as moral hazard and adverse selection. Therefore, by virtue of applying PAT principles, LWSC can design more effective contracts and risk management strategies, ensuring that PPPs deliver high-quality infrastructure and services to the citizens of Lusaka.

The findings of this study reveal that PPP contracts can be complex and difficult to manage, particularly if there are changes in the market or regulatory environment. Like other preceding scholarly concerns on this theme, it has been noted that Contract management has been a source of conflict of interest between public and private sector in most PPP arrangements, making this component of the PPPs crucial. Therefore, there is need for stronger contract and risk management frameworks to support the development of PPPs in the water sector. This is the common pitfall LWSSC is not exceptional of.

The misadventure is mainly as a result of lack of experts (legal, contract and risk management individuals) to manage PPP programs. This is consistent with assertion that, there is lack of resources and a combination of special skills mix in financial analysis and modeling, transaction structuring, commercial legal expertise, sector knowledge and transaction management to effectively deliver PPP programs in implementing agencies. The research confirms that, lack of expertise in government agencies, leads to delays in decision-making, problems in project preparation, and difficulties in conducting feasibility studies and dealing with unsolicited proposals. Technical expertise is a key factor in the implementation of the projects as indicated by (Wysocki, 2003)

Allocating risks to a party better equipped to manage them is a crucial aspect of ensuring project viability in Public-Private Partnerships (PPPs). Consistent with this fact is an assertion by Sasi and Prasad, (2004) alluding that, by allocating risks to the party best able to manage and mitigate them, the public sector is minimizing the probability of the risk occurring and the impact in the event that it does occur and is thus obtaining overall efficiencies for the project, translated by a lower overall cost over the lifetime of the project. Private sector partners have incentives to maintain assets efficiently while ensuring faster Project Completion falling within set timelines a trend noted across different projects, (EIC 2005). Now considering the complexity of PPPs, attention to contract and risk management is due.

To achieve PPP effectiveness, it requires that the implementing agencies, assemble a team with expertise in contract law, procurement, and project management to oversee contract administration as well as, establishing a comprehensive yet explicit framework that outlines roles, responsibilities, and procedures for contract management.

5.4 Prevalence of PPPs implementation Challenges.

The first research objective sought to assess the strength of the method for procurement of public goods and services particularly in the water sector. The current findings have confirmed several advantages of the method. In the same vein the current study has confirmed the prevalence of challenges hampering the implementation of PPPs in the water sector at LWSSC.

The study highlights the weaknesses of the PPP procurement method in the water sector, including financial challenges, social and environmental concerns, institutional and regulatory challenges, and contract and risk management challenges. These findings are consistent with the literature on PPPs, which highlights the potential risks and challenges associated with this procurement method.

Engel et al (2011) report, states that, volatile economic conditions in developing countries highly affect the implementation process raising uncertainties affecting private participation rates. The study further states, these poor economic conditions lead to: increased project costs, and renegotiation of contract terms. The current study, correlate

with the findings by Chilala (2019) on the PPP Implementation challenges in the road sector in Zambia. According the findings of the said study (Chilala, 2019), the treasury approval for some transactions especially Contractor Finance Initiatives (CFI)) were not granted because of lack of room to commit more debt by Ministry of Finance. It was further discovered that the Government's debt as a percent of the GDP was used by investors to measure the country's ability to make future payments on its debt and affected the country's borrowing costs and bond yields. Thus making the situation unfavorable for developing economies like Zambia.

5.5. Quality of Infrastructure

The foregoing implantation challenges has a negative impact on the quality of the utility infrastructures and its sustainability. As this study discovered that most new infrastructure were already deteriorating, pointing to poor maintenance practices. This poor status as well point to the private sector inadequacy in terms of the capacity to design, build, operate and maintain the new infrastructure.

The findings of this study were consistent with the Millennium Challenge Cooperation (MCC, 2023) evaluation report stating that, Sustainability of the drainage infrastructure was at risk due to inadequate garbage collection. However, this study, goes further to attribute the failure of drainage system to inadequate number of drainages, poor design of drainages and construction of the drainage. As some drainages were leading nowhere. More so, considering Lusaka's rapidly growing population as result of urbanization, it is fair to conclude that the utility company needs more resources to meet the water and sanitation needs of the poor urban. Which is not feasible for government alone to manage?

Transactional Cost Economic theory focuses on the costs associated with transactions between parties, including those involved in PPPs. The theory suggests that high transaction costs can lead to inefficient outcomes, including poor-quality infrastructure. By understanding the transaction costs involved, governments and private sector partners can design PPPs that minimize these costs and promote better outcomes. In the development of TCT, Williamson describes initially the contrast in governance structures between markets and firms. Williamson (1995, 1998a) argued that, hierarchical

organization like firm may reduce transaction costs, depending on its impact on incentives, monitoring and structure of production. Whereas exchange through the market may have high transaction costs for some activities, exchange within integrated structures (hierarchical modes) may suffer from low-powered incentives. Thereby influencing the quality of project at large.

Institutional theory suggests that the quality of infrastructure is influenced by the institutional framework governing the sector. This includes human capital development, laws, regulations, and norms that shape the behavior of actors involved in PPPs in an institution. Based on the revelation of the current study on the effects of institutional frameworks, the researcher is convinced as general perception suggests, well-designed institutional frameworks can ensure that PPPs are transparent, accountable, and responsive to the needs of users. This way institution maturity relates to quality of infrastructure and project delivery.

5.6 Significance and implication of the findings

While it is true PPP has the capacity to bridge the infrastructure gap in the water and sanitation sector, the study findings call attention to the significance of thorough planning, design, and implementation of PPPs in the water sector. This include ensuring PPP projects are well-structured, that there is ample consultation with community members, and that there are strong institutions and regulatory frameworks in place to support the development of PPPs, as the viability of any PPP programs highly dependent on this. The study emphases the importance of strong institutional and regulatory frameworks, contract management, and human resource development in a bid to effectively manage PPP programs.

5.7 Limitation

The study being qualitative in nature has fallen short in give a financial evaluation report to highlight detailed financial viability. It has focus much on institutional or implementing agencies capabilities. The findings were generalized to other sectors which implemented the PPP programs in Zambia because expert sampling went beyond water sector. The analysis is however based on the prevailing social, political and economic fundamentals

in Zambia. The results may not be valid under different economies and political environments.

5.8. Future studies

A study would be necessary to determine effective implementation of PPP programs in the water sector considering Zambia's economic, social and political environment. Future studies should as well include in there sampling academicians in areas like human resource management, economic development and engineering. Their expertise could be valuable to the study of PPP in Zambia.

5.9 Summary of Chapter 5

The chapter 5 has given a summary of main research results in relation to research outcomes and study theories. It has shown how the current results fit into the existing knowledge. The limitations and the area for future study have also been highlighted. In a nutshell the viability of PPP programs is not always guaranteed but highly dependent on players' fulfilment of a number of factors.

Chapter 6:
Conclusion and Recommendation

6.1. Introduction

This study sought to assess the Viability of Public Private Partnership Procurement Method in the Zambian Water Sector and focused on Lusaka Water Supply and Sanitation Company. The study was anchored on three objectives namely:

1. Assess the strengths of PPP financing models in infrastructure development at LWSC.
2. Assess the weaknesses of PPP financing model in infrastructure development at LWSC.
3. Determine the factors affecting the implementation of PPP projects at LWSC.

To accomplish these objectives, a detailed literature review was undertaken and utilized a purposively sampled population of experts in an in-depth interviews besides observations. The process involved identifying recurring themes, patterns, and trends related to the strengths and weaknesses of PPPs in Zambia as well as factors that influences adoption and implementation of LWSS PPP project.

6.2 Summary of findings.

The findings of this study provide insights into the viability of the PPP procurement method in the water sector and highlight the need for careful consideration and management of several factors to ensure the success of PPPs. This study suggests that the viability of the PPP procurement method in the water sector is dependent on several factors, including implementing agencies' interests alignment with government policies and objectives, private sector interest and participation, institutional capacity and regulatory framework, public support and acceptance, enhanced stakeholder engagement,

utilization of innovative solutions and technology in the management of water sector infrastructure and lastly, contract and risk management.

These themes are intertwined to the point each one depend on the other and they are all fundamental to this study. It has been established that, while there is progress in terms of commitment to strengthening institution capacity, a challenge which is not yet fully resolved, a major challenge at the moment has been lack of expertise and budgetary constraint to support PPP programs in the water sector. All these depend on political will or government commitment which is feared to be too low or unpredictable. Interviewees have expressed concerns with politicization of PPP projects, noting that, some projects have ended up being delayed or completely cancelled with the change in political leaderships over the decades. This has been one attribute to high number of unsuccessful PPP projects among others.

Contract management with emphasis on risk management and allocation has been noted as one area that require expertises. Whereas it has been discovered that, implementing institution have individuals with reasonable educational levels (Bachelor's Degrees, Masters and PhDs), most of them were overlapping in terms of roles yet not experts in either contract or risk management. The failure to design and manage contracts as well as risk management has been attributed to lack of specialist to handle PPP contracts. These inadequacies have led to legal disputes which obviously resulted into project cancellation in some projects.

Overall, an examination of the viability of PPP programs in the water sector has been classified as moderate and progressing considering economic constraints of Zambia as a developing country. This study will contribute to the existing body of knowledge on PPPs in the water sector, providing insights into their viability, strengths, weaknesses, and critical success factors. The findings will be useful for policymakers, practitioners, and researchers seeking to improve the effectiveness of PPPs in the water sector.

6.3 Recommendations

To ensure the viability of PPPs in the water sector in Zambia, the study recommends the following measures:

1. The PPP Unit and the implementing agencies should develop a clearer and more transparent guidelines and policy framework for PPPs in the water sector in Zambia.
2. PPPs in the water sector will need to prioritize quality and sustainability, including the better infrastructure design and building to ensure reduction of water losses.
3. Future PPPs in the water sector will need to prioritize community engagement, including the involvement of local communities in the planning and decision-making process.
4. In order to reduce on the pressure that comes with Lusaka's growing population, Lusaka City Council need to build up execution of sanitation-related bylaws.
5. LWSSC need to approve a sustainable tariff structure for Lusaka urban.
6. PPP Unit should define time guidelines for procurement of PPP transactions to minimize the risk of transaction taking too long to materialize.
7. The implementing agencies should effectively manage stakeholders to get the buy in and support for the use of PPPs.
8. The implementing agencies to increase operational budgets.
9. The implementing agencies to outsource expertise in designing and implementing PPP contracts as well as financial analysts.

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Appendix 1: Interview Guide

Consent Form

UNIVERSITY OF LUSAKA

SCHOOL OF POST GRADUATE STUDIES

Consent Form

My name is Nyundu Ngombo. A postgraduate student at University of Lusaka, studying Master of science Project Management. I am conducting a research on "**Viability of Public Private Partnership Procurement Method in Zambia's Water Sector: A Case study of Lusaka Water Supply and Sanitation Company**".

This study seeks to contribute to the body of knowledge on Public Private Partnership programs in the water sector, which is aimed at addressing the gap in existing literature on the viability of PPPs in water sector. It will be of great benefit to the utility campany and government at large in terms of generating new perspectives that will enhance frameworks formulation with regards to the utilization of the mentioned procurement method.

Therefore, considering the nature of the study, you have been purposively selected to participate in this important undertaking, based on your role and expertise. Your participation is very essential to this research, however, it is voluntary. Hence, the

interview will be conducted in a interviewee's setting, which means it will be at your convenience.

This study takes a qualitative approach, which by its nature, the conclusion will be based on interviewee's' in-depth understanding and experience. Kindly be assured that your identity and responses to this interview are strictly confidential and will not be disclosed to any third parties. The information obtained shall be treated confidential and purely for academic purposes.

This interview will be recorded for quality purposes and will take approximately take 20 minutes of your time. I will really appreciate if you allow me to go ahead.

Consent granted: 1=Yes. 2 = No.

If consent is denied, please state any reasons given:

Section 1: Demographic Data (2 min)

1. Gender ☐ Male ☐ Female	2. Years of Experience ☐ Less than 5 years ☐ 5-10 years ☐ 11-15 years ☐ 16-20 years ☐ Above 20 years	3. Category of Management ☐ Strategic management ☐ Middle managrmeny ☐ Lower management ☐ Others specify_____
4 institution ☐ LWSC ☐ NWSC ☐ LCC ☐ PSP ☐ MWDSEP	5. Highest Level of Education Completed ☐ Certificate ☐ Diploma ☐ Bachelor's Degree ☐ Master's Degree ☐ Doctorate	

SECTION 2: STRENGTHS OF PPP PROCUREMENT METHOD (4 min)

1. *What strengths do you think the PPP programs bring to Lusaka water supply and sanitation company?*
2. Does the PPP model address funding constraints in the project?
3. What innovative solutions or technologies has been introduced in any of the PPP projects at LWSSC?

SECTION 3: WEAKNESS OF PPP PROCUMENT METHOD (4 mins)

1. *What challenges have you encountered or foresee in implementing the PPP financing model?*
2. What risks do you think this mode of financing would pose to the company?
3. What are the potential conflicts of interest between public and private partners as a result of this model?

SECTION 4: FACTORS AFFECTING THE IMPLEMENTATION OF PPP PROGRAMS. (5 min)

1. State some of the factors that influence the implementation of PPP programs in water sector.
2. (a)Does the PPP procurement method affect the cost of the project
   (b)If the answer to question (2) is yes, how?
3. What implications does this procurement method pose to the utility company, in terms of legal, social and environment?
   a) Legal …
   b) Social …..
   c) Environment….
4. Considering question (3) in this section, to what extent do PPP programs at LWSSC meet public acceptance?
5. How likely is the private sector willing to participate in PPP programs?
6. What are some of the factors that affect privates sector participation?

7. How would you describe the company's institutional maturity to manage PPP programs in terms of skills set, legal and institutional frameworks, organizational structure, and contract management?

8. **<u>Institutional and governance capacity assessment</u>**

Pre-defined themes	Rate as: **1=Favorable** **2=Moderate** **3=Unfavorable**.
Funds and Treasury Approval	
Policy Direction from the Highest Government Level	
Interest by the Private Sector to participate in PPP Programs	
Clarity of Procurement Guidelines	
Policy directions on PPP	
Adequate Regulatory Framework	
Political Commitment	
Adherence to the Regulatory Framework	
Institutional Capacity at Lusaka Water	
Resources within the PPP Unit to Promote PPPs	
Tariffs level.	

SECTION 6: LUSAKA WATER SUPPLY AND SANITATION COMPANY. (3 min)

1. *<u>How has the PPP model helped LWSSC improve water supply and sanitation services in Lusaka?</u>*

2. Do you think LWSSC as a company has the capacity to effectively manage the PPP programs?
3. How has the PPP model enhanced community engagement and stakeholder participation?
4. Considering the traffic volume and compliance levels in the affected communities, do you think private sector are likely to recouple their investment?
5. How has the PPP program affected the tariff levels?
6. Does the service provider have in place capacity building programs to equip the PPP delivery team?

SECTION 7: FUTURE OF PPP PROCUREMENT METHOD IN WATER SECTOR. (2 min)

1. *How can the government create an enabling environment for PPPs?*
2. What capacity building or training is needed for successful PPP implementation?
3. How can PPPs be made more inclusive and equitable?

Appendix 2: Work Plan

Activity	Sept	Oct – Nov	Dec	Jan - Feb	Marc h
Identification of the problem	✓				
Formulation of the Topic	✓				
Proposal development		✓			
Development of instruments			✓		
Data Collection and Analysis				✓	✓
Submission of the report					✓