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Provisioning of sustainable water, sanitation, and hygiene in Butterworth,
Mnquma Local Municipality

By



MENA Athenkosi
201614785

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Submitted in fulfilment of the requirements for the degree of Master of
Administration, in the Department of Public Administration, Faculty of Management
and Commerce, at the University of Fort Hare.

Supervisor: Prof M. Sibanda

November 2024

DECLARATIONS

Declaration on Previous Submission

I, **Athenkosi Mena**, student number **201614785**, declare that this dissertation titled” ***Provisioning of Sustainable Water, sanitation and Hygiene in Butterworth, Mnquma Local Municipality***”, submitted for the award of the degree of Master of Administration in the faculty of Management and Commerce at the University of Fort Hare is my work and has never been submitted for any other degree at this university or any other university.



22/02/2025

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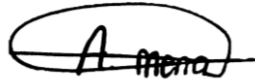
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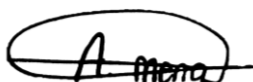
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Declaration on Research Ethical Clearance

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DEDICATION

It is imperative to note that access to safe, sanitation and hygiene remains the most basic human need for the health and wellbeing of all. Consequently, this study is dedicated to all those who are affected by inadequate water and sanitation infrastructure, thus resulting in adverse outcomes.



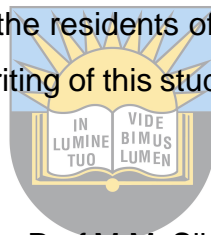
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ACKNOWLEDGMENTS

“Trust in the Lord with all your heart, and do not lean on your own understanding. In all your ways acknowledge Him and He will make your paths straight” (Proverbs 3:5-6).

Above all I would like to praise and thank the Lord, who has granted countless blessings, knowledge and opportunity to the writer who has finally been able to complete this dissertation.

The success of this dissertation has largely depended on the encouragement and guidelines of many. I take this opportunity to express my unfeigned gratitude to the people who have been instrumental in the successful completion of this thesis. Writing this thesis has been one of the best experiences of my life, the lessons depicted, the people I have encountered, and the memories will remain cherished for the rest of my life. My heartfelt gratitude goes to the residents of the Mnquma community who have influenced this thesis, I hope the writing of this study will contribute to the improvement of their lives.



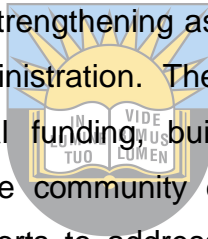
My greatest appreciation is shown to Prof M.M. Sibanda as the dissertation supervisor. I cannot thank you enough for the tremendous support, assistance and advice, without your guidance this thesis would have failed to materialize.

The author is indebted to his family as they have been an unfailing support system, your constant encouragement and belief in me fueled my determination see the academic writing of this thesis to completion. Thank you for the encouragement that has resulted in me being the first in the family to have accomplished an achievement such as this, I am hopeful that it will serve as inspiration and motivation for the generation behind me.

To Nomawethu Mena, my loving mother in heaven, thank you for your unconditional love, unwavering guidance and consecrated prayers. Even though you are no longer here with me, the presence of your guiding love is still felt and will forever be in my heart. Your life was a blessing, and your memory will forever remain a treasure. You are greatly loved and deeply missed, continue to rest MaMcirha.

ABSTRACT

Ensuring sustainable Water, Sanitation and Hygiene (WASH) practices in Mquma Local Municipality has remained a challenge, as significant population lacks access to these services. Resultantly, people have resorted to the consumption of unsafe water and open defecation, which poses a risk to human health and pollutes the environment, respectively. The research, therefore, aims to explore how Mquma Local Municipality can sustainably provide WASH services to its residents to meet sustainable development goal (SDG 6). The study utilized an interpretivism worldview followed by a qualitative case study research design to achieve the research objectives. A sample of (**n=18**) participants was purposefully selected as participants for the study. Structured interviews (**n=3**) and focus group discussions (**n=15**) were utilised as data collection methods. Data was analysed through thematic and content analysis, and trustworthiness and ethical considerations were considered for the study. Key findings revealed that municipal efforts such as education and infrastructure development need strengthening as they continuously face challenges such as vandalism and maladministration. The study recommended continuous monitoring of projects, additional funding, building WASH facilities, expanding infrastructure space, and effective community engagement. Overall, the findings stress the need for sustained efforts to address existing challenges and improve WASH facilities in municipalities.



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Key Words: *Water, Sanitation, and Hygiene; Sustainable Service Delivery; Sustainable Development Goal*

ACRONYMS

CMAS- Catchment control agencies

CNC- Critical Natural Capital

DALYS- Disability Adjusted Living Years

DEA- Data Development Analysis

IACHR- Inter American Commission on Human Right

IWRM- Integrated Water Resource Management

JMP- Joint Monitoring Programme

MDGS- Millennium Development Goals

MLM- Mquma Local Municipality

NDP- National Development Plan

NEMA- National Environment Management

NSP- National Sanitation Policy

NWA- National Water Resource Strategy

PPP- Public Private Partnership

SDG- Sustainable Development Goals

UN- United Nation

UNICEF- United Nations Children Fund

WASH- Water, Sanitation and Hygiene

WHO- World Health Organization

WSA- Water Service Authorities

WSDP- Water Service Development Plan

WSI- Water Service Institution



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WUAS- Water User Association



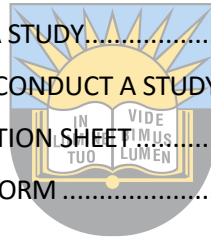
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CHAPTER ONE: OVERVIEW OF THE STUDY

1.1 INTRODUCTION

The goal of this dissertation is to find out how Mquma Local Municipality can meet Sustainable Development Goal (SDG) No.6 (Goals 6.1 and 6.2) by providing water and sanitation to its inhabitants. Thus, Chapter One contains the background and explanation for the study, as well as highlighting the significance of the topic under inquiry. This chapter also looks at the problems with emphasis to the research problem statement, which facilitated identifying the appropriate research topic that guided this study. In each corresponding chapter, when appropriate, the study objectives were achieved after being created in accordance with the research questions. The chapter also defines keywords underpinning this study and presents an overview of other chapters that comprising this dissertation.

Developing countries like South Africa continue to struggle with deeply ingrained historical legacies related to providing water and sanitation to their communities. Some communities consequently lack access to these crucial water services. Additionally, this has been brought up in relation to some of the most unequal societies in the world (Ramcharan-Kotze, 2020). Evolving debates on water governance focuses on the necessity for long-term plans for the provisioning of water, sanitation, and hygiene in Mquma Local Municipality. The study aims to achieve the progressive implementation of SDG targets 6.1 and 6.2. Therefore, the researcher seeks to fill the gap in literature regarding water, sanitation and hygiene (WASH) by aligning it with the progressive implementation of SDG targets and objectives.

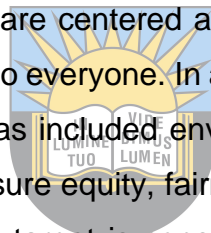
1.2 BACKGROUND AND CONTEXT OF STUDY

The United Nations endorsed the 2030 Sustainable Development Agenda in 2015, aiming to ensure universal access to water, sanitation, and hygiene (WASH) services by 2030. Goal No.6 targets universal access, and the UN General Assembly recognized WASH services as a fundamental basic human right in 2012. Sanitation, as defined by the World Health Organization (WHO), refers to the provision of facilities and services that ensure the safe disposal of human urine and faeces (WHO, 2018). Access to WASH services remains unequal and difficult for many people in impoverished countries like South Africa, particularly those living in isolated, distant

rural areas and small towns (Abrams et al., 2021). Making sure that water and sanitation are managed in a sustainable manner is crucial for providing fair and equal access to WASH services for all citizens (Mulondo, 2020).

The provision of scaled and sustained service improvements to the most vulnerable groups in the world by the WASH sector still proves to be an insuperable obstacle (WHO/UNICEF, 2019). Significant advancements toward ensuring accessible, reliable, safe WASH services are hindered by inconsistent and dysfunctional water delivery systems and overused and decaying latrines. Therefore, the sector is striving to achieve the goal (SDG-6) of safe and regulated WASH services by 2030. However, to address the challenges of sustaining WASH services, a fundamental change in approach is needed (Haque & Freeman, 2021).

According to Bijelovic et al., (2022) the 2030 Sustainable Development Agenda primarily focuses on attaining Sustainable Development Goals 3 and 6. These goals are considered human rights and are centered around ensuring making certain that water and sanitation are available to everyone. In addition, the Ostrava Declaration on Environment and Health (2017) has included environmental protection as one of its regional priority goals seeks to ensure equity, fairness, and sustainability in providing WASH services to everyone. This target is consistent with SDG objectives 6.1 and 6.2, which guarantees the availability of water and sanitation.



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Inadequate WASH service has affected millions of people all over the world and as a result they experience a variety of illnesses and diseases that could be prevented. This results from consumption of contaminated water and contact with water that serves as a breeding ground for disease-transmitting organisms (Mulopo 2015). Pereira & Marques (2021) claim that for decades, a significant number of people worldwide have survived without access to water and sanitation, causing problems for global society.

The Sustainable Development Goals (SDGs), intending to provide a roadmap for attaining a better future for everyone. The WHO/UNICEF reports indicate that in 2017, 4.2 billion individuals lacked access to safely managed water. Additionally, the report state that 3 billion and 2.2 billion individuals lacked sufficient sanitation facilities and access to basic handwashing

facilities, respectively. The ongoing challenges to achieve the SDG water and sanitation targets persist (WHO, 2019). The challenges encompass increased urbanization and a substantial rural population, requiring significant resource mobilization to bridge the vast coverage gap (Kamau & Mungai, 2019).

Persistent obstacles to meeting the SDG water and sanitation targets remain present (WHO, 2019). These obstacles include increased urbanisation, and a massive rural population, which necessitate extensive resource mobilisation to close the enormous coverage gap (Kamau, & Mungai, 2019).

The wellbeing of African residents is compromised with seventy percent of water systems in rural areas are either non-existent or are only occasionally functional. Around twenty-eight percent of people in Africa still use open spaces to defecate due to subpar WASH practices (Tseole et al, 2022). The biggest public health and development problem is the lack of universal, affordable and sustainable access to WASH. At the beginning of democracy, 15.2 million South Africans lacked adequate water supplies, while 20.5 million did not have adequate sanitation facilities (Chauke, 2017). This is intensified by the persistent legacy of apartheid. During the apartheid era, secure access and dependable water services were predominantly available to the affluent inside municipalities. Nevertheless, these services were exceedingly limited in black townships. Consequently, as noted by Mnisi (2011), numerous complex challenges impact individuals' access to safe and accessible WASH services in many developing countries.

South Africa has ratified multiple domestic agreements to attain comprehensive accessibility to water and sanitation. It has subsequently incorporated them into the National Development Plan (NDP) for 2030. One of the key priorities of the NDP is the need to provide adequate and acceptable WASH accessible for all. This objective is pursued alongside efforts to eradicate poverty and inequality in South Africa by 2030 (Ojo, 2018). The government mandates in 2016 to ensure access to sanitation facilities, particularly for vulnerable individuals and disadvantaged families, as per the national sanitation policy. (Masindi & Dunker 2016).

Section 156(1) of the Constitution of the Republic of RSA, 1996, stipulates that municipalities have executive responsibility for the authority to address local government issues listed in Part B of Schedules 4 and 5. This also applies to other

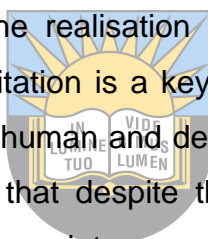
local government matters and water and sanitation services, to the extent specified in section 155(6)(a) and (7), with the exception of residential wastewater and sewage disposal systems and potable water supply systems (RSA, 1996; Nkomo, 2017).

Maramura (2022) indicates that inadequate access to water sources and sanitation in the Mchubakazi area may result in health problems affecting the entire community. Mngquma Local Municipality is encumbered by rural demographics as a result of its constrained and sluggish economic development. Masindi & Dunker (2016) point out that the constitutional obligation of local government (Metro, Local, or District Municipalities) as Water Service Authorities (WSA) is to provide WASH service to all communities within their areas of jurisdiction. The duties of the aforementioned water entities are further elaborated in the Water Service Strategic Framework, 2003 Strategic Framework for Water Service (2003). It specifies that WSA must offer adequate infrastructure for essential services by promoting health and hygiene. WSAs are accountable for the financial cost associated with operating and maintaining basic services (DWAF, 2003). Numerous smaller municipalities, including the case study of Mngquma Local Municipality, lack capacities adequate, such as skills and resources, to deliver WASH services that are both efficient and effective (Masindi & Dunker, 2016:30). This study investigates the provision of sustainable WASH in Zizamele Township, Butterworth, in the Mngquma local municipality. The study identified elements that contribute to sustainable WASH supply and offered strategies for municipalities to aid in achieving Sustainable Development Goal 6.

1.3 STATEMENT OF THE PROBLEM

According to Mahlalela et al., (2020) the Eastern Cape Province, South Africa is among the areas hit the hard by the drought. Inadequate provision of fundamental sanitation facilities is a primary factor contributing to substandard water quality in this province including Amathole District Municipality (Hove & Osunkunle,2019) where the area under study (Zizamele in Mngquma Local Municipality). The local administration faces difficulties in delivering vital services, including as clean water and sanitary facilities, to the population of Zizamele township (Moloto, Mkhomazi & Worku, 2020). Municipal dysfunction results in local government being unable to provide municipal residents with services, as mandated in the RSA Constitution (1996) (RSA, 1996; Maramura, 2022). Bishoge (2021) notes that WASH provisioning is constrained in municipalities like Mngquma Local Municipality due to a plethora of

wicked service delivery and governance problems. These problems include enormous service delivery and backlog issues in water and sanitation, ineffective participatory governance systems and structures, weak oversight of ongoing projects, fraud, corruption, and mismanagement, including negative audit outcomes, service delivery protests resulting in violence, inadequate participation by ward councillors, internal and external political party conflicts that detrimentally affect governance and service delivery, and unsuitable job placements and insufficient skills capacity for specific positions (Masindi & Dunker, 2016:38; Asoba et al, 2020). Maramura (2022) notes that areas like Mchubakazi, in Butterworth in Mquma Local Municipality, have no access to water sources or sanitary facilities. Due to the municipality's slow economic growth, Mquma Local Municipality suffers from financial viability problems, which negatively affect WASH service provision. Thus, many residents in townships like Zizamele Township practice open defecation in waterways, open fields, shrubs, and forests (Murei et al, 2022). Access to water and sanitation is considered key to the realisation of the right to human dignity and welfare. Access to water and sanitation is a key benchmark to whether a person's living conditions are tolerable or inhuman and degrading (Mleya, 2016). For Emily & Muyengwa (2021), it is worrying that despite the country's democratic transition, many sections of South African society remain impoverished and continue to experience injustice and unequal access to WASH services as fundamental basic human rights.



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1.4 RESEARCH OBJECTIVES

The main target of the study is to:

1. Explore how Mngquma local municipality can sustainably provide water and sanitation to its residents to meet SDG 6, objectives 6.1 and 6.2.

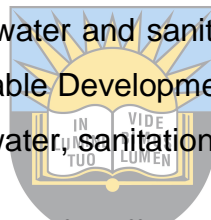
Sub-objectives:

(i) Identify factors contributing to sustainable water and sanitation provisioning and opportunities in achieving Sustainable Development Goal 6 in Zizamele township in Butterworth, Mngquma local municipality.

(ii) Establishing logical framework intervention planning strategies for monitoring and evaluating in the provision of water and sanitation in Mngquma Local Municipality

(iii) To establish how sustainable water and sanitation provisioning in Mngquma local municipality can meet the Sustainable Development Goal 6, objectives 6.1 and 6.2 of universal access to safe drinking water, sanitation, and hygiene for all by 2030

(iv) To recommend intervention strategies for effective provisioning of WASH services to residents of Mngquma Local Municipality.



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1.5 RESEARCH QUESTION

The main research question is:

1. How best can Mngquma Local Municipality provide sustainable water and sanitation provisioning to meet SDG 6, objectives 6.1 and 6.2?

Sub-Research Questions:

- (i) What factors contribute towards sustainable water and sanitation provisioning Zizamele township in Butterworth, Mngquma Local Municipality?
- (ii) What opportunities and constraints do Mngquma Local Municipality face in the provisioning of WASH services to residents of Zizamele township in Butterworth, Mngquma Local Municipality?
- (iii) To what extent can the logical framework be an effective intervention planning strategy for monitoring and evaluating in provision of water and sanitation in Mngquma Local Municipality?
- (iv) How Mngquma Local Municipality sustainably provide access to WASH to all its citizen by 2030 and achieve target 6.1 and 6.2?
- (v) What intervention strategies can Mngquma Local Municipality use for the effective provisioning of WASH services to its residents?

1.6 SIGNIFICANCE OF THE STUDY

Implementation programs for improving water access do not meet societal needs due to policy deficiencies with specific emphasis on policy formulation and execution (Amutenya, 2020). Bishoge (2021) contends that the provision of water and sanitation in developing nations is often unsustainable and is bedevilled by issues such as financial resources, a shortage of skilled labour, a rapidly growing population, and ineffective policies and implementation systems. Additionally, Shez, (2017) notes that inequitable access to water and sanitation increases the vulnerability of certain demographic groups, including women and persons with disabilities, indigent households, and disadvantaged persons. While the preceding scholars focus on water supply and sanitation provisioning obstacles mostly in developing countries, this study provides empirical evidence on what is currently occurring in municipalities encountering service delivery access challenges, especially in water, sanitation and hygiene. Maramura (2022) contends that poor resource allocation and policy implementation in Mquma Local Municipality is problematic due to dysfunctional systems and structures. New Public Management in the public sector creates fecund opportunities for disaggregation, competition and contracting out of public services. New Public Management (NPM) controls output measures by focusing on results and output control rather than procedures (Kalimullah, Alam & Nour, 2012).

Public-Private Partnerships (PPPs) can drive efficiency through public choice alternatives by allowing competition and choice. This can potentially resolve water and sanitation issues, implement WASH technology, and enhance the efficiency of WASH-related infrastructure projects. This study is important as it adds to existing knowledge on WASH, and the recommendations could be used to drive monitoring evaluation and intervention strategies for effective provisioning of WASH services to residents in local government, in similar local government contexts in South Africa and elsewhere. Most importantly, the research will fill a knowledge gap by adding to limited studies focusing on water and sanitation in a sustainable manner in Mquma Local Municipality. Moreover, the study is significant in that it can inform municipal public officials on viable and effective strategies for attaining (SDG) 6, objectives 6.1 and 6.2, which mandate that by the year 2030

1.7 DELIMITATION OF THE STUDY

This research focused on the Mngquma local municipality, Zizamele township, in Butterworth. A purposeful sample was used, and the findings could be transferred to contexts similar to the case study. The study has explored how Mngquma Local Municipality can sustainably provide water and sanitation to its residents and meet SDG 6, targets 6.1 and 6.2. The study has used Aristotle and Thomas Hobbes's Human Right Based Approach and John Rawls' Theory of Justice, as theoretical analytical lenses. Additionally, the study used a qualitative research approach for the investigation.

1.8 PRELIMINARY FRAMEWORK

Chapter one: The study's introduction will be provided in this section. It will include the History, research problem, importance of study, research aims, and research questions.

Chapter Two: This section comprises the literature review; it details the Conceptual, theoretical, and legal framework underpinning the study. Empirical-related literature for sustainable water, sanitation, and hygiene to meet SDG 6, objectives 6.1 and 6.2 was further discussed.

Chapter Three: The chapter provided the research methodology.

Chapter Four: This chapter presented the empirical findings from the collected data.

Chapter Five: This chapter provided conclusions and recommendations based on the researcher's results.

1.9 CONCLUSION

Considering the above arguments, it can be concluded that in the rural areas of South Africa, the provision of WASH facilities is still inadequate. South Africa has presented numerous policies and procedures to eliminate deficient WASH in rural areas in such a way that individuals should receive quality services such as water and sanitation to achieve SDG 6.1 and 6.2 universal access. A thorough conceptual, theoretical, and legal framework supporting the investigation is given in the upcoming chapter. The following section will also include reviewing and presenting empirical literature linked to the topic being studied.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

This chapter has provided an extended amount of literature regarding WASH challenges and WASH in rural, informal areas. In doing so (conceptual, theoretical and legal framework) underpinning water and sanitation provision in rural areas. The chapter revealed that much need to be done to achieve sustainable development goal 6 for universal access to WASH service by 2030. This chapter provides a detailed literature on the phenomenon under study has been reviewed and presented in this chapter.

2.1 CONCEPTUAL FRAMEWORK FOR EFFECTIVE WASH SERVICES

The conceptual framework section provides various concepts and theories that influence the study that will be explored, and their relationship is portrayed in the diagram below.

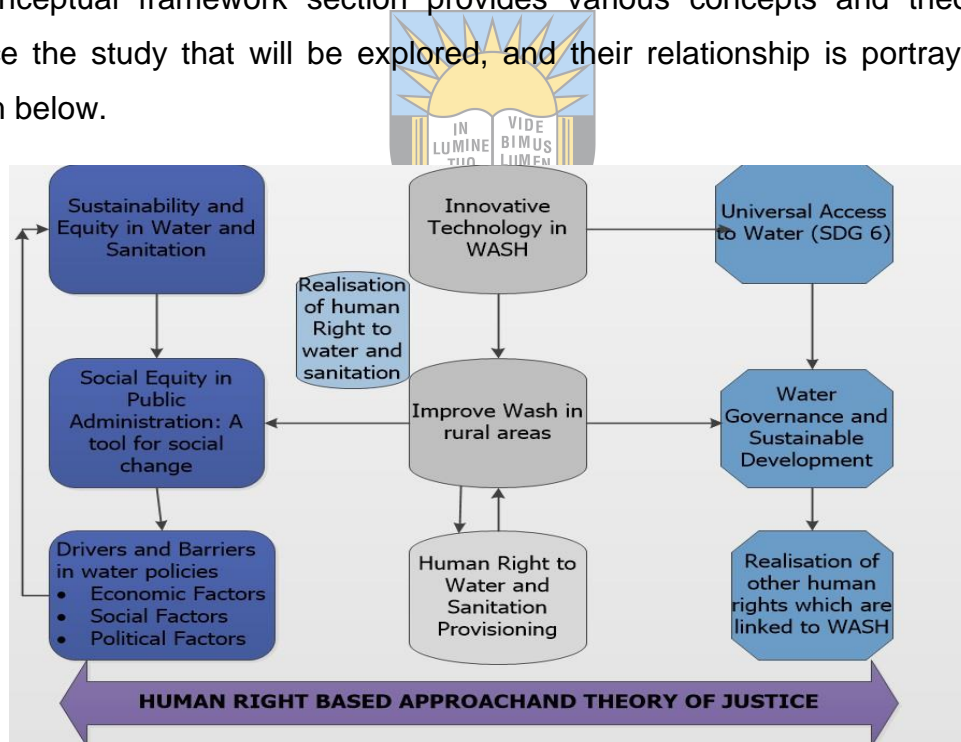


Figure 2.1: Conceptual Framework for Water, Sanitation, and Hygiene Services

Source: The Researcher (2024)

2.1.1 Synopsis of Water, Sanitation and Hygiene (WASH)

WASH is essential for raising people's quality of life (Hutton & Chase, 2018). For UNICEF (2016), WASH is pivotal for development planning, focusing on eliminating open defecation by 2030 and providing universal, sustainable, and equitable access to clean water, appropriate sanitation, and personal hygiene. However, worldwide efforts to improve WASH infrastructure and present coverage levels reveal uneven development and discrepancies, notably in rural communities like Zizamele in Butterworth. Thus, the sustained provisioning of safe drinking water and sanitation without resource depletion requires sustainable WASH infrastructure (Ryan, 2016). International and national levels both recognize WASH services as fundamental basic human rights that support human needs (Chirgwin et al, 2021) and integral to a satisfactory standard of living (Coetzee & Kotzé, 2018). To ensure universal access to fundamental water resources and hygienic amenities, it is imperative to enforce the water reforms fully. This will safeguard the environment and prevent any detrimental impact on society. Mulondo (2020) argues that WASH has been under worldwide observation since the 1930s. Bartram et al, (2014) further pointed out some monitoring organizations, such as the World Health Organisation and UNICEF.

The importance of ensuring WASH services should not be undermined. These include improving the public's welfare, advancing the economy, preserving life, and safeguarding human rights and dignity (Abrams et al, 2021). As a result of its importance, WASH services were incorporated into the MDGs and SDGs. In 2010, the United Nations General Assembly officially recognized the human entitlement to obtain uncontaminated water and hygienic facilities. They declared everyone should have uninterrupted access to inexpensive, potable water and sanitary amenities. Yusuf et al, (2022) contend that attaining the SDGs necessitates adopting a WASH approach grounded in human rights principles. The approach emphasizes the need for decision-makers to be accountable, share and be accessible to information, protect marginalized groups, and engage actively. SDG Goal 6 aims to increase the coverage of WASH by 2030 (Nkeka et al, 2022). This objective also entails the progressive eradication of discrepancies in hygiene and the guarantee of universal access to uncontaminated water and sanitation (Nkeka et al, 2022). Schmiegel (2021) asserts

that it is imperative for governments to guarantee regular access to sufficient water and educational opportunities for the most marginalized groups.

Kamba et al, (2016) mention that access to safe drinking water significantly impacts people's health, economy, and quality of life, but satisfying this demand is a big barrier for African rural communities. However, the government has been working to resolve the water infrastructure backlog, notably in these underserved areas. Despite the fact that several individuals and communities in Southern Africa still do not have access to clean drinking water and improved sanitation facilities, the absence of washing infrastructure in rural areas is a greater challenge in establishing better washing facilities (Dolo, 2019). Although individuals residing in rural areas face lack of access to WASH services compared to those in urban areas, individuals in disadvantaged urban areas also experience restricted access to WASH services as a result of existing disparities (Zerbo et al, 2021). Furthermore, socioeconomic status plays a significant role in determining access to WASH services, which results in insufficient coverage in developing cities with a growing number of people from lower socioeconomic backgrounds who are disproportionately affected by the burden of diseases associated with WASH (Zerbo et al, 2021).

WASH is fundamental to improving the standard of living. In 2015, 68% of households used better sanitation, compared to 91% using improved drinking water sources. Rural communities, slum dwellers, and other marginalized groups lag far behind in terms of wealth, and there are glaring wealth discrepancies (Gomathi et al, 2018). The municipality's poor situation can be traced to weak organizational policy and institutional frameworks contributing to poor service delivery (Maramura, 2021). Oskam et al, (2021) view that the drinking water issue has a large economic impact, and that time spent from unsafe or far-off sources results in lost economic output and benefits that would have otherwise been received. In addition, the handling, processing, and storage of drinking water raise the danger of contamination which has detrimental impacts on health.

2.1.2 Brief Overview of Water, Sanitation, and Hygiene (Wash) in South Africa

The water and sanitation sector in South Africa has a complex history that poses ongoing challenges for the country. For a significant number of South Africans, the

extension and equalization of access to these vital services symbolize tangible manifestation of citizenship (Steyn & Heerden, 2011). Sutherland et al., (2014) observe that South Africa possesses highly advanced water service legislation and policy frameworks on a worldwide scale. Water is widely acknowledged as a valuable resource that is essential for the development and progress of a nation. The 1996 Constitution ensures that all individuals in South Africa have the entitlement to adequate supply of water, taking into account the available resources. This commitment is demonstrated through the implementation of the Free Basic Water Policy in 2001. Nevertheless, comprehensive access to free fundamental water and sanitation services is not uniformly accessible throughout all regions of South Africa (Sutherland et al, 2014). In an attempt to address the pre-apartheid era's primarily socially inequitable, environmentally damaging, and economically inefficient management practices, South Africa's water industry underwent numerous progressive reforms (van Koppen et al, 2011). These detrimental practices have their roots in colonialism, a time when people were deprived of basic amenities such as sufficient sanitation and water services (Cameron et al, 2022).

South Africa's experience of inadequate water and sanitation exemplify the worldwide issues related to the lack of access to these essential services. The Gravity of the situation is underscored by global statistics indicating that 2.1 billion individuals lack access to clean, safe water, while 4.5 billion are deprived of sanitation worldwide (WHO, 2017; Olagunju et al, 2019). The Human Rights Council (2010) issued declarations affirming the international recognition of water and sanitation as human rights. Consequently, numerous countries, including South Africa, are striving to fulfill the 2030 Sustainable Development Goals (SDGs) related to water (Wooldridge & inaccessible water and sanitation complications prove to display the global challenges of the unavailability of water and sanitation services around the globe. The serious situation is further illustrated by global data, which show that 2.1 billion people lack access to clean, safe water and 4.5 billion lack access to sanitation worldwide (WHO, 2017; Olagunju et al, 2019). The Human Rights Council (2010) made declarations regarding the international recognition of water and sanitation as human rights. As a result, various nations are putting efforts to achieve the 2030 (SDGs) Agenda for water (Wooldridge & Bilharz, 2017) and this includes South Africa.

2.1.3 Challenges Affecting Water, Sanitation, And Hygiene (Wash) Access in South Africa

a) *Inequality Disparities in WASH*

The WASH sector has acknowledged the need to promote gender equality and social inclusion to eliminate these disparities. Additionally, Macura et al, (2023) asserts that areas that are severely marginalized in terms of resources —, a lack of access to water, sanitation, and hygiene (WASH) services—also pose a significant risk to the health of the populace and are crucial in exacerbating gender and social inequality. The decline in water quality is largely caused by a lack of fundamental sanitation. As a result, the United Nations has proclaimed that having access to adequate sanitation is a fundamental human right (Murei, 2022). However, a lot of people in Zizamele Township practice open defecation, which includes waterways, open fields, shrubs, and forests. This is due to a lack of proper sanitation in these places. This happens notwithstanding the fact that access to water and sanitation is considered key to the realization of the right to human dignity and welfare (Murei, 2022). For Emily & Muyengwa (2021), it is worrying that despite the country's democratic transition, many sections of South African society remain impoverished and poor and continue to experience inequitable access to water, sanitation, and hygiene as basic human rights. In Tortajada's (2020) analysis, several significant obstacles to attaining the SDGs are emphasized. These include the discrepancy between global objectives and limitations at the national or local level, the absence of coherence in decisions, policies, and investments across different administrations, the insufficiency or absence of data required for informed decision-making, and the marginalization of populations with inadequate access to water and sanitation services.

According to Ohwo (2019), there is a need for more investment in WASH infrastructure, particularly in rural, peri-urban, and informal communities. Although budgets released for the development of WASH infrastructure (especially in rural areas) are frequently mismanaged or outright embezzled, Ohwo continues to report significant levels of corruption in most of the region's countries. As a result, projected results have fallen short. Access inequality is however, interconnected with certain conditions of wealth as encapsulated by the access inequality quantification, although the water and sanitation access inequality measurement has fundamentally focused on spatial inequalities (Bayu et al, 2020). There are disparities between nations, urban

and rural locations, slums and formal urban settlements, men and women, underprivileged groups, and the general community. Women and girls usually endure the task of carrying water in many nations (Bayu et al, 2020). Although poor water and sanitation conditions also have a negative impact on their health, especially sexual and reproductive health. By setting targets and demanding data disaggregation by gender, age, and disadvantaged groups, the future development agenda could overcome and eliminate inequities (Hutton, 2012).

b) Environmental and health perspective

Poor WASH and waste management practices lead to environmental deterioration, which has a long-term negative impact on the ecosystem and human health however, viral infection can spread to nearby people and the environment due to improper sanitation and treatment of municipal wastewater (Islam et al., 2021). Due to the municipality's slow economic growth, Mngquma Local Municipality suffers from financial viability problems, which inadvertently negatively affect WASH service provision. Thus, many residents in townships like Zizamele Township practice open defecation in waterways, open fields, shrubs, and forests (Murei et al, 2022). This happens even though access to water and sanitation is considered key to the realization of the right to human dignity and welfare. Access to water and sanitation is a key benchmark for determining whether a person's living conditions are tolerable or inhuman (Mleya, 2016). For Emily & Muyengwa (2021), it is worrying that despite the country's democratic transition, many sections of South African society remain impoverished and poor and continue to experience inequitable access to WASH services as part of fundamental human rights.

Residents of Skiti in Butterworth, an informal settlement of approximately 400 people sharing three communal taps, are among those who experience insufficient access to safe drinking water in Amathole District Municipality (Manomano, 2018). Residents who cannot afford to buy water rely on the Zazulwana or Skiti rivers as their primary supply of water because the Gcuwa dam has run empty (Hov & Osunukunle, 2019). Due to untreated waste that is neither safe nor healthy, the people who live in the Skiti area have to live in unfavourable conditions. This is evident in the streets and homes of Dingana (2012).

2.1.4 Factors Influencing and Impeding the Implementation of WASH Policies in Rural and Informal Settlements



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a) Social Factors

Government recognition or improved land tenure have been the results of community organization around water or sanitation, which prove to subsequently become obstacles towards services which are safe where WASH is concerned (Murungi & Blokland, 2016). The involvement of communities has the ability of ensuring that government service delivery is therefore ameliorated, including an expanded quality and sustainability of water and sanitation infrastructure and community-led WASH policy implementation strategies (Sinharoy et al, 2019) can guarantee the possibility that the infrastructure of WASH facilities will be aligned with community needs and goals. While women, children, and people with disabilities bear a disproportionate amount of the burden of inadequate access to and use of WASH facilities, the involvement of such demographics as collaborators within the planning and design processes is crucial Devkar et al, (2019). The involvement of residents in all the phases of implementation will improve infrastructure management and sustainability thus essential to encourage proprietorship.

b) Economic Factor

WASH policies for rural communities must be developed, adopted, and put into practice. Appropriate financial methods are needed, and they can come from a variety of sources. This was also emphasized by the United Nations (2019) which argued that affordability concerns should not be the reason for a lack of access to water and sanitation. Sinharoy et al, (2019) went on to propose that the government, through national urban development strategies should also assist in the financing of rural and informal settlement

Although the aforementioned economic factors may operate as drivers, they may also act as barriers to development. It is possible that the responsible authorities and government have no interest in funding rural areas (Sinharoy et al, 2019). Furthermore, poorly implemented social programmes such as South Africa's free basic water policy, which was implemented to address affordability issues may serve those who already have water services which are functioning while ignoring the people that were intended to benefit from them. In this regard, cost and affordability are among the obstacles but they are merely one aspect of access that is important for the establishment of policies of service towards water and sanitation in rural communities.

c) Political factors

The government's overall approach to rural settlements significantly impacts WASH investment and policy decisions. Social factors influence the formulation of policies and decision-making in the water and sanitation sector, as well as the overall political economy of this sector (Sinharoy et al, 2019). Generally, using an upgrading approach leads to increased growth, hence improving the availability of amenities like water and sanitation. Moreover, societal concerns can exert a substantial influence on decisions pertaining to politics, economy, and water and sanitation. Increased political drive to build and maintain water infrastructure in these places may result from informal settlements and rural populations' political representation and voting patterns (Sinharoy et al, 2019). While these factors might be drivers, they can also be barriers to the establishment of rural water policies. Corruption and a lack of political will to service these rural settlements are some of the political problems linked with rural development and slum growth (Hedden, 2016).

2.1.5 Sustainability and Equity in Water, Sanitation and Hygiene Services

The major objective of Sustainable Development Goal (SDG) 6 is to ensure equitable access to water and sanitation services while upholding fundamental human rights. Targets 6.1 and 6.2 states that it is essential for every individual to have the ability to obtain water and sanitation services, and these resources must be effectively and responsibly maintained (Bayu, Kim, & Oki, 2020). The fair distribution of sustainable water and basic sanitary services is an essential element of the social framework for achieving sustainable development. This requires eradication of the practice of openly defecating in human communities and guaranteeing fair and equal availability of water, sanitation, and hygiene (WASH) services for every individual. Thus, WASH services should be accessible, safe, and affordable to municipal residents in human settlements, for example, those in Zizamele, Butterworth, and Mnguma Local Municipality. To ensure that disadvantaged and vulnerable groups access WASH-related rights and needs, the equity should amongst other considerations be informed by an understanding that societal and community groups as well as municipal residents are distinct from one another and may as a result require various forms of assistance and resources (Luwe, et al, 2022) for equity purposes.

Vulnerable and disadvantaged people should have access to more resources and services. Addressing urban slums, ensuring a just distribution of resources based on community needs can be seen as equity, which is essential for achieving the SDGs' principle of not excluding anyone (Vidhyadharan, 2023). According to Pan (2016), fairness should be considered a fundamental element in the pursuit of a socially and economically viable society. Pan (2016) notes that it should not be generalized to emphasize the necessity of including equity principles in supplying sanitation services. Although it is encouraging that the need to improve equity in sanitation is explicitly acknowledged, precise standards for evaluating equity are less well-established than those for overall sustainability.

In South Africa, the 2016 National Sanitation Policy and the Constitution firmly establish universal sanitation access as a major SDG. Ahrari (2016) sees the need to ensure that various groups of people's WASH-related rights and needs are met equity, on the other hand recognizes that these people are different and may need different support and resources. Meanwhile, a significant improvement in public health, especially for rural regions, is marked by greater access to piped water and improved sanitation (Hemsoni, 2016).

2.1.6 Importance of Water, Sanitation, and Hygiene Practices in Rural Areas

Data from the World Health Organization reveals that around 3.1% of deaths (equivalent to 1.7 million) and 3.7% (equivalent to 54.2 million) of disability-adjusted living years (DALYs) worldwide can be attributed to inadequate sanitation, poor hygiene, and contaminated water (Nzioki & Korir, 2020). Naughton & Mihelcic (2017) argue that sanitation has a vital role in preserving human health, prolonging life, and having a favourable influence on the economy. Consequently, it is considered an essential aspect of communal well-being. The favourable impact of improving sanitation on health in both households and communities is widely acknowledged despite the fact that inadequate sanitation remains a significant contributor to global disease burden (WHO, 2017).

According to a study by Kizito Omona (2018), sanitation is the efficient use of resources and practices that maintain the health of our environment. The adoption of good hygiene habits and the availability of sanitation facilities is crucial for reducing morbidity and mortality rates worldwide for decades, numerous organizations have

been striving to lower the mortality rate associated with unsafe water and increase access to WASH services (Als, 2020). Nevertheless, the prevalence of stunting is among the highest in the world in developing nations due to several known factors, including inadequate education and lack of resources and facilities for hygiene.

Rose et al, (2019) contends that although there is an urgent need for investment in water and sanitation infrastructure, the development of advanced onsite systems for managing faecal effluent, waste, and decontamination facilities is crucial to tackling the global issue of faecal pollution; further, technology represents merely one component of the solution. Research by Asoba et al, (2020) indicates that insufficient advancements in water supply have resulted in filthy and outdated sanitation and ablution settings. The Accessibility of sanitation and water management systems is affected by technical progress. Water management systems in many developing nations utilize gravitational force to convey water from higher regions to sedimentation tanks, subsequently distributing it via pipelines to adjacent settlements (Asoba et al, 2020).

Sanitation and Waste Management Practices

WHO (2020) asserts that governments should prioritize delivering water access to those currently underserved by implementing immediate solutions such as protected boreholes, water tanker deliveries, and expanding piped networks. Water services should not be disconnected due to non-payment, and ensuring access for those without water services should remain a top priority. There are various types of sanitation facilities available for waste management and hygiene, including unventilated pit latrines, flush toilets connected to septic tanks or sewage systems, dry toilets, bucket systems, and even open defecation in outdoor areas such as bushes and fields (Bazaanah & Mothapo, 2023). Waste disposal methods such as burying in the yard or on the street were common in communities that relied on non-electric fuel sources for cooking or heating, had poor sanitation, and did not have piped water inside homes. Families in low-income communities are more likely to be exposed to solid waste because they often lack access to piped water inside their homes and basic sanitation (Haywood et al, 2021).

Ferronato, & Torretta, (2019) claims that this is a serious issue for towns because it will be more expensive to deal with the health and environmental effects of illegal

dumping and littering than it will be to build and run efficient waste management systems. Furthermore, it was mentioned that because waste is highly visible when it is improperly collected and/or managed, this inequality is evident in the way waste management services are delivered (Ferronato, & Torretta, 2019). The amount of municipal services in the area can be determined by looking at waste disposal, the primary source of household fuel, and the type of sanitation that is provided to the household (Sepadi, 2022). While Results often pointed to poor socioeconomic levels in communities, as seen by high unemployment rates and inequality. Therefore, inadequate garbage collection services and a lack of available room to reserve and ensure a regulation of waste on-site were likely to blame for residents in shacks and apartments dumping trash in the street (Sepadi, 2022).

2.1.7 Understanding the Realities of Water Inequality

Grafton et al, (2022) argues that "telling the truth" about water injustice is a crucial first step on the road to significant reform and healing. While, taking actions that lead to a more just future is considerably more difficult than simply understanding the realities of water inequality. Grafton et al, (2022) While water sources, administrative issues, policy-related problems, and political involvement were among the difficulties found in the chosen settlements. Water supplies and infrastructure are present in many rural settlements however, they are not maintained leading to their unavailability and nonoperation. It is evident that lacking capacity inside towns has a way of having a detrimental impact on operational and maintenance difficulties as well as other issues necessary to facilitate service supply, leaving municipalities unable to address these issues as they would like to (Mothetha et al, 2013). Nevertheless, the distribution of centralized and decentralized infrastructure and related services is insufficient in the sanitation systems typically present in most sub-Saharan cities (Rusca et al, 2017). Inadequate basic sanitation is a primary cause of poor water quality within the province of the Eastern Cape. As a result, providing Zizamele township residents with essential services like access to clean water and sanitary facilities is a challenge for the local government (Moloto, Mkhomazi, & Worku, 2020). According to Weaver et al, (2017), a number of demonstrations due to service delivery has resulted from the water outages that Makhanda Municipality is experiencing, with perceptions of poor water quality from the public. These factors have increased public dissatisfaction and eroded public trust in the MLM. Furthermore, it should be noted

that problems related to water management systems are intrinsically complex, making reductionist problem-solving approaches ineffective.

2.2 SOCIAL EQUITY IN PUBLIC ADMINISTRATION AS A TOOL FOR SOCIAL CHANGE

Social equity is a fundamental principle that guides policy analysis, service delivery, and the administration institutions offering public services directly or indirectly. As such, the concept of social equity ensures that these public services are provided in a way that is fair, just and equitable (Gadson, 2020). Moreover, Gadson (2020) contends that public managers along with other individuals engaged in public governance ought to dedicate themselves to prevent and diminish inequality, unfairness, and injustice rooted in significant social attributes. Efforts should be made to enhance equity in terms of service accessibility, procedural fairness, service quality, and social outcomes. More importantly, Lee (2021) stipulates that the underlying operating mechanism of public administration differs from that in the private sector, social equity is particularly crucial in this setting. While equity is concerned with justice in both the process and final distribution of resources (WASH), efficiency is focused on reducing wastefulness (Kapiriri & Razavi, 2022). To understand the citizens' demands and adjust social equality, public sector organizations must be receptive to public perceptions. Local public organizations can enhance fairness, justice, and equity in service delivery by promoting open communication and prioritizing information exchange between governments and the civil society (Sumra & Kalsoom, 2019). The least advantaged group should gain around equity in order to reduce social and economic inequities and individuals may be treated differently in order to equalize resource distribution. Since water governance is essentially concerned with people, not the water itself, achieving social fairness is essential. Therefore, securing universal access to water, realizing human rights, and guaranteeing social fairness all depend on understanding how water resources' benefits and costs are distributed and how they affect different societal groups, particularly those who lack access (Hutete et al, 2022).

2.3 ENSURING THE FULFILLMENT OF THE HUMAN RIGHT TO ADEQUATE WASH FACILITIES.

Water and Sanitation are such an urgent and basic necessity for residents of Mnquma Local Municipality. Human rights entail legal obligations to provide WASH services

(Meier, et al., 2013). To achieve global accountability for state obligations, water and sanitation are normatively drawn from the human right to health, development, and a suitable standard of living, have transitioned from soft law to hard law (Siliva, Brown, & Heller 2016). Resolution 64/292 affirms that every citizen has the unalienable fundamental right to clean water and sanitary facilities.

In 2010, the United Nations General Assembly adopted a set of comprehensive criteria for best practices in the WASH sector. Among them are sustainability, impact, accountability, non-discrimination, and involvement. Coetzee & Kotzé (2018:7) provide a standardized interpretation of terms used in SDG objective 6.1 First, the term Universal – applies to all exposures and contexts such as homes, schools, hospitals, businesses, and public areas. Secondly, Equitable – means continuing to reduce and eliminate disparities between community groups. Thirdly, Access – means adequate water to satisfy the residential demands, as well as clean drinking water that is always free of germs and elevated levels of toxic substances. Fourthly, Affordable – shows that access to services should not be hampered by the cost of payment or that people should not be prevented from satisfying other fundamental human needs. Drinking Water – means the use of water for drinking, food preparation, personal hygiene, and cooking. Lastly, For All – means appropriate for all ages of men, boys, women, and girls, as well as those who are disabled (WHO and UNICEF, 2017b:11; Coetzee & Kotzé, 2018:7).

2.4 SOCIOECONOMIC DEVELOPMENTS IN RURAL AREAS IN SOUTH AFRICA

The socioeconomic growth of rural areas is difficult to assess because it is swayed by various factors (Vorobyov & Bugai, 2019). However, Vorobyov and Bugai in rural areas are unhappy and poor, hence it is difficult to execute development strategies utilized in cities. A study by Roztock, et al, (2019) explains that improving or changing social and economic conditions as they affect a person, a group, or society is the process of socioeconomic development. Rural regions public health and socioeconomic development depend on access to clean water, sanitation and hygiene. Nevertheless, in low- to middle-income nations like South Africa, in clean water is still inadequate (Amber et al, 2021). However, Van Rooyen (2009) asserts that many of the world's poorest nations are currently dealing with water scarcity and shortages which is a sign of the importance of water in economic development.

Although water is essential for economic growth, it is not enough to guarantee its accessibility. Water is merely one of several elements required for socioeconomic development. Aiyetan & Das (2021) argues that water infrastructure is a country's backbone for promoting socioeconomic development.

2.5 KEY ROLE PLAYERS IN WATER AND SANITATION MANAGEMENT

In South Africa, the following organizations manage water and sanitation services.

a) *Department of Water and Sanitation*

The Department of Water and Sanitation has direct control over most of the important water resource infrastructure, including the construction of dams and inter-basin transfer systems. However, the management of water resources in South Africa has been decentralized. The Department manages the preservation, management, exploitation, development and stringent regulation of water resources in the country as required by the National Water Act (1998).

The Commission's 2014 Report on Water and Sanitation provides a comprehensive account of policy pertaining to residential water and sanitation. However, in 2015, a noteworthy legislative amendment was implemented by the approval of the National Sanitation Legislation. This legislation recognizes sanitation as a public good that extends beyond the boundaries of individual households. The National Sanitation Policy (2016) is problematic as it fails to expressly recognize sanitation as an inherent human right that should be granted to all individuals. Thus, a contradiction with the international and South African legal precedents.

b) *Bulk Providers: Water Boards*

According to the Constitution (1996), municipalities are given the sole authority to reticulate water to homes. However, when this is impossible for various reasons, they hire other service providers to carry out the task. Water boards' bulk distribution networks are typically in good shape, with acceptable levels of water loss, demonstrating effective infrastructure management. However, some water boards experience worse water losses than their counterparts, necessitating urgent intervention. Ngobeni & Breitenbach (2020) identified several challenges encountered by water entities such as water service authorities, water boards, and the DWS. These concerns encompass problems related to the management of the

organization, lack of enough funds combined with ineffective operations to meet investment requirements, insufficient financial and price arrangements, and a lack of responsibility. Water is currently undervalued, and the full cost is not being recovered. As a result, the water delivery system experiences inefficiencies in its operations and maintenance.

This study addresses the existing research gap by utilizing a non-parametric benchmarking technique called Data Envelopment Analysis (DEA) to evaluate the efficiency of productive units (Gupta, et al, 2012). This provides decision-makers with the opportunity to evaluate the performance of a specific water board in relation to other similar boards, identify both exemplary and poor practices and ultimately develop more efficient ways to achieve stability in their financial management and reliable water distribution (Masindi & Duncker, 2016).

c) Municipalities

Municipalities are the last tier responsible for implementing policies at the grassroots. As such, the South African Constitution of 1996 (Section 155) allows for municipal categories with metropolitan providing their water services and district municipalities providing water services in their areas of jurisdiction. Only with authorizations from the minister can the local municipalities be appointed to undertake the responsibility of water service provision (RSA, 1998). Municipalities manage local service delivery and customer administration (Hutete, 2022). In addition to providing water services, municipalities also operate and maintain their infrastructure (Hutete, 2022).

2.6 WATER GOVERNANCE AND THE CONCEPT SUSTAINABLE DEVELOPMENT

Water governance refers to a system of political, institutional, and administrative regulations and procedures that guide the decision-making process linked to water. It involves considering the interests of stakeholders and ensuring that decision-makers are responsible for their actions (Aziza et al, 2017). On the other hand, Jimenez et al. (2020) describe water governance as a collection of activities conducted with distinct features to reach specific goals influenced by the values and ambitions of individuals and organizations. A study by Shiriyedete (2022) states that to achieve the present generation's needs, sustainable development is paramount as it guarantees the sustainability of resources to meet the needs of future generations without these needs

being compromised, deteriorated, collapsed, or disintegrated. However, the ecological and socio-political systems are inextricably interconnected. Water governance in South Africa is multi-dimensional, encompassing the principles and mandates, laws and regulations, institutional arrangements and practices, and levels of governance at the international to local communities. Furthermore, the system involves shared responsibility among the government, business, and civil society.

In 1992, the Dublin Declaration identified "scarcity and misuse of freshwater" as a danger to sustainable development. After Dublin Declaration, demand-side management that is integrated, participative, gender-sensitive, and environmentally responsible became the solution to the problems with sustainable water governance (Hellberg, 2022).

Governance principles, such as efficiency, effectiveness and inclusiveness, are crucial in ensuring improved water security and enhancing water governance. While this is the case, the OECD (2015) introduced water governance principles on water governance which are regarded as a means to an end. As such, public policy solutions must be consistent, ensuring effective stakeholder engagement, sound regulation, and accessible, adequate, and timely information backed by capacity, transparency, and integrity in the processes (Jetoo, 2019). This is critical considering the nature of water, a resource that connects many societal and economic sectors on various scales, from global to local. Additionally, the sector requires substantial investments and is vital for development, making water governance vital (OECD, 2015). However, the pursuit of addressing disparities and fulfilling the requirements of the most vulnerable people through water governance may occasionally conflict with objectives such as enhancing effectiveness or achieving financial sustainability (Harris et al, 2016; Enqvist & Ziervogel, 2019). Consequently, it is important to factor in justice and equity when tackling broader issues such as increasing water demand and the decreasing availability of clean water due to pollution (Kengni, 2020). Governance is, therefore best described as an instrument that people or organizations utilize to achieve effective water sustainability. As such, this research contends that while the concept of governance is complex and multifaceted, it holds the potential to ensure both water sustainability and societal well-being.

2.6.1 The OECD principles on water governance

Public authorities and officials who are responsible for water governance should prioritize the principles of water governance to ensure effective management of water resources. The following concepts must be viewed as a means to achieve long-term service delivery in water supplies: Effective water governance has an impact on the success or failure of long-term initiatives that can be executed in Zizamele Township and Butterworth Mquma Local Municipality, as well as on water service delivery. As a result, it is critical that these concepts be applied properly to ensure the success of adopted plans.



Figure 2-1: Principles of water governance

Source: The researcher 2023

a) Responsive and Sustainable

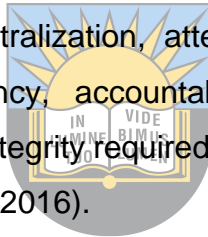
Proportionate policy implementation and decision-making at the most suitable levels are requirements for responsiveness. The policies should primarily focus on incentives. This will guarantee that there will be a definite social or economic benefit from adhering to the program. However, long-term sustainability should be considered as the institutions constructed both current and potential water service customers must be considered in the water governance process (Rogers & Hall, 2003).

b) Coherent and Integration

A coherent and integrated framework is required for water governance, particularly in light of the issues that nations are facing from climate change and rapidly increasing populations. In a complex system, sustaining a coordinated and consistent strategy requires political leadership and strong institutional commitment at all levels to maintain coherence (Camkin, & Neto, 2016).

c) Transparency and accountability

Water and proper sanitation are critical to one's health and well-being. Unfortunately, poor governance of water and sanitation systems has resulted in a shortage of services in many peri-urban and rural regions, and where they are accessible, the quality of service is subpar. Gonzalez de Asis et al, (2009) emphasize that decision-making must be transparent, more accountable for public servants, and provide better information for the general public. Independent of the water sector reform strategy, including privatization and decentralization, attention needs to be paid to these challenges. Restoring transparency, accountability, and engagement in water governance will help develop the integrity required to reduce the major corruption risks in the water sector (Camkin, Neto, 2016).



d) Efficient

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The water sector requires huge investments, so efficiency and effective resource utilization become critical (Camkin & Neto (2016). Additionally, efficiency is important in ensuring value for money for the taxpayers, donors, funders, and the stakeholders involved. While the principle of efficiency is critical, it is important to ensure that it is balanced with equity and sustainability

e) Inclusive and communicative

Increased engagement, inclusivity, and communication are crucial in achieving water governance's political and social dimensions. It fosters trust between the governments and the public which improves service delivery. Additionally, an inclusive mind set and approach across all levels of government foster effective representation of all groups especially the underrepresented and marginalized, when creating and enacting policies if participation is to be maximized (Rogers & Hall, 2003). Additionally, Hutete (2022) advocates that communication and inclusiveness are critical in understanding

the dynamics and reasons why other groups still remain without services and ensuring that proper and targeted strategies are devised through informed decision-making.

f) *Fair and virtuous*

Adhering to the principle of equality is necessary to provide fair outcomes, even though it is crucial for managing water resources. In the field of water resource management, moral obligations hold equal significance to ethical issues. It is imperative to always remember that water is essential for human survival, while the availability and accessibility of well-managed and good sanitation are connected to human dignity. Upholding society's moral and ethical norms necessitates continual efforts. Water is also a fundamental human right (Hutete, 2022).

2.6.2 Dimensions of Water Governance

a) *Socially Sustainability*

Free access to water should be provided to everyone as a "subjective right" because it is a fundamental "good" (or, more accurately, because it serves non-releasable environmental functions). Additionally, water services should be provided at reasonable prices so that those who cannot afford them, the marginalized, and those who are vulnerable can protect the most vulnerable members of society. It is conceivable to interpret this ethical principle as an acquired international right because it can be inferred either directly or implicitly from a number of legal instruments and international agreements (de carli, Massarutto & Paccagnan, 2004).

Social sustainability advocates for the equal, just and sufficient provision of services for all citizens as a means of fostering greater social cohesion. Additionally, Social Sustainability allows the poor and marginalized—including those living in rural areas, townships and informal settlements—a voice in decision-making about issues relating to water and sanitation (de Carli, Massarutto & Paccagnan, 2004). Therefore, social sustainability enables community involvement and stakeholder collaboration to guarantee the accomplishment of access to water and sanitation that is universal (SDG 6). Intergenerational disparities in service delivery that have persisted in rural townships or informal settlements will consequently be addressed through this dimension.

b) *Economic sustainability*

Considers the economic aspect of water governance and sustainable development to ensure effective resource allocation and utilization among competing users such as municipal water and agriculture (de Carli, et al, 2004).

c) *Environmental Sustainability*

Water resources should be considered critical natural capital (CNC) to ensure preservation of the natural capital for the next generation (de Carli et al, 2004).

2.7 WATER AND SANITATION TARGETS IN SOUTH AFRICA

a) *Millennium Developmental Goals (MDGs) (2015)*

The Millennium Project Task Force on Water and Sanitation completed its work in early 2005 after the Millennium Development Goals were adopted in 2000. Despite its broad focus, its main contention was achieving the (MDGs), all developing nations should adopt and implement comprehensive national development strategies, and wealthy nations should significantly increase their development assistance to make the implementation of these strategies possible (Lenton, 2008). Rose, (2015) The United Nations established a set of eight Millennium Development Goals (MDGs) in 2000 with the aim of improving the lives of the world's poorest citizens.

To ensure environmental sustainability, the Millennium Development Goals (MDGs) included an objective in Goal 7 that urged the global community to achieve a 50% reduction by 2015 in the proportion of individuals lacking sustainable access to safe drinking water and basic sanitation (UNICEF & WHO, 2015). The target date for establishing sustainable access to basic sanitation and drinking water was set by the United Nations General Assembly in 2000 to be in 2015. Despite the declaration of the water target in 2010, 780 million people still do not have access to safe water. However, the sanitation aim is not on track and is unlikely to be achieved by 2015, as 2.5 billion people still need access (UNICEF, WHO 2012; Campbell et al, 2015). Cumming (2014) contends that the inclusion of water and sanitation in the MDG framework highlights the vital role these essential services play in fostering human health, well-being, and the realization of human rights.

The global drinking water target of 88% was met in 2010, and by 2015, 91% of people worldwide will have access to sources of improved drinking water, up from 76% in 1990, the base year, according to the UNICEF and WHO Joint Monitoring Programme

(JMP) report (2015). According to Ohwo and Agusomu (2018), 319 million individuals (48.11%) in Sub-Saharan Africa were among the 663 million people worldwide who did not have access to improved water sources in 2015.

b) *Water Supply, Sanitation and the Sustainable Development goal (SDG) 6 2030*

Achieving Sustainable Development Goal 6 on water and sanitation is crucial and a prerequisite for achieving every other SDG. Reaching this goal by 2030 will be challenging, especially in the Global South. According to Ho et al, (2020), science is the cornerstone of sustainable development and is crucial for generating innovative solutions to the problems facing SDG 6. Kasker (2018). In order to clarify what is mandated, it is crucial to dissect the language of SDG 6(1). All exposures and environments, such as homes, workplaces, schools and medical facilities, are included in the term "universal." This indicates that the goal is to involve every single person on earth. Equitable refers to the progressive eradication of differences between population subgroups. Carbonell et al, (2023) contends that there is a lack of data on monitoring and implementing the SDGs data. On the other hand, Fox and Macleod (2021) emphasized the importance of cross-sectoral collaboration to address enduring silos in local government that hinder group efforts to achieve the SDGs. As such, adapting to the global frameworks and international agreements, such as the SDGs, and effectively translating and applying them within the local context is a crucial step in achieving the WASH targets.

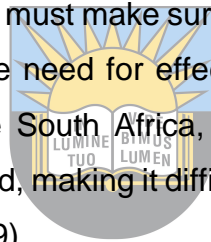
The SDGs pertaining to water are considered crucial in achieving sustainable development in its entirety (Brown et al, 2016; UN, 2018). The interdependence between the rights to life, health, safety, education, and the right to water and sanitation is the reason for this outcome. Postponing the enforcement of the human entitlement to clean water and sanitation is believed to have adverse consequences on both individuals and society at large. The 2030 Agenda for Sustainable Development aims to achieve universal access to water and sanitation services. In Butterworth, a region designated by the UN as one of the key groups facing a loss in access to water and sanitation, the study focuses on the supply of water, sanitation, and hygiene that is sustainable. Weston, et al, (2015) posits that as a signatory to the SDGs, South Africa must try to meet specific targets under each of the SDGs. Water quality has a direct impact on our ability to achieve the goals of eradicating poverty,

ending hunger, establishing food security, encouraging healthy living and fostering long-term economic growth.

2.7.1 Challenges of Good Governance in realizing Sustainable Development Goal 6

a) Lack of public participation

Mamokhere (2022), argues that there is an ongoing deficiency in community engagement within the municipal strategic planning process, commonly referred to as an integrated development plan, which impacts how services like the provision of reliable water service are prioritized. Additionally, Ragolane & Malatji (2021) opine that the Ward committees are formed to represent citizens in the service delivery process. However, impacting the service delivery process and policies becomes even more challenging when communities have limited influence. This poses a challenge for ward committees. Communities must make sure that the municipality is transparent and accountable, underscoring the need for effective public participation (Mdlalose, 2016), especially in countries like South Africa, where vulnerable populations and some groups have been segregated, making it difficult for them to participate in service delivery issues (Masiya, et al, 2019).



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b) Deficiency in ensuring openness, transparency and accountability

Transparency and accountability remain the challenges impeding the realization of the SDGs. The assertion was cemented by Zindi & Shava's (2022) observations that these governance fundamentals are lacking in South Africa, particularly in local government, thereby exacerbating the gap between those who have and those who do not have regarding the issue of WASH services. Consistent with the aforementioned authors, Munzhedzi (2016) opines that such deficiencies in ensuring transparent and accountable decision-makers lead communities to lose trust in the government

c) Weak regulation policy in Municipal decision-making

Local government representatives feel at ease carrying out their duties pre-democracy. According to Benjamin (2013), these municipal officials consider citizen participation an infringement on their competence areas and a waste of time. Benjamin (2013) maintains that insufficient policy is a major problem for effective governance in

SGD 6 but that putting it into practice is difficult due to a lack of regulation and oversight mechanisms.

d) *Poor Policy Implementation*

The emphasis on municipal deficiencies highlights the general belief that inadequate policy execution contributes significantly to failure in meeting its rural sanitation goals thus far in South Africa (Taing, 2019). However, Pan et al, (2018) see reducing disparities between inhabitants of formal and informal neighbourhoods and between other demographic groups in the aforementioned dimensions of equality as a top priority for sanitation services provided across the municipality. However, the slow progress in the field of sanitation has been attributed to several things, including the policymakers' lack of commitment, the fact that sanitation is not a top priority, the lack of funding for campaigns to encourage people to change their behaviour, and the stakeholders' inability to guarantee the availability of affordable goods for the underprivileged (Shrivastava, 2015). More so, the absence of a consistent approach to sanitation policy may be to blame for the slow implementation of basic sanitation facilities. Since WASH services are basic rights that are thought to have an influence that is positively profound on the lives of those who are marginalized, the South African government, which is democratic, has prioritized their delivery in its struggle to fight poverty and underdevelopment (Mjoli & Bhagwan, 2010).

2.8 STRATEGIES TO ENSURE EQUALITY AND EQUITY TO WASH FACILITIES

Water and sanitation equity are vital components for governments. The work conducted by the Protocol on Water and Health about equitable access to water and sanitation has identified three key components that governments must address in order to provide universal access to WASH services.

a) *Enhancing governance frameworks*

Political dedication and strategic foresight are necessary to attain water and sanitation rights. However, deficiencies such as failure to fully implement social equity in the current national and local frameworks utilized to enhance water governance remain present (Hutete, 2022). As a result, challenges in the water sector may exist due to these broader governance frameworks resulting in underperformance. As such, this study opines that enhancing the water governance frameworks backed by resources

and full implementation can significantly enhance the objectives of equitable access (ECE, 2019).

b) *Mitigating regional and contextual inequalities*

The accessibility of water and sanitary services exhibits significant disparities based on geographical location. Based on the data from WHO/UNICEF JMP (2017), 72% of individuals in Europe who do not have access to necessary drinking water services reside in rural areas. Public policy can mitigate price disparities between geographical areas through several strategies. Firstly, it can allocate investment programs and grants to places with higher utility expenses. Additionally, it can redistribute funds from affluent low-expense regions to affluent high-expense regions. Finally, effectiveness and reasonable pricing can be promoted by adopting economic organization reform and employing data sources such as comparison and tax reference rates (ECE, 2019).

c) *Making sure that those who are disadvantaged and vulnerable groups have access to services*

The human rights standards emphasize the importance of developing water and sanitation policies that give priority to and meet the needs of marginalized and excluded people. For these particular communities, the absence of water and sanitary facilities is frequently a result of social marginalization, rather than being just a subject related to water. Every one of these groups possesses distinct requirements and faces distinct obstacles in accessing resources (ECE, 2019). In order to adequately address the special needs of these groups, policymakers and implementers must allocate sufficient time and effort to identify these groups, analyze their inclusion and evaluate their effectiveness in this regard. Effective solutions often require integrated responses that mix policy and ensure agency coordination.

2.9 STRATEGIES FOR ENSURING LONG-TERM WASH SERVICES IN RURAL AREAS.

The challenges of supplying rural communities with clean water and proper sanitation cannot be understated. Insufficient WASH facilities force families, women and children to gather water from rivers or dams which infringes upon their rights to health, life, and access to water. This is due to the absence of a reliable water source. A number of factors should be taken into consideration as they may affect the availability of water

and sanitation in rural areas. This is because the implementation of sustainable water and sanitation provision requires careful planning techniques and approaches.

a) Public-Private Partnership

Muzondi (2014), states that remote locations such as townships, informal settlements, and rural areas, provide the most reliable means of securing water supplies. Muzondi argued that although publicly owned and operated entities are required by law and the constitution to provide water in these areas and may have the best interests of the people at heart, these entities are usually inefficient and rely on a strong economic base to continue providing services. However, the poor who live in privately owned entities will suffer as a result of their efforts to maximize their profile; for this reason, the best option is not available. Therefore, PPPs offer a balance that will lead to the water supply's social and economic sustainability. Selim (2022) classifies PPP models based on the nature of the partnership and the transfer of resources, risks, and benefits. Different types of PPP have been used to construct water sector initiatives. Developing nations such as South Africa face challenges related to the quality, accessibility, misallocation of subsidies, and scarcity of water for their citizens.

Each government sector in South Africa has varying levels of responsibility for implementing projects linked to water infrastructure development and management. This includes formulating strategies for implementing projects of different scales and assessing their impact on investment strategies. (Amadi-Echendu & Ruiters, 2022). Public-Private Partnerships (PPP) are seen as an essential instrument for helping the government with development when it comes to resolving water and sanitation issues, implementing WASH technology, and increasing the efficiency of water projects (Amutenya 2020). The main classes formed the foundation for the PPP framework, ensuring well-organized and regulated PPPs. This framework leads to improved efficiency throughout project implementation and maintenance. It also provides access to advanced technology and innovative methods, as well as additional much needed support such as financial and human capacities to meet the growing infrastructure demands in the South African water infrastructure value chain (Amadi-Echendu & Ruiters, 2022).

b) Innovative Technology in Water, Sanitation, and Hygiene

Potgieter et al, (2021) view that the government is still responsible for providing excellent WASH infrastructure, monitoring and benchmarking services, and training on best practices for all healthcare facilities that have been benchmarked. Additionally, these services are crucial for both human and environmental survival, making them central to sustainable development (Giné Garriga, 2018). However, basic water supplies in South Africa are required to be adequate, secure, reachable and inexpensive by law and policy. Basic water needs to be continually supplied with a specified minimum flow rate and quality (Nnadozie, 2011). Shortage of clean water and sanitary facilities is one of the main causes of deprivation or vulnerability. However, sanitation problems brought on by a shortage of water resources are a serious problem, particularly in developing nations (Vidhyadharan, 2022).

Clean drinking Water, adequate sanitation, and basic hygiene are fundamental elements of human health, dignity, and well-being, serving as crucial components of our social, environmental, and cultural commons. Nevertheless, the Most pragmatic and vital prerequisite for mitigating numerous infectious diseases is access to fundamental WASH services Girmay (2023), yet South African municipalities have fallen short in providing people with dependable water and respectable sanitation. According to Mapeyi (2023), municipalities have revealed the government's incapacity to guarantee widespread access to safe and dependable water and sanitation facilities. Despite notable progress in the availability of WASH services, a considerable number of individuals worldwide, particularly those residing in rural regions, continue to lack access to these vital services (Hassfurter, 2017; World Bank Group 2017). WASH conditions can be influenced by factors such as socioeconomic status, geographical location, and political ideology (Desye et al, 2023; 2). Technology frequently contributes significantly by offering resource-effective answers to some WASH-related problems. The objective of SDG 6 is to provide clarity on the importance of technology in several areas related to water harvesting, desalination, efficient utilization, treatment, and recycling. While WASH innovation mostly focuses on water supply and sanitation (Rush and Marshall, 2015; Oksen, 2020), For a sizable section of the world's population, Mngquma Local Municipality WASH service delivery remains unequal, unreliable, and hazardous. Many governments in low- and middle- income countries still develop sound systems and frameworks for managing and

providing WASH services (Pugel et al, 2022). Although it is widely believed that technological innovation is primarily responsible for progress toward Goal 6, it is inadequate (Solomon et al, 2021). To significantly impact water management, a comprehensive range of innovation is needed, including process innovation, policy innovation, and social innovation, focusing on people-centered solutions.

The SDGs (2030) superseded the MDGs (2015) as the primary objectives for the WASH sector. While the MDGs primarily aim to improve access to infrastructure, the SDGs focuses on ensuring ongoing access to sufficient services (Hollander, 2020). Recognizing the gap between sustainable services and infrastructure investment, this was done. It is also important to note that the SDGs' goal of sustainable services cannot be attained without the participation of sector, such as national and local governments, funders, and implementers in the WASH. Favre & Oksen (2020) highlight that the emphasis of WASH innovation mostly lies in water supply and sanitation, with hygiene being perceived more as a matter of behavior. In order to achieve universal targets and effectively serve the most marginalized communities, decision-makers require access to well-researched information on effective strategies for promoting water, sanitation, and hygiene (WASH) for different demographic groups (Chirgwin et al, 2021).

Innovation is essential in South Africa for addressing issues with service delivery. As the nation's democracy develops, service delivery complaints continue to mount, and violent property destruction casts doubt on the country's participatory government (Khanyile et al, 2021). However, Palmer (2016) noted that the South African government has long recognized infrastructure as essential to economic development and since 1994 one of the main strategies for eradicating poverty and inequality in the nation has been to ensure that those who live under poverty have access towards infrastructure.

To help the nation reach its environmental and emission reduction goals, infrastructure expansion is increasingly considered as an opportunity to encourage more resource- and environmentally conscious lifestyles (Palmer et al, 2016). Due to their falling quality of life and decaying infrastructure, the Butterworth community cannot support their local municipality's economic operations and as a result the entire national economy. At the municipal level where local governments are obligated to address

fundamental societal requirements and provide services that would improve inhabitants' quality of life and means of subsistence, the concept of service delivery according to Masuku & Jili (2019) is more widely acknowledged. Corruption, bad management, and financial irregularities are major problems in South Africa's service delivery system. However, infrastructure frequently contributes to environmental issues that must be addressed or minimized (Hinge et al, 2020).

c) Sustainable Water Resource Management Practices

According to Grafton et al, (2019), the first water governance model is referred to as Integrated Water Resource Management (IWRM), encourages the implementation of specific management techniques that prioritize water governance. This is accomplished by fostering principles of water governance such as social equality and sustainability. However, it is a method that encourages the equitable coordination of the management and development of resources such as water and land optimising economic and social welfare without jeopardizing the sustainability of essential ecosystems (Meran, et al, 2021). National Water Act 2 emphasizes the need for Integrated Water Resources Management (IWRM) to be carried out in accordance with international water protocols and treaties while also complying with South African law (Adom & Simatele, 2021). The notion of equity in Integrated Rural Water Management (IRWM) entails ensuring justice and fairness in the recognition of rural areas, townships, and informal settlements within national policy. The De Carvalho et al, (2009) study emphasizes the significance of sustainability in water management in urban settings and raises additional requirements for sustainable integrated water resource management (Muzondi, 2014:106).

c) WASH must be central to climate adaptation plans

The effects of climate change have been determined to significantly influence water and sanitation services. These issues can arise as a result of climate change, such as the destruction of infrastructure due to flooding, the reduction of water resources due to less rainfall and higher demand, and the decline in water quality (Tseole et al, 2022). The implementation of sanitary assessment packages and climate-resilient sanitation safety plans provides effective ways to manage the risks posed to sanitation and public health as a consequence of climate change (WHO, 2022). The World Health Organization (WHO) will prioritize the promotion, enhancement, and integration

of climate resilience features in its sanitation guidance and tools. This will entail a targeted effort to improve the use of climate data, promote climate funding for sanitation, and incorporate insights gained from past deployments into future iterations (WHO, 2022). The potential long-term impacts of climate change and the proactive actions needed to tackle them are frequently disregarded. However, by integrating adaptation strategies into plans, programs, projects, and budgets, we can reduce the detrimental effects of climate change on the sustainability of development initiatives (Alhassan & Hadwen, 2017). Climate-proofing can improve the ability of development interventions to withstand and recover from the impacts of climate change. Integrating climate change adaptation into development plans might improve people's ability to adapt, especially in relation to their Water, Sanitation, and Hygiene (WASH) practices, and decrease their vulnerability levels (Drakeford, 2019).

2.10 RELATED EMPIRICAL LITERATURE

This section contains related literature, suggesting that service delivery studies are not new, and that numerous techniques have been proposed to solve the issues faced by communities.



a) *Global Level*

Hall et al, (2022) in their study centred on the provision of secure water and sanitation services in isolated indigenous communities in Australia. The study determined that in order to achieve sustainable outcomes, it is necessary for all individuals involved in water and sanitation delivery to possess a sufficient level of cultural competency in the local and indigenous context. The study determined that local indigenous service providers required capacity-building, training, and ongoing development. According to a separate investigation conducted by Wells et al, (2022), the water and sanitation (wastewater) infrastructure in the United States has become antiquated and deteriorated as a result of substantial underinvestment in recent decades. These researchers have determined that racial segregation and prejudice, along with a lack of concern for the water and sanitation infrastructure, have resulted in unequal access to water and wastewater services for many years. This situation poses substantial health concerns to both individuals and the environment. Despite the issues experienced by the fast increasing and climate change-vulnerable region of south Asia in accessing WASH, Nepal, a country with ample water resources, also encounters

difficulty in implementing WASH (Shrestha et al., 2023). To ensure the preservation of future generations' entitlement to safe and uncontaminated water, it is imperative to capitalize on the prospects for establishing a strong and climate-resistant Water, Sanitation, and Hygiene (WASH) sector in Nepal. Despite greater investment and access to WASH services, the quality of drinking water, availability of adequate and continuing sanitation services, and related hygiene issues have improved in isolated Indigenous communities in Australia in recent years (Hall, 2019).

As more people become infected with water-borne diseases, the negative effects of inadequate access to sanitation become worse. In rural India, access to potable water is still restricted, Kumar et al., (2021), these restrictions are brought on by three main causes: (a) households' inability to obtain water due to poverty; (b) the untreated, low-quality water that is supplied; and (c) the unpredictability of water sources throughout the year. The difficulty still exists despite the fact that the national government has adopted a number of measures to resolve the disparity between supply and demand (Kanyagui & Viswanathan, 2022). It is believed that problems limiting the task of ensuring increased access to water include a lack of extremely strong institutional frameworks and insufficient funding. Inadequate WASH infrastructure and related unclean habits, particularly in rural areas, not only worsen human health risks (such as diarrhea and dysentery) but also have an impact on general societal dynamics in India (Chaudhuri & Jain, 2020). According to Silva et al, (2020), there is a distinct gender labor division for access to water and sanitation in the two rural Brazilian communities. Lack of suitable sanitation options, widespread access to unsafe drinking water, and water availability further separate a large number of homes in rural areas. In some places, the only available mode of transportation is a boat, and getting there can take many days.

A study by Margarita Garfias Royo et al, (2022) pointed out the lack of WASH facilities in Indonesia that led to open defecation, or the inadequate facilities offered in temporary housing. The emotional toll of using inadequate or shared restrooms may be included in the overall loss experienced after a disaster. However, Portillo et al. (2022) consider water insecurity a problem in high-income nations like the United States because it affects vulnerable communities, such as the homeless. In Los Angeles, receiving WASH services at night is most challenging. 19% of the sample group used buckets inside their tents due to limited access to overnight sanitation,

while 28% openly defecated in public areas. Additionally, the recent pandemics of Ebola and COVID-19 further revealed the inadequacies in WASH services and the detrimental health effects that they have on human life (Amoak, 2023:2).

b) Regional level

Various studies have been done at the regional level indicating the persistence of the phenomenon under investigation. Quattrochi et al, (2021) conducted a series of randomized controlled trials in rural Democratic Republic of Congo to investigate the impact of a community-driven intervention on water and sanitation infrastructure access, behaviour, and governance. They established that the problem of insufficient WASH services was especially problematic. The study results showed that a national WASH and governance programme, driven by the community, enhanced access to a better water source and sanitary facilities, reinforced water governance, raised good handwashing and sanitation practices, and increased satisfaction with water availability. In Namibia, Amutenya (2020) established that there were problems in a service delivery implementation program that did not meet the present societal and community needs due to poor policy design and implementation. However, Amutenya (2020) concluded that Public-Private Partnerships (PPP) were an essential instrument for helping the government with development when it comes to resolving water and sanitation issues. Amutenya (2020) thus recommends that (PPPs) should be considered by local government, as a means of enhancing service delivery. In Zimbabwe, Chigonda & Chazireni (2018) report generally inadequate service delivery in the nation's rural areas as a result of a poorly designed and politicized resettlement program. They also draw attention to the sharp decline in the nation's infrastructure related to water and sanitation that has resulted from political isolation and economic downturn since the turn of the century, as well as the departure of the majority of the nation's financing partners in these areas. According to Berhe et al, (2020), those residents of rural Tigray in northern Ethiopia frequently lacked basic information, had negative attitudes around the topic, and practiced poor WASH. In order to improve knowledge, attitude, and practice about WASH, it is necessary to revitalize the health extension programs at primary healthcare facilities. However, Tseole et al, (2022) state that water and sanitation are essential to ensure a healthy lifestyle. However, many people and communities in Southern Africa still do not have access to safe water sources and better sanitation. The biggest obstacle to improved WASH services in

marginalized and underdeveloped areas is the lack of WASH infrastructure compared to metropolitan areas. Based on our study, it is clear that Southern Africa's present WASH criteria do not meet the updated WASH standards found in SDG 6, which strives to guarantee that everyone has access to water and sanitation (Tseole et al, 2022). Access to WASH is a major issue in Kenya, with vulnerable groups often excluded in decision-making (Nyanchwa et al, 2019). Yusuf et al, (2019) In Nigeria, children who lack access to clean water are particularly harmed by open defecation. They play, crawl, and move around in polluted dirt and other objects. Due to open defecation, their inability to practice adequate hygiene could endanger their health. Open defecation facilitates the spread of several infections and diseases, including polio, trachoma, hepatitis, and diarrhoea (Sarkingobir & Sarkingobir 2017).

According to Tshuma et al, (2023), during flood incidents in Tsholotsho District in Zimbabwe, communities around the world, whether in urban or rural regions, continue to encounter significant WASH issues. Depending on their ability to cope and their resource base, communities and individual households are affected in different ways. Flooding severely damages the infrastructure for water and sanitation, leaving people vulnerable to diseases associated with WASH.

c) National Level

The above paragraphs revealed that the issues of WASH are a global and regional issue, this section indicates the persistence of the issue at the national level with studies by Shezi, (2017) who opine that that the problem of insufficient water and sanitation is not limited to the spread of fatal diseases; it also affects human dignity, reduced neediness, environmental sustainability, and general mental health. Shezi (2017) observes that due to informal settlements, economic hardships, and the complex socio-political environment, providing adequate access to water and sanitation in South Africa is becoming problematic.

Chauke (2017), conducted another research in the province of Gauteng, focusing on the challenges faced

in providing basic water and sanitation services. The main findings of this study were that its recommendations could help municipalities provide better services. The research concluded that coordination of resources and expertise in water and sanitation across all government areas is advised, despite the fact that there is still

insufficient funding. The issues stated were as follows: inadequate revenue collection; sixty-seven percent of informal settlements; eighty-three percent of water leaks; fifty percent of dumping on water treatment plants; eighty-three percent of infrastructure is outdated; Infrastructure theft and vandalism account for 83% of the problem; natural water resource depletion accounts for 67%; high water demand accounts for 67%; water and sanitation backlogs account for 83%; and staff and skill shortages account for 83% (Chauke, 2017). To make sure that resources are allocated to water and sanitation services in the best possible ways, intergovernmental connections must be strengthened. To ensure the effective and efficient supply of water and sanitation services, it is imperative to coordinate the knowledge of all parts of government. Furthermore, a qualitative research methodology grounded in a phenomenological approach was employed in the study to investigate the issues surrounding service delivery.

In contrast, the study mentioned above (Enqvist & Ziervogel, 2019) concentrated on social justice and water governance while conducting research in Cape Town, were threatened to cut off 4 million people's access to household water, which was what first brought attention to Cape Town in early 2018. However, an absence of trust and communication that is poor led to a situation where "Day Zero" was almost a reality as dams nearly ran dry in the first half of 2018. In conclusion, a new water strategy was being created in Cape Town while other water sources are being investigated. More so, this calls for more proactive, well-organized, and open communication, all of which Cape Town enhanced during its crisis management.

In order to promote trust and collaboration between the public and civic organizations, policymakers, researchers, and practitioners in the future should enhance their knowledge and proficiency in designing governance processes. This can be achieved by recognizing the unique challenges faced by individuals from diverse backgrounds and circumstances (Enqvist & Ziervogel, 2019). The Eastern Cape and KwaZulu-Natal face the most severe water access challenges, whereas the Western Cape in South Africa exhibits the highest level of equity in this regard. Similarly, more residents in Cape Town have reliable water than the national average, but the situation can still be bad in peri-urban townships and informal settlements compared to South Africans as a whole, Cape Town's most vulnerable citizens use these taps more frequently. In

Khayelitsha, 10% of the population lacks access to running water and any kind of toilet (Beck et al, 2016; Pengelly et al, 2017).

Dlamini-Tshazi (2021), conducted a study that primarily examined the effectiveness of service delivery systems for water and sanitation in Ugu District Municipality in Kwazulu Natal Municipality. The main findings of the study were showed that municipal problems were a mix of soft and hard problems, including insufficient leadership, fragmented institutions, a lack of coordination of information, and resource difficulties. While VSM supports the UDM's applicability and encourages a deep understanding of the system as a whole, it was not determined whether it was possible to carry out the suggested enhancements (Dlamini-Tshazi, 2021). Then concluded utilizing VSM to improve governance in water service authorities, highlighting the tool's advantages and disadvantages in practice, and presenting methodological insights that increase understanding of VSM use and support its practical implementation.

This implies that water and sanitation issues in the Eastern Cape require investigation to achieve Sustainable Development Goal 6. In this context, this study explores how Mquma Local Municipality can sustainably provide water and sanitation to its residents to meet SDG 6, targets 6.1 and 6.2. This is informed by the current problem of inadequate water and sanitation in municipalities in South Africa, and more particularly, the obtaining situation in settlements like Zizamele township, in Butterworth, Mquma Local Municipality, where the use of unsecured water sources, primarily bush toilets and rivers, streams, and wells, is daily experienced by residents, and widespread across human settlements in municipalities (Fiko, et al, 2020).

d) Local Level

The Njingana (2019), study investigated the looming problems of water services, focusing on the quality and availability of water and their effects on sanitation and hygiene in communities within Nelson Mandela Bay Municipality's Walmer Township. The study adopted a comprehensive and diverse methodological approach. However, this study is looking at these WASH services at a local level similar to Njingana; what differs is that it was carried out in Port Elizabeth, and the findings were that, as a result, these amenities have received poor management and repairs. Due to the current management structure, most bucket toilets are not hygienic, and the water stand taps are in bad condition. This was further concluded by saying: The local government must

ensure that everyone has basic access to basic water and proper sanitation services as mandated by the nation's constitution to address these unacceptable water and sanitation concerns in Walmer Township (Njingana, 2019).

The problems of inadequate access to clean water and sanitation are neither recent or exclusive to South Africa, namely in the Eastern Cape Province. This is evident in a study conducted by Hutete (2022), which demonstrated that this occurrence is widespread and need immediate action and attention to guarantee the fulfillment of fundamental human rights and constitutional obligations on access to basic water services and sanitation. During this study, the researcher specifically concentrated on comprehending social fairness as a fundamental aspect of water governance in the Amathole District. Nevertheless, this study examines the provision of water, sanitation, and hygiene (WASH) services specifically at the level of a local municipality. The main objective is to identify and propose alternative approaches that can ensure the long-term viability of water and sanitation systems, ultimately contributing to the achievement of Sustainable Development Goals (SDGs) 6.1 and 6.2.

Research has also been carried out in the Mquma Local Municipality, which is the specific focus of this study. Prior research conducted by scholars like Maramura (2022) has demonstrated that despite the assurances given, there are still difficulties in accessing essential services. This study discovered instances where individuals exhibited reticence throughout the interview sessions, had resigned themselves to their circumstances for an extended period, and had acquiesced to their living condition. The research employed a qualitative methodology, utilizing semi-structured interviews and conducting evaluations of secondary data. In order to enhance the proficiency of its staff, Mquma Municipality should implement training and development seminars and programs. In order to remain competitive in the industrialized world, it is evident that continual skill learning is necessary in both the public and commercial sectors, due to globalization and technological advancements (Maramura, 2022).

In contrast to Dolo's (2020) report, which emphasized the disparities between rural and urban regions, the South African government has been actively grappling with the persistent challenge of addressing inadequate water infrastructure, particularly in small towns and rural areas. Nevertheless, several areas face a shortage of access to

safe drinking water due to the water service provision situation encountered by Amathole District Municipality (Damba-Hendrik, 2019; 2020). The studies conducted by Damba-Hendrik in 2019 and 2020, as well as the study by Dolo in 2020, yielded comparable results. In 2020, Dolo stated that improving water filtration in the Eastern Cape would enable rural communities to choose between yard or home connections. This would be particularly beneficial for individuals who are willing to pay rates that are appropriate for their socioeconomic status. As a result, many resort to unsafe and unhealthy natural water sources. However, the inability of the municipality to alleviate the complaints of the community regarding water difficulties in Mbashe and Mnquma has been attributed to poor governance, low operational and institutional capability, and other factors. (Hutete, 2022).

2.10.1 CONTRIBUTION OF THIS STUDY

While the literature indicates that studies of the administration of water and sanitation in communities are neither new nor unique, this study contributes to evolving debates on water governance, as it focuses on the necessity for long-term plans for the provisioning of water, sanitation, and hygiene in Mnquma Local Municipality. The study thus envisages the outcome of progressively realising SDG 6, targets 6.1 and 6.2. The study will, therefore, fill the gap in the literature which has not studied WASH by aligning it with the progressive realisation of SDG goals and targets.

2.11 THEORETICAL FRAMEWORK

The theory of justice and the human rights-based approach were used as an analytical framework. The study benefits from a robust analytical and theoretical framework provided by the Human Rights Approach and Theory of Justice. Human rights have been incorporated into the constitutions of many governments around the world. In South Africa, human rights are acknowledged in Chapter 2 of the South African Constitution 1996. In addition, the NDP aims to eliminate poverty and guarantee universal access to water services by 2030 (Alshomali & Gulseven, 2020). The human rights-based approach and Theory of Justice support the provision of water, sanitation, and hygiene to all individuals, ensuring fair distribution and equality without any form of discrimination. It is crucial to guarantee the accessibility, affordability, and reliability of essential human rights like WASH services in Mnquma

Local Municipality. These rights are closely interconnected with other fundamental human rights such as education and health.

a) *The Human Right based approach*

Human rights knowledge serves as the foundation for the study. The human rights concept is rooted in the teachings of Aristotle and Thomas Hobbes, who argues that every citizen's rights must be fully respected and enshrined in the Constitution. Philosopher Thomas Hobbes believed that all people should be entitled to the same rights and be able to exercise and enjoy them (Miller, 1996). The concept of human rights has played a crucial role in global conversations about water policies from the time when the Dublin Statement (1992) declared that access to clean drinking water and sanitary facilities is an essential human right (World Meteorological Organization, 1992: Power, 2013). In 2010, the United Nations (UN) determined that Sanitation, as well as the right to safe and clean drinking water, are fundamental human rights that must be respected for all citizens to fully enjoy life, human dignity, and all other inalienable human rights (UNGA, 2010).

Although the HRBA is well known, certain scholars, like Brown (1997), have criticized it, arguing that rights are essentially individualizing and ignore economic disparities. He contended that they permit a continuous violation of an individual's essential personal integrity and building. Nevertheless, it is imperative to emphasize the importance and critical role of an approach based on human rights where WASH is concerned. It allows marginalized people to be acknowledged and to have appropriate access to restrooms. This is especially beneficial for those who ultimately reside in townships, rural areas, and settlements which are informal. This strategy is significant for this study as well because, rather than advocating for free wash services, it calls on the government to act as duty-bearers and devise ways to guarantee that everyone can use wash services. These solutions include long-term plans for enhancing wash services in Zizamele townships.

b) *Theory of Justice*

The most important theory of social justice is John Rawls' concept of fairness as a principle from his work, "A Theory of Justice" (1972) (Hudson, 2013). The Theory of Justice relies on both the basic social contract theory of Thomas Hobbes and the Kantian (Emmanuel Kant) philosophical tradition of justice as impartiality. Power

(2019) argues that in some domestic circumstances, social structural theories of justice have been particularly influential, and they complement human rights approaches. Both approaches emphasize the importance of competent public institutions that have the necessary organisational capability, and which adhere to principles of access that are equitable to sufficient clean water and sanitation services, as well as other essential uses, for all people today and in the future (Power, 2019; Rogers, 2000). Criticisms from the intellectual descendants of Rawls maintain that his ideas are too profound and powerful to have any real social impact. The entitlement theory, which is associated with the difference principle, is a criticism aimed Rawls. Rawls contends that people who are more productive because of innate advantages should not be compensated more.

According to Chung (1994), the first principle of Rawls (1972) is concerned with the feature of a social system that defines and secures the equal liberties of citizenship. Political liberty, freedom of speech and assembly, freedom of conscience and thinking, and other fundamental liberties are among the many rights that citizens have. Such liberties are a reflection of contemporary civil liberties based on the notion of natural law. Fundamental liberties must be uniformly granted to all citizens, as they possess the right to exercise their freedoms. The second principle underscores fair equality of opportunity in positions of power and command within a community, while simultaneously highlighting the distribution of social and economic advantages.

John (2014) demonstrates that a democratic society's aim of a well-ordered community with justice and fairness is unattainable John adds that Rawls' Political Liberalism suggests that people with reasonable but different opinions can form an "overlapping consensus" in which justice as fairness is the account that best reflects their opinions and is focused on acknowledging this truth (Peffer 1990; 304). Despite this possibility, the Theory of Justice has significantly impacted WASH and will always be important. It gives marginalized people recognition and adequate access to washing services, particularly those who reside in townships and settlements that are informal and rural areas. This approach holds significance in this study as well, as it makes the case that free laundry services are necessary because both the theory that is based on Justice and the approach that lies in basic human rights advocates for equitable access to clean water, hygienic conditions, and equitable distribution to all citizens without any form of discrimination.

2.12 LEGISLATIVE FRAMEWORK

South Africa has been amending its water laws since 1994, the National Water Act, 1998 (Act 36 of 1998), which state everyone can access fundamental requirements like affordable, reliable, and safe drinking water. These changes have been made to right historical wrongs and the racial segregation that existed under apartheid. Therefore, the main target populations of these legislative frameworks have been the marginalized, underprivileged, and disadvantaged, and this includes individuals living in rural areas. Monitoring and reporting on water, sanitation, and hygiene have progressed from the Drinking Water Supply and Sanitation Decade (pre-1990) to the upcoming SDGs (2030) (Wilkinson et al, 2019). South Africa agreed to all international water and sanitation monitoring and reporting stages' initiatives and targets by focusing on developing national policies, legislation, strategies, and sectors related to water, sanitation, and hygiene. After independence, several water reforms were implemented in South Africa to promote access to those who have been marginalized and enhance sustainability (Adom & Stimatetele, 2021).

a) Human rights-based public policy

In 2018, the Inter-American Commission on Human Rights (IACHR) stated that the purpose of human rights-based public policy is to preserve, promote, uphold, and ensure the human rights of all individuals and groups within communities that are founded on the principles of equality and non-discrimination. As a result, it is the responsibility of the local government to plan, carry out, supervise, evaluate, and monitor access to water, sanitation, and hygiene (WASH) services, as well as the equitable provision of these services, through an ongoing process of social inclusion and participatory governance (Meier, et al, 2014). In order to address the detrimental impact that water and sanitation have on public health, this should be anchored by the adherence of human rights as a cornerstone.

The United Nations advocates a continuous evaluation of how human rights have changed under international law, and how the 2010 UN General Assembly Resolution on the Human Right to Water and Sanitation seeks to advance human rights (UN Resolution, 2010). At the local government level, monitoring and evaluation is essential. The monitoring and evaluation (M&E) system should be supported by a collection of municipal structures, management procedures, guidelines, strategies, information systems, reporting lines, and accountability relationships that allow for

successful cooperation between local, provincial and national governments as well as other public institutions for successful M&E initiatives (The Presidency, RSA, 2007). More importantly, monitoring and evaluation should revolve around the key elements: inputs, activities, outputs, outcomes, and impacts (The Presidency, RSA, 2007:2).

b) *The Constitution of the Republic of South Africa (RSA), 1996*

The constitution of South Africa, established in 1996, was built upon several fundamental ideas such as human dignity, equality, human rights, freedom, and social equity. As to section 27 of the Constitution, everyone has a guaranteed right to obtain a sufficient quantity of water. Furthermore, the Constitution requires that the necessary measures be taken to ensure the realization of this right. Section 195 of the law establishes the fundamental principles of public administration, which require that services be provided in a manner that is impartial, just, and equitable for all parties concerned. As per Schedule 5B of the RSA Constitution of 1996, the responsibility for providing water services lies within the authority of the municipality (Green Paper on Local Government, 1997). Local government legislation is responsible for implementing this constitutional requirement, which obligates municipalities to promote a secure and wholesome atmosphere within their communities and collaborate with other governmental entities to achieve the fundamental rights specified in Sections 24, 25, 26, 27, and 29 of the Constitution. Furthermore, this Act mandates that towns must do so in order to meet the constitutional obligation. According to the Constitution, the federal government is in charge of managing surface and groundwater resources. However, it is specified that local governments have the responsibility for providing municipal water supply and sanitation services (Adom, & Simatele, 2021).

c) *Water Service Act (Act no 108 of 1997)*

The Water Service Act (Act No. 108 of 1997) designates municipalities as Water Service Authorities (WSA), and it is their responsibility to provide water to the local communities. Municipalities covered by this Act, such as local municipalities in Mngquma, are required to make sure that every community they oversee obtains services, especially water, sanitation, and hygiene (WASH). The Act also provides for Water Boards and community-based organisations to improve service delivery. Measures must be recorded in an effort to guarantee that rights such as these are upheld by water service organizations themselves in accordance with Section 2 of the

Act. The Act recognises the principles of equity and equality and as such, water service will be provided in a fair and just manner. Organizations that provide water services, the majority of which are municipalities, are governed by WSA 108 of 1997 as their primary legal framework. In order to guarantee that there is adequate water, and that the environment is safe for human health and well-being, it ensures that everyone has access to the bare minimum of sanitary facilities and water supplies. This essentially puts the Bill of Rights into practice. The primary focus of the Act is on the water services provided by municipalities to their citizens and other water users. Sanitation and potable water services are other names for these services. It includes guidelines and requirements for how towns should supply water and maintain cleanliness (Adom & Simatele, 2021).

Water Services Institutions (WSI) must possess comprehensive service development plans and be responsible for readily available policies that guarantee the execution of constitutional rights and influence socioeconomic variables, as stipulated by the Water Services Act (WSA) 108 of 1997. Municipalities have a legal obligation to ensure that customer service centers meet particular criteria, such as efficiency, accessibility, responsiveness, and accountability. Furthermore, it is imperative for them to ensure that consumers are provided with access to water services that are both safe and dependable. Moreover, the Act advocates for fairness, durability, and effectiveness in the management of water resources (Mahlasela et al, 2020), which are crucial values in guaranteeing access to fundamental services.

d) National Water Act (Act no 36 of 1998)

The National Water Act (Act no 36 of 1998) represents a significant shift in South African water governance since 1994. The Act emphasizes fundamental concepts such as fairness, durability, and effectiveness. The Act establishes the National government as the principal caretaker of water resources. Moreover, the main goal of the Act is to guarantee that water resources are utilized, supervised, and regulated in a manner that is fair, efficient, and enduring. In order to accomplish this, the Act establishes institutions such as Catchment Management Areas and Water User Associations, among others, to enforce international agreements pertaining to water. Ensuring that the water resources within the country are under protection, preservation, utilisation, regulation, development and are managed in a manner that takes account of the following: (i) the country's basic needs are sustainably met; (ii)

enhancing equitable access to water; reassessing the customs surrounding the provision of services based on race and gender; and (iii) encouraging the effective, sustainable, and preferable use of water for the convenience of a population which is larger (Shezi, 2017).

e) National Water Resource Strategy of 2004 and 2013 (2)

An important document and legal tool for putting the NWA (Act 36 of 1998) into effect or operationalizing it is the NWRS of 2004 (1). The NWRS has established the key components of integrated water resource management, providing a clear and easily understandable depiction of South Africa's water predicament and the essential actions needed to address it. The Act has legal validity and compels all institutions and organizations to implement it (Adom & Stimele, 2021). Furthermore, it is a crucial document that sets out the principles for the nation's protection, utilization, advancement, safeguarding, administration, and regulation of water resources. The strategy aims to grant greater responsibility over water resources to water user associations (WUAs) and local catchment control agencies (CMAs). The plan also offered a platform for coordination and collaboration across the three government agencies concerned with economic expansion (Hutete, 2022).

Building on the first NWRS, the second one was released in 2013 and ensures that national water resources are managed to support equitable socioeconomic priorities over the next five to 10 years (Nkosi, et al, 2021). However, NWRS made it possible for Catchment Management Strategies to be established. These strategies even set up a framework for distributing water to present and future users while accounting for the factors influencing the development, management, and proper use of water resources (Nkosi, et al, 2021). The importance of water to the economy, the generation of jobs, and the sustainable and fair management, usage, conservation, and control of water resources were further emphasized by Masindi and Dunker (2016). Additionally, ensuring equal and sustainable access to water for all South Africans and encouraging responsible use to enhance both their quality of life and the environment are the strategy's main objectives.

f) National Sanitation Policy Draft 2016

This policy emphasizes the need for the government to act and guarantee that every citizen has access to fundamental sanitation, with neglected houses and vulnerable

people receiving priority, along with highlighting the need for sanitation, hygiene, and end-user education, as well as the necessity of managing and maintaining infrastructure for sanitation services and related systems (Masindi & Dunker, 2016). As per the National Sanitation Policy, a number of these technologies do not meet the necessary criteria for adequate sanitation. The bucket system should be gradually eliminated and substituted with a more appropriate and effective method, as it fails to offer satisfactory sanitation and is socially undesirable to most individuals (National Sanitation Policy). The hygiene concerns associated with portable chemical toilets make them unsuitable for usage outside of emergency scenarios (and even then, only for brief periods) (Tissington, 2011). As stated in the NSP (1996) and Danti (2018), appropriate sanitation also encompasses the creation, ongoing management, and maintenance of a system for disposing of wastewater, household waste, and human excreta that is cost-effective and acceptable to its users. Safety, accessibility, and hygiene should be prioritized to ensure that the system is sound and acceptable.

g) National Environment Management Act (NEMA) (107 of 1998)

South Africa's primary environmental law, the NEMA (Act 107 of 1998 (NEMA)), gives effect to the constitutionally guaranteed right to the environment and regulates collaborative environmental governance. It outlines guiding principles for environmental management, including those for fair access, effective public engagement, public trust, sustainable development, environmental justice, openness, accountability, and access to information (Toxopeus, 2019). The NEMA establishes national environmental norms and standards like the WSA and the NWA (Adom & Simatele, 2021). As such, the Act promotes the achievement of SDG 6, which is central to the eradication of poverty, improved standard of living, and social and economic development.

2.13 CONCLUSION

A conceptual framework, a theoretical and legal framework underpinning wash provision, is provided in this chapter, particularly in rural townships. The above literature indicates that much needs to be done if universal access for all is to be achieved in WASH provision. Moreover, the need for innovative and alternative implementation strategies cannot be undermined in WASH service in rural townships or areas. Subsequently, the next Chapter presents the research methodology.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The preceding chapter examines the literature that forms the foundation for water and sanitation provision in rural regions, including the conceptual, theoretical, and legal background. The chapter highlighted the fact that significant efforts are required in order to accomplish sustainable development goal 6, which aims to ensure universal access to water, sanitation, and hygiene (WASH) services by the year 2030. Furthermore, the need of creative and different approaches for implementation cannot be underestimated. This chapter provides a detailed description of the specific research methodology used in this study. Hence, the methodology chapter has elucidated the research paradigm employed, the research approaches undertaken, and the research methods utilized by the researcher for data collection, as well as the manner in which the data was analyzed. Furthermore, this chapter outlines the measures taken to maintain trustworthiness and rigor in the study, as well as the ethical considerations considered to assure accuracy and prevent harm. The chapter also discusses several components using an ever-growing variety of data sources. This chapter discussed methodology undertaken for this study as summarised in Figure 3.1 below.

3.2 RESEARCH METHODOLOGY

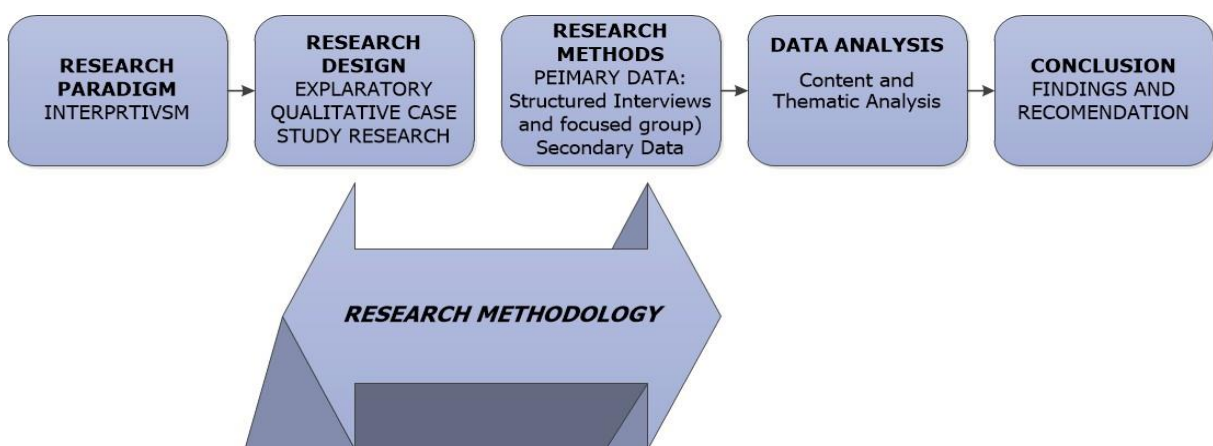


Figure 3.1: Research Methodology

Source: The researcher 2023

3.2.1 Research Philosophy/Paradigm

According to Hughes (2010), paradigms or worldviews play a critical role in supporting research and how it is interpreted (Mukherji & Albon, 2015; Kamal, 2019). According to Thomas (2010) there are various paradigms, including the interpretivism research paradigm and the positivism research paradigm. While these exist, this research adopted an interpretivism paradigm. This paradigm is associated with interpretivists who believe that the way the world is viewed varies from one person to the other hence, it is subjective (Nickerson, 2022). More so, the interpretivism worldview believes that truth and knowledge depend on interpretations of one's experiences, contextualized by culture, history, and personal circumstances (Nickerson, 2022). Ryan (2018) opines that if a researcher is involved, their values and worldviews will always influence how they gather, interpret, and analyze evidence.

Following this background, this research paradigm was considered most suitable for understanding why a phenomenon happens or why research participants behave as they do. While the paradigm also allows the researcher to concentrate on exploring experiences, viewpoints, meanings, beliefs and perceptions from participants' points of view, Unlike the objectivism paradigm, which believes in one truth and that reality is objective, the interpretivism paradigm adopted enables realization of the study objectives by focusing on the participants own experiences, which are contextualized by culture, history and personal circumstance. In order to comprehend and derive significance from the situation, researchers must cultivate empathy to decipher the diverse connotations that individuals and groups attribute to their acts and the stories they tell about these actions and interactions. Nevertheless, the researcher must maintain a reasonable approach rather than being swayed by emotions to ensure trustworthiness of the findings (Tombs & Pugsley, 2020).

3.2.2 Qualitative Research Approach/Strategy

The interpretivism research philosophy adopted in this study aligns with the qualitative research strategy, which is rooted within the interpretivist worldview (Thomas, 2010). While a study by Busetto, Wick, & Gumbinger, (2020) explains in detail how qualitative research includes the investigation of a phenomenon's nature, including its quality, numerous manifestations, the setting in which it takes place, or the angles from which it might be viewed. It is verbal, descriptive, based on logic, and non-numerical. Its objective is to comprehend, experience, and express events in their natural settings

(Goundar, 2012). The goal of the qualitative approach, according to Eisner (2017), is to understand study phenomena through the use of focus groups, in-depth interviews, analytical recording, and observation. The researcher engaged in discussions with the respondents to gather insights and firsthand experiences and insights on the subject under investigation in MLM. Such an approach, therefore, led to a comprehensive understanding of the local realities in MLM.

3.2.3 Research Design

Bryman (2016) asserts that a study design serves as a structured framework for the collection and analysis of data. It is a comprehensive way to implementing the theory in practical applications. A research design encompasses strategies and methods employed to gather and analyze essential data, as well as how these approaches align with the research questions of the study (Boru, 2018). The researcher's competencies, preferences, requirements, and accessible resources play a vital role in establishing the research design. For example, the qualitative approach frequently employs story research, phenomenology, ethnography-grounded theory investigations, and case studies. Researchers employ a methodology known as observation and analysis to ascertain what to investigate and examine (Abutabenjeh, & Jaradat, 2018).

This study utilized an exploratory qualitative case study research approach. According to Creswell & Creswell (2017), case studies provide a substantial amount of straightforward information that may be easily understood and analyzed. Hence, the use of an exploratory case study research methodology enables the researcher to attain a comprehensive comprehension of the most effective approach for Mngquma local municipality to ensure the provision of sustainable water and sanitation in order to fulfill the objectives 6.1 and 6.2 of sustainable development goal 6. In addition, the researcher utilized this method to examine and establish viable approaches for providing water and sanitation services in rural townships, with the aim of reaching sustainable development goal 6.

In addition, employing an exploratory case study research methodology allows the researcher to identify and tackle the challenges that communities encounter on a daily basis (Abutabenjeh & Jaradat, 2018) in terms of ensuring long-lasting access to clean water and sanitation. This is facilitated by the researcher's capacity to recognize and tackle the obstacles. The researcher must possess a comprehensive comprehension

of the elements that contribute to disparities in water and sanitation. The study collected the viewpoints of the participants regarding water and sanitation in Zizamele township in Butterworth and Mnquma Local Municipality using qualitative data gathering methods.

3.2.4 Target Population

The total units of which the investigator is interested are referred to as the target population. Shukla, in (2020) Stated differently, the term "population" designates a collection of all the units that have in common the variable characteristic that is the focus of the investigation and for which broad conclusions can be drawn. For this study, the target population was the households of residents in Zizamele township in Butterworth because they exhibit traits, behaviors, or experiences that the researcher found useful and interesting. Municipal officials from the water and sanitation units also constitute the target population. The research that was carried out by Casteel and Bridier (2021) highlighted the significance of identifying the population as an essential step in deciding the scope of a study and supplying the reader with pertinent information regarding the setting. Because of this, the researcher is able to concentrate in the appropriate manner and avoid drawing broad generalizations that might not be applicable elsewhere.

Individuals were classified into two categories: target individuals and accessible individuals. The accessible population was the portion of the target population, that the researcher could reach, including Zizamele residents. Every researcher chooses what or who will provide the study's data using a sampling technique. All individuals who fit the sampling criteria made up the target population. For instance, people who worked in the water sector in Mnquma local municipality and municipal managers, as well as Zizamele inhabitants, were the targeted group. The table below shows the targeted individuals.

Sampling plan for the study respondents

Respondents	Targeted Respondents	Instrument	Analysis
Mnquma local municipality	5	Structured Interviews	Thematic
Zizamele residences	5	Focus group discussions	Thematic
Zizamele residences extension 1	5	Focus group discussions	Thematic
Zizamele residences extension 3	5	Focus group discussions	Thematic

Source: Researcher (2024)

3.2.5 Sampling and Sample Size

Bhardwaj (2019) defines sampling as the act of selecting a subset of individuals, either from a single person or a larger population, for the purpose of carrying out a specific statistical inquiry. Sampling primarily addresses issues with sample size and sampling design essential to all qualitative research. However, qualitative researchers can use these elements to select sample sizes and sample designs that best support the goals of their targeted studies (Omona, 2013). According to Obilor (2023), there are various sampling techniques, such as Convenience Sampling and Snowball Sampling. In this specific study, the researcher employed purposive sampling, a non-probability sampling strategy.

Judgmental sampling is a purposeful strategy of selecting specific conditions, individuals, or events in order to obtain crucial information that cannot be obtained through any other means. The selection of individuals who can offer comprehensive insights into the subject under examination was considered crucial for this study, therefore the utilization of purposive sampling as the primary strategy. In this study, participants in Zizamele were those primarily impacted by the availability of water and sanitation services. Notwithstanding, the researcher purposefully selected a sample from Zizamele residents. Lastly, while sampling was considered an important aspect of ensuring successful research, it can be asocial when sampling bias occurs

when (Taherdoost, 2016; Obilor, 2023). This occurs when a researcher selects cases or individuals for the sample solely based on their interest, or subjective judgment of characteristics inherent in selected participants (Zickar & Keith 2023).

The study had a small number of participants, and the researcher recognised that as a target group their experiences could provide data which met the study's objectives. Following the above assertions on sampling, a total of (n=18) participants were purposefully sampled in this study. While purposive samplings have its advantages, the researcher acknowledges its limitation, such as lack of objectivity, as participants are chosen based on the researcher's judgement. In the case of this study, this sampling method involved deliberate preferences when choosing participants. Participant characteristics of interest to the researcher, were households or individuals affected by inadequate access to water and sanitation, who were information-rich and could provide in-depth knowledge.

Fifteen participants (n=15) were purposefully sampled from households in Zizamele township in Butterworth. These were mostly those experiencing/affected by inadequate access to water and sanitation. Three (n=3) participants were purposefully sampled from Mquma Local Municipality information-rich public officials with an in-depth understanding and knowledge of the Community Services Directorate and whose functional area is water and sanitation. Mquma Local Municipality municipal officials were sampled because they were information-rich, given that they deal with issues and challenges of service delivery, on a daily basis. As such, they could provide informed experiences, views and perceptions on water and sanitation.

3.2.6 Data Collection Method

Data collection is the methodical process where data is obtained in a systematic way on the subject or variables being investigated to validate assumptions and evaluate the findings (Kabir,2016). Following this definition, the researcher therefore utilised primary data sources which included structured interviews (*See Addendum F- Structured Interview Guide*). and Focus groups discussions (*See Addendum G - Focus Group Discussion Guide*). More so, to enable data triangulation, the researcher used secondary data to augment primary data which was collected. The data collection methods adopted enabled the collection of a rich and in-depth collection of

data relating to participants own experiences which were contextualised by culture, history and personal circumstances. These methods aligned with the interpretivism research's world view, and the qualitative research approach adopted in this study.

a) Focus Group Discussion (n-15)

Focus groups are an expanded version of interviews, involving a more thorough and detailed group interview accompanied by discussion. The facilitator or moderator supports the controlled and organized exploration of the selected themes (Gundumogula & Gundumogula, 2020). A focus group, on the other hand consists of a smaller group of participants—typically six to nine—who are gathered by a researcher who has received moderator training to discuss attitudes, perceptions, feelings, and ideas (Dilshad & Latif, 2013). Creswell & Creswell (2017) allude to the view that focus group discussions allow for discussion, participation, the broadening of concepts, and the provision of fresh insights into a research topic through the presentation of various points of view and ideas. The researcher used focus groups, specifically those within the community of (Zizamele) Mngquma Local Municipality, to gather data, because they would allow participants to disagree and agree on issues raised providing an open platform for various experiences to be shared and discussed (Hutete 2022).

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The researcher had three focus groups purposefully sampled from households of community members in Zizamele township in Butterworth; each focus group would comprise five ($n = 5$) participants. The researcher conducted three (3) focus groups; these groups are community members, and discussions afforded the researcher an opportunity to solicit in-depth, rich, diverse opinions, views, and experiences from the residents of this community. Prior to the sessions, participants signed informed consent forms (see Addendum E: Informed Consent Forms), indicating their agreement to participate without pressure or force. The researcher informed them when the recording began and ended after receiving their permission to record. It was made clear that the researcher wants to achieve the research objective and share informative knowledge so that people are able to fight for their rights and have universal access to water and sanitation. It was explicitly stated by the researcher that this was an academic study. As Fleming & Zegwaard (2018) point out, it is ethically imperative that participant identities remain anonymous or secure, and the assurances cover not just protecting their names but also abstaining from using self-

identifying language and material. Maintaining the anonymity of participants is essential to averting any potential risk.

b) Structured-Interview (n=5)

Structured interviews were another method of data collection used in the study. A structured or standardized interview, often known as a researcher-administered survey, is a pre-planned interview with a predetermined design (Adhabi & Anozie, 2017). Although an entirely planned interview is referred to as a structured interview, when conducting a structured interview, all questions pertaining to the study's goals are written down before the interview begins and are asked there (Elhami & Khoshnevisan, 2022).

The study also used structured interviews to collect data, with five participants (n = 5) purposefully sampled from Mnquma Local Municipality public officials from the Community Services Directorate and those whose functional area is water and sanitation. Selecting municipal officials in different sectors of the municipality was based on the fact, they were information-rich and thus deemed familiar with water and sanitation issues, which were the focus of this study.

The structured interviews involved the Municipal Manager (1), three (3) municipal officials from the Directorate of Water and Sanitation, and two (2) Ward councilors. The perfect time to conduct structured interviews is when the literature is well-developed for the study or when observational interviewing and other less formal interviewing methods have given the researcher a sufficient understanding of the issue to formulate appropriate and insightful open-ended questions (Hill, Morse, & Dymont, 2019). Participants completed Informed Consent Forms before the interviews to guarantee their participation was both willing and informed (See, Addendum E: Informed Consent Forms). Ensuring participant anonymity or security is of utmost importance. It involved protecting identities and avoiding using language and materials that could reveal their identity.

The researcher specifically declared that the study's goal was academic. These face-to-face meetings, which lasted between ten and twenty minutes, took place in the local municipality of Mnquma. The interview guide (see Addendum G: Interview Guide) was given out during the interview. This is done to ensure that the answers or responses can be integrated to fulfill the objectives of the study. One advantage of

doing structured interviews, according to Rashidi et al, (2014), is that they guarantee consistency in the responses, enabling data comparability. Although it promotes standardization, which reduces errors brought on by differences in the questions asked.





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c) **Secondary Data Analysis**

Secondary analysis refers to the use of the already available information in a new study where the subject under investigation was not explored in the initial study (Long-Sutehall et al, 2011). It is flexible and can be applied in many ways. Despite this fact, care should be taken when utilising secondary data just as in primary data (Johnston, 2014). The researcher employed secondary data to augment data collected from primary sources (Creswell & Creswell, 2018). This enabled the researcher to triangulate data, so that the findings can be trustworthy. Scholarly work, journals articles and relevant official public documents were used. The use of secondary data enables the researcher to understand what has been done and what needs to be done to ensure residents have access to WASH service provision. The secondary sources used for the study are shown in the table below.

Table 3-1: Secondary Data Sources

Mnquma Local Municipality 2021/2021 IDP		Other Material 2020/2021 AGSA REPORTS
Service Delivery & Budget Implementation Plan year		Journal articles Relevant official public documents Scholarly work

Source: The Researcher (2023)

3.2.7 Data Analysis

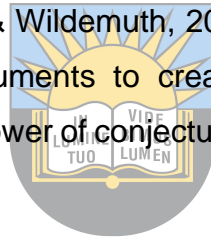
Alem (2020) provides a definition of data analysis as the systematic procedure of converting collected raw data into meaningful facts and concepts that can be understood in either a qualitative or quantitative manner. The primary objective of data analysis is to arrange the disorganized data that is currently available in a manner that facilitates decision-making by being more readable, easily understood, and conclusive (Bhatia, 2017). In summary, Ashirwadam (2014) states that data analysis is a technique for understanding the collected data. Data analysis plays a crucial role in achieving the study's purpose and addressing research inquiries. Data interpretation and analysis produce outcomes, deductions, and conclusions. The researcher

employed content and topic analysis in this investigation. The conclusions and recommendations were derived from the themes identified in both the secondary and primary data.

a) Content Analysis

Luo (2019) is of the view that content analysis is a research tool for detecting trends in documented communications. Luo (2019) further writes that to undertake content analysis, data is usually collected from a collection of texts, which can be written, oral, visual, or image based. Bryman (2016) & Shava et al, (2021) opine that analysis is a document and text analysis technique, of content in pre-specified categories, in a structured and reproducible manner.

Usually, computer applications like NVivo 1 or ATLAS.ti.2 are used to facilitate qualitative content analysis. Although the systems' sophistication and complexity vary, they aim to help researchers manage qualitative data more effectively by organizing, managing, and coding it. (Zhang & Wildemuth, 2009). As noted by Aacharya (2022), it can be used to translate documents to create expert systems. Concepts are developed based on rules or the power of conjecture by demonstrating the relationship between the two.



The process of qualitative content analysis

The initial phases of data collection are frequently when the qualitative content analysis process starts (Delve & Limpaecher, 2023). This early participation in the analysis stage facilitates transition between ideation and data gathering, and it might even help the researcher's focus, later on data collection efforts and on sources that would best be suited to answering the research questions.

a) Prepare the data

Qualitative content analysis was mostly employed to examine interview transcripts to elucidate or conceptualise individuals' information-related actions and thoughts (Zhang & Wildemuth, 2009). In doing so, the researcher prepared data as such, documents which were printed and scanned, and interviews were transcribed. Data obtained helped the researcher to fully understand participant experiences.

b) Develop categories and a coding scheme

According to Delve & Limpaecher, (2023) categories and a coding scheme can be

formulated from three sources: the data, prior relevant research, and theoretical frameworks. Coding schemes can be developed both inductively and deductively. In studies where no theories are available, researchers generate categories inductively from the data. Thus, data collected through, **focus groups, interviews, and secondary data sources were coded, categorized and classified into themes. This in essence allowed for in-depth analysis and organization of data.**

c) Report your method and findings

Qualitative research is inherently interpretive, with interpretation reflecting one's personal and theoretical comprehension of the subject being examined. An interesting and readable report “provides sufficient description to allow the reader to understand the basis for an interpretation, and sufficient interpretation to allow the reader to understand the description” (Delve & Limpaecher, 2023). It was thus important to balance data description with interpretation, when presenting the findings of a qualitative content analysis. As such, description were to be detailed and comprehensive since, so as to provide readers with background information and context.

b) Thematic Analysis

Nowell et al, (2017) explains that thematic analysis examines various research topics and epistemologies in qualitative research. This study used thematic analysis to identify, examine, group, summarise, and report themes in the collected data. A rich, intricate, yet complex description of the data will then be produced using thematic analysis, constituting an effective and adaptive tool for this study.

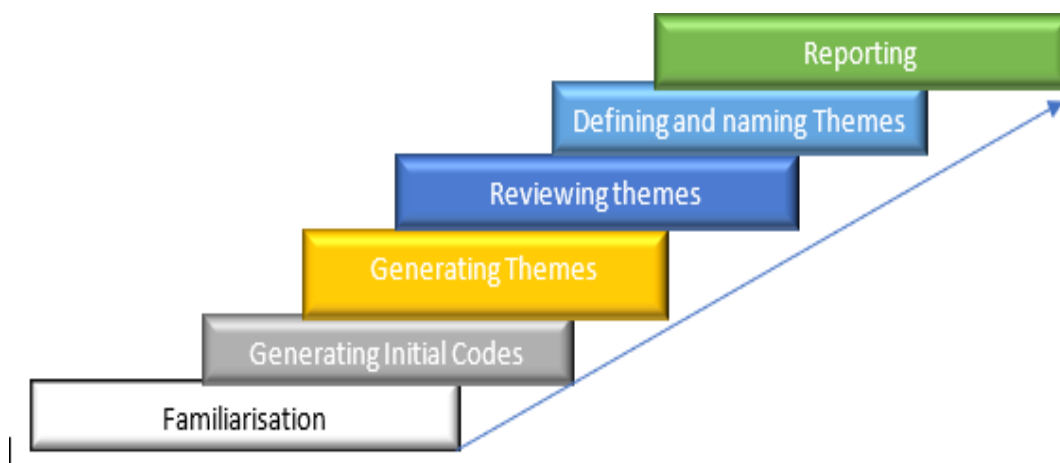


Figure 3-1: Six Steps for Conducting a Thematic Analysis

Source: Bryan and Clarke 2006

The thematic analysis provides a rich and complex explanation of the data, according to Braun and Clarke (2006), who contend that it is a highly flexible method that can be modified to suit the goals of various investigations. The first stage is *familiarisation*. During this stage, data collected from the focus groups, structured interviews, and document review was organised (Hutete, 2022). By doing so, the researcher got familiar with the data making it possible for the next stage. The stage was considered important as it enabled and directed any additional actions which the study took for the data to be analysed properly (Diwadi, 2020). As such, documents were printed and scanned, and interviews were transcribed. All the data obtained helped to fully understand how participants reacted to the test difficulties addressed in this study. All pertinent data was emphasized during the research process, providing the data with a comprehensive, in-depth analytical perspective. The second stage included the generation of codes. The stage entailed the generation of initial codes from the data. Preliminary coding determined the data features that act as the fundamental segment or element of the raw data or information, which was meaningfully appraised about the phenomenon (Boyatzis, 1998). This approach aligns with Braun and Clarke (2006), who contend that coding is a component of analysis where data is organized into meaningful categories. However, coded data is distinct from units of analysis, which are often broader themes (Majumdar, 2022). Nowell et al, (2017) define qualitative coding as a technique for analyzing and interpreting data, which involves actively engaging with the data and engaging in reflective thinking. Coding allows the

researcher to streamline and focus on specific attributes of the data. The data was organized through the utilization of focus groups, interviews, and secondary data sources. All relevant data was highlighted throughout the study, giving the data a thorough, in-depth analytical viewpoint.

The third stage was the generation of themes. Themes are a way to distil and bring together the essence or character of an experience into a cohesive whole. In simpler terms, a theme is a conceptual abstraction that gives rise to a repetitive encounter and its various expressions, imbued with distinct character and significance (Nowell et al, 2017). Hutete (2022) expressed this by saying that it's crucial to remember that themes are more expansive than codes, and at this point, themes were created by combining different codes. The identified themes included a variety of participant perspectives and were supported by concrete facts, which gave the findings and conclusion a genuine feel. The fourth stage entailed the review of themes. The stage started after a list of themes was developed leading to the development of concepts (Braun, & Clarke, 2006). Consistent with Nowell et al, (2017), the researcher considered the validity of each theme in order to determine if they accurately represent the meanings observed in the entire dataset. So that the data would be fairly represented, the researcher compared the themes that were developed. As a result, certain themes were divided, combined, and removed, improving the accuracy, applicability, and usefulness of the remaining themes.

The fifth stage was being the explicit definition and designation of names for the topics. The Researchers examined the correlation between each topic and the research questions concerning the overarching narrative of the entire data set. The conclusions gained were trustworthy owing to the sufficient time allocated for concept development (Lincoln & Guba, 1985). Furthermore, the researchers were able to precisely define the topics and their exclusions prior to the conclusion of this phase. The final phase of data analysis was reporting. This was executed following a comprehensive delineation and designation of the themes. Braun & Clarke (2006) & Nowell et al, (2017) assert that researchers must elucidate the significance of each topic, the underlying assumptions, and the implications associated with each topic. The topic analysis was finalized, and a methodology was developed to delineate the data collection procedure. Every topic was comprehensively examined in the results and conclusions section. Findings were presented using direct quotations. The Inclusion of excerpts

from unprocessed data in the analytical narrative was essential for articulating the complex storyline of data beyond a simple factual account (Braun and Clarke, 2006). To ensure precision, the researcher revisited the reflective journal to verify the veracity of the results and to ensure their alignment with the literature. The researcher examined both the associated and unforeseen consequences (Hutete, 2022).

3.3 TRUSTWORTHINESS IN QUALITATIVE DATA

A study's trustworthiness is ensured using strategies that enhance credibility, dependability, conformability and transferability (Shenton, 2004). These aspects are critical in qualitative research and are associated with bias and subjectivity. It is, therefore, important to ensure that the study findings and the whole research process are convincing and trusted by the readers. As such, the following strategies were considered during the study.

Mamba (2019) defines credibility as qualitative researcher's level of confidence to say the results are true. Furthermore, credibility checks, if possible, data produced from participants' original data accurately interprets their opinions (Mamba, 2019). In simpler terms, credibility verifies the researcher's results. This approach enables the triangulation of data to check if the findings from participants align with the secondary data. The approach aligns with Eanerst (2020), who opined that triangulation is a method of research that combines multiple research methods into one investigation and examines the subject under phenomenon from various angles (Earnest, 2020). According to Noble & Heale (2019), triangulation ensures the consistency and completeness of collected information. Additionally, it validates the research's results. As such, data collected from various sources, such as the structured interviews, was verified with data from focus groups and again with data from the municipal documents such as the IDPs from Mngquma local municipality and the Auditor General Reports on the municipality. Such triangulation of data sources enables a true representation of the data that will be collected and presented.

To ensure that the study findings are dependable, the researcher also used prolonged engagement as another strategy. According to Korstjens & Moser (2018), there is a persistent presence during the long-term monitoring of interviews or ongoing participation in the field with participants. To acquire rich data, it is necessary to invest sufficient time in familiarizing oneself with the situation and context, verifying

information accuracy, establishing trustworthiness, and learning about the data. Credibility and dependability are achieved through sustained engagement with the topic. It is also vital to determine whether the participants believe the findings are accurate based on their own experiences. To what extent can the researcher pinpoint the situational traits and components most important to the topic or problem under investigation and the capacity to approach data saturation (Adewole, 2022).

Another strategy utilized is ongoing surveillance. This approach entails the researcher directing their attention towards the particular attributes or components of a situation or dialogue that are pertinent to the subject under investigation. Persistent observation entails methodical recognition and focus on the specific attributes and elements of a situation that are most relevant to the problem or topic being examined. Thorough observation leads to a thorough comprehension of the essential elements (Earnest, 2020).

Conformability pertains to the degree to which the research outcomes are influenced by the research participants and the surrounding circumstances, rather than being influenced by the participants' personal biases and intentions. To ensure the trustworthiness of the findings, the researcher made sure that the views provided were those of the participants, not the researcher's own thoughts (Kirsten & Moser, 2018). In order to maintain rigor in the study, the researcher utilized a reflective notebook to accurately capture any personal biases, as stated by Nowell et al, (2017).

Dependability ensures that the study findings are consistent and that the same study can be replicated given the same context and participants. To do so, the researcher employed peer debriefing to ensure the mistakes were corrected and rectified any errors before presenting the final report (Stahl & King, 2020). Peer debriefing allows a trained peer researcher to assess and evaluate transcripts, develop final categories and study themes or findings (Adewole, 2022). A peer reviewer may also analyse site data, observational notes, and other researcher writings. Agostinho (2005) found that many authors believe peer debriefing increases research integrity and credibility. Furthermore, cross-checks and balances were done to ensure the participant's responses were correctly reflected, ensuring confirmability (Kirsten & Moser, 2018).

Lastly, to ensure that the findings can be transferable, the researcher provided a thick, rich, and detailed description from the initial phase to the last part of the research. This

was done so as to ensure that the research findings can be transferred to other contexts and enable the generalization of the findings.

3.4 ETHICAL CONSIDERATIONS

Prior to, during, and subsequent to the investigation, multiple ethical considerations were taken into account. The purpose of this was to guarantee that the research is devoid of any potential hazards and that the volunteers will not be subjected to any harm. The research proposal was submitted to the University of Fort Hare's authorities responsible for reviewing and approving research proposals. Following the approval of the research proposal, an ethical clearance letter was applied for and granted (see *Addendum A: Ethical Clearance Letter*) with reference number (Ref No: SIB021SMEN01). Additionally, the researcher applied for permission from the Mquma Local Municipality, the gatekeeper to conduct the research study, and an approval letter was granted, approving the study (*See Addendum B and C: Letter to Conduct a Study and Approval Letter to Conduct a Study*). These organizations helped examine the study's potential risks and supported protecting human rights (Hutete, 2022). The researcher identified a challenge that affects communities in Mquma Local Municipality in a study by Maramura (2022), which attests to what has been identified as a problem in communities in Butterworth, where persistent inequalities must be addressed by implementing alternative, sustainable water and sanitation strategies. The collection procedure required detailed research on their standards and beliefs to prevent infractions and uphold respect for indigenous cultures in Mquma Local Municipality (Hutete, 2022).

The researcher and the study participants consented by signing an informed consent form that delineated the study's nature and goal (Fleming & Zegwaard, 2018). Consequently, the researcher guaranteed voluntary involvement (Polonski, 2004), devoid of compulsion, coercion, or duress. Participants agreed by signing an informed consent form, which outlined the nature and purpose of the study (Fleming & Zegwaard, 2018). As a result, the researcher ensured voluntary participation (Polonski, 2004), with no compulsion, coercion, or force. Participants were fully debriefed on the questions, the data's use, and any potential benefits or harm. Additionally, the participants were notified of their prerogative to discontinue their involvement in the study if they felt the necessity to do so at any point during the data

collecting stage. Nevertheless, the researcher motivated them to engage in the study by elucidating the advantages for the participants, citizens of the municipality, and Mngquma Local Municipality. When recording the interviews, permission was also requested. They were informed when the recording began and ended to increase the study's credibility and trustworthiness and prevent deceit among the participants. The sites where data was collected were respected, and participants were treated equally and with courtesy and respect during and after the research. The approach was consistent with Wa-Mnaleka (2019), who opined that during and after data collection was complete, the qualitative researcher is still required to adhere to specific standards.

The research was marked with honesty, integrity, and truthfulness as part of the ethics consideration. In order to do this, the researcher made sure that all sources were mentioned and acknowledged and supplied a plagiarism report at the end of the study. The participants also received a thorough explanation from the researcher about the study's sole objective, which is academic. Anonymity and confidentiality were upheld during the study, and this was done by avoiding self-identifying remarks and material. These principles are considered critical in protecting participants and in making sure that they provide correct responses without fear of being identified (Coffelt, 2017; Fleming & Zegwaard, 2018). This was done by keeping the participants' identities and personal information private and confidential (Dube et al, 2014). Participants' data would be protected in a locked locker for hard copies. Soft copies will be stored on an encrypted computer-based file and iCloud2 and destroyed after five years.

3.5 CONCLUSION

The entire research process was carried out using the techniques and tools covered in detail in this chapter. The chapter explained that a qualitative methodology was employed to address the research questions and fulfill the objectives, utilizing both primary and secondary data. This chapter has also covered ethical considerations and data trustworthiness, both of which are important for any qualitative research project. The presentation, analysis, and interpretation of the empirical findings are the main topics of the upcoming chapter.

Chapter 4: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 DESCRIPTIVE STATISTICS

The overview of the research process should be seen as a forerunner to the preceding chapter. This chapter offers a detailed description of the target population, sample size, and sampling methods, as well as elucidates the data collection and methodological analysis processes. The ethical principles and research methodologies employed to guarantee reliability were explicitly detailed in the preceding chapter. The objective of this chapter is to outline the manner in which the empirical data is presented, examined, and comprehended. The study employed a combination of primary and secondary data, using a qualitative approach to effectively address the research questions and achieve its objectives. The study utilized two methods for data analysis: content analysis of the 2019-2020 IDP and the Water Service Development Plan (WSDP) of the Amathole District Municipality. This municipality is responsible for providing water and sanitation services in Zizamele, located in the Mquma Local Municipality. A thematic analysis was employed to examine the primary information gathered from interview and focus group data. The research study is set out to investigate the following research objective through this analysis and interpretation process:

4.1.1 RESEARCH OBJECTIVES

The study's main objective provides, and the sub-objectives are provided in this section.

The main objective of this study was to: Investigate how the Mquma local municipality can sustainably provide water and sanitation to its residents to meet SDG 6, objectives 6.1 and 6.2.

The secondary objectives are to:

- (i) Determine the factors that contribute towards sustainable water and sanitation provisioning, for the achievement of Sustainable Development Goal 6 in Zizamele township in Butterworth, Mquma local municipality.

- (ii) To ascertain the opportunities and constraints that are encountered by the Mquma local municipality in the provisioning of WASH services to residents of Zizamele township in Butterworth, Mquma Local Municipality.
- (iii) Establish the log frame intervention planning strategies for monitoring and evaluating the provision of water and sanitation in the Mquma Local Municipality.
- (iv) To establish how the provision of sustainable water and sanitation in the Mquma local municipality can greatly accommodate the Sustainable Development Goal 6
- (v) To recommend intervention strategies for the effective provisioning of WASH services to the residents of Mquma Local Municipality.

To achieve the above objectives, collection was done through:

a) Structured Interviews

The study utilised face-to-face interviews with the results being documented. After gathering the data, the researcher transcribing it and kept it safe to iCloud. The accuracy of the recorded answers was verified by comparing them to the transcripts. The data analysis techniques that were utilised included both content and thematic analysis. The results were linked together consonantly with the study's goals and its classification of criteria. Utilizing an interview guide, the researcher attempted to clarify the availability of water and sanitation services in Zizamele as well as potential sustainable alternatives. The participants in this study are central towards obtaining credible information as their experiences, perceptions and opinions are oriented with the core data and goals of this study additionally, the participants are exposed and aware of the social phenomena in Zizamele and are committee heads from the water portfolio committees thus are able to provide the study with relevant and valuable answers to the study's questions.

The table below provides an overview of the respondents who took part in the interviews.

Table 4.1: Response rate of **Semi-structured interviews** - Mngquma Local Municipality

Participants	Sample	Response	%
Mngquma Municipal Officials	5	3	60
Total	5	3	60

Source: The researcher (2024)

Table 4.1 shows the response rate of purposefully sampled Mngquma local municipality interviewees. It shows that, out of the sampled five (5) respondents, only three, constituting seventy-five (75%) of the sample were interviewed. Of the interviewed respondents, two participants were in management, while one was in senior management. Thus, three (3) constituting sixty percent (60%) of the sampled participants participated fully out of the five (5) officials who were approached by the researcher. Two (2) participants constituting forty percent (40%) of the purposefully sampled Mngquma local municipality information-rich participants in the Water Portfolio Committees were unable to participate due to their busy schedules, (attending meetings and other events).

Focus Group

The researcher interviewed three focus groups of 5 participants each as presented in the table below



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 Table 4.2: Focus Group 1

Participant	Age	Age Range	Gender	Occupation	Income
1	31	30-40	Female	Employed	Salary
2	60	40-60	Female	Employed	Grant
3	27	20-30	Male	Not Employed	
4	29	20-30	Female	unemployed	Salary
5	50	40-50	Male	Employed	Salary

Source: The Researcher (2024)

Table 4.3: Focus Group 2

Participant	Age	Age Range	Gender	Occupation	Income
1	20	20-29	Female	Unemployed	
2	32	30-39	Female	Employed	Salary
3	45	45-50	Male	Employed	Salary
4	70	70-79	Male	Unemployed	Grant
5	61	60-69	Male	Unemployed	Grant

Source: The Researcher (2024)

Table 4-2: Focus Group 3

Participant	Age	Age Range	Gender	Occupation	Income
1	64	60-70	Male	Unemployed	Grant
2	35	30-40	Female	Employed	Salary
3	18	10-20	Female	Unemployed	
4	20	20-30	Female	Unemployed	
5	43	40-50	Male	Employed	Salary

Source: The Researcher (2024)
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The tables above clearly show the age, sex, and age range of respondents who were part of the focus group, and these were community members. The response rate from these three focus groups was 100%.

4.2 FINDINGS

Following the above-described methodology and demographics of the study sample, this section presents the findings and results in themes that emerged from the thematic analysis applied to analyze the empirical data collected from the semi-structured interviews and document reviewed. Using a more substantial and in-depth description that dominated the limelight, the study's favored findings were presented in narrative and descriptive form. Such an approach is popular in conveying qualitative data (Creswell, 2009; Hutete & Sibanda, 2022).

4.2.1 OBJECTIVE 1

Identify factors that contribute towards sustainable water and sanitation provisioning for the achievement of Sustainable Development Goal 6 in the Zizamele township in Butterworth in the Mquma local municipality.

Theme 1: Educational and awareness campaigns

The research findings indicated that educational campaigns highlighting the importance of WASH services were one of the interventions employed in MLM. The municipal manager continued, saying,

"...Even though providing for water and sanitation is a district function, we generally call the formal section and the community and educate them about their rights towards water services as mandated by the Constitution. We briefed them about their rights and responsibilities. However, despite the municipality's best efforts to provide them with services, Zizamele people continue to vandalize the infrastructure..."

Another official from stated:

"...Water is being provided through water reticulation, i.e., piped treated water. Sanitation - VIP or pit latrines are being used; however, the sewer reticulation is under construction..."



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Therefore, one of the interventions that has been taken in Zizamele township at Mquma Local Municipality is community educational initiatives. Secondary data corroborated the secondary data, which indicated that various educational programs were undertaken (ADM Water Service Development Plan). Amathole District Municipality supplies water services in the local municipality as mandated by the Municipal Structures Act (Act No.117 of 1998). Nevertheless, the Mquma Local Municipality's actions serve as evidence of working together and collaborating between district and local governments to ensure the provision of services. However, the looming problems of vandalism, as raised by the participants, further reveal the challenges faced by the municipalities in their efforts to ensure efficient service provision. The sentiments were supported by Sinharoy et al, (2019) who stated that vandalism has remained one of the challenges in water service provision. As such, this study contends that social factors, such as community actions, influence the execution of policies and the provision of water, sanitation, and hygiene (WASH)

services in these locations. However, education and community involvement are crucial as they may result in more programmes that are accepted and a greater appreciation of the resources that are already accessible, such as infrastructure, which will decrease the rates of vandalism (Sinharoy et al, 2019). **Human rights-based approach** advocates that every citizen's rights must be fully respected and enshrined in the Constitution (UNICEF, 2015:8; Rawls,1971:112). Municipalities must therefore take it upon themselves to educate citizens about their rights, by carrying out community educational initiatives.

Theme 2: Infrastructural development

The officials who were interviewed stated that one of the interventions being worked on to guarantee water supply to every citizen in Mquma Local Municipality is infrastructure development. According to a representative of the Department of Water and Sanitation:

"...The plan is to get water from Chris Hani Encorha in Cofimvaba. It is a long-term project that will involve joining pipes from Ntsikayethu to Encorha, then Tsomo Dam..."



Another official stated that:

"...In the integrated development plan, the pipes will be joined and extended to all residents of Mquma Local Municipality from Tsomo in order for everyone to have access to water supply..."

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The responses also revealed that:

"...Apart from the reservoir and pump station, the project's water purification plant is already running. Officials stressed that, while the project seems promising, its goal is to provide water to all of Mquma's rural areas, including Butterworth..."

The researcher however is concerned about whether the project will also take into account the townships and informal communities in the Mquma Local Municipality. When the project is finished, it will be possible to determine whether it is guaranteed that Zizamele Township or informal settlements will receive their fair share when water is given in Butterworth because it is a township or informal settlement. The official continued;

"...Surface water source i.e. Nxilinx dam and temporal borehole drilling for augmentation of insufficient quantity is being implemented. and Tsomo,

Ngqamakwe bulk pipeline is under construction...”.



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Infrastructural development requires the municipality to plan for and provide infrastructure for efficient service delivery. As advocated by Rawls' Theory of Justice (Rawls, 1971), local governance institutions, should make sure that mechanisms are put in place for effective service delivery to ensure that John Rawls's three principles of justice, liberty, equality of opportunity, and the difference principle are met. *As postulated by John Rawls, the theory of justice as fairness is predicated on a society of free citizens who exercise equal basic rights and cooperate within an egalitarian local governance system. Participatory governance through public participation, in Integrated Development Planning, should thus be tapped into, to inform the Service Delivery budget implementation Plans, for water and sanitation provision.*

Theme 3: Alternative Water Strategies

The study also showed that boreholes and water tanks were utilized as interventions to enhance the water supply in the township of Zizamele, particularly during dry spells. In response, one of the officials said,

"...The primary water suppliers in Butterworth, Xilinx Dam, and Gcuwa Weirs are currently experiencing low water levels. At certain places, the municipality has placed a good number of tanks and boreholes..."

Additionally, a second official iterated that,

"...We are aware that during the extreme drought, residents were able to obtain water by drilling boreholes and that communal taps would dry out for days at a time..."

Furthermore, the Director in Infrastructure section stated

"...To engage with the water service provider and water service authority i.e ADM during IDP road shows..."

Irrespective of the official having emphasized these interventions, it has been pointed out that they did not guarantee enough water as required by South Africa's 1996 Constitution, Section 27, or the minimum standards recommended by the World Health Organization—liters per day per person (Camkin & Neto, 2016). The water supply that complied with UN standards for safe, readily available, and high-quality water has also not been met by these initiatives (Camkin & Neto, 2016; United Nations, 2019). A participant from the focus groups talks uttered that:

"...Butterworth is a water scarce town; during this period, water normally runs dry for days and we have seen very little water trucks that used to supply us

with water and for the longest time our taps have remained dry." An official too, highlighted that "although some boreholes had been sunk, some of them were providing water that was unfit for human consumption..."

However, irrespective of the interviewee emphasizing such interventions, there still seems to be no guarantee of sufficient water, as required by Section 27, of South Africa's 1996 Constitution, or the minimum standards recommended by the World Health Organisation (WHO) — litres per day per person (Camkin & Neto, 2016). In this regard human-based approach theory is against the statement made or this finding because theory justice and human based approach advocate for fairness and citizen's rights must be fully respected and enshrined in the Constitution.

The image below illustrates the source of water residents succumb to whenever their taps run dry:



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Figure 4-1: Alternative Source of Water When there is no water from the municipality
Source: The Researcher (2024)

The issue of unreliable and contaminated water for human consumption in Zizamele Township can also be related to the study carried out in Kenya's Kitale informal settlement by Nzioka & Vundi (2018), which found a correlation between water sources and health impacts in the informal settlements or townships. Furthermore, Sinaharoy et al, (2019) argued that intermittent water is often present in rural regions even with infrastructure, which he said is highly associated with lower microbiological quality and a higher risk of water-related bone disorders.

4.2.2 OBJECTIVE 2

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To determine opportunities and constraints faced by Mquma local municipality in the provisioning of WASH services to residents of Zizamele township.

Theme 1: Opportunities

a) Sustainable Infrastructure for WASH service

In determining the opportunities that Mquma Municipality faces in the provision of WASH services, the study findings revealed that the municipality can utilize sustainable infrastructure for WASH services. The focus group participants stated,”

“...Ensuring the expansion of capacity from the Gcuwa dam by the Amathole District Municipality can enable our communities to have access to more water services...”

Additionally, another focus group participant highlighted that

“...There is an opportunity for the municipality to build more toilets for the community. By expanding these sanitation facilities, our communities can be safe and healthy...”

While these responses were focused on infrastructural developments, other participants emphasized the opportunities presented through engaging in the effective implementation of eco-friendly technologies, efficient resource management and community engagement, which can result in sustainable infrastructure for Wash services. Participants further raised the need for putting water-saving innovations into practice as part of the opportunities that can be used for sustainable water services in the municipality. One participant further highlighted,

“...One way to improve sustainability is to recycle wastewater and use renewable energy sources...”

However, participants emphasized the need to have effective community participation so that when these initiatives are implemented, the communities feel a sense of ownership which may address issues such as vandalism and ensure the sustainability of these infrastructures. The close ties between sustainable development and human rights, present a wealth of opportunities to improve follow-up, making it more efficient, effective, and responsible. So, provisioning of sustainable water, sanitation, and hygiene in local governance institutions such as Mquma Local Municipality can also help fulfill many of their legally bound human rights commitments by investing in and implementing the SDGs. This is closely related to the human rights based approach rooted in the writings of philosophers, Aristotle and Thomas Hobbes, who argue that every citizen's rights must be fully respected and enshrined in the Constitution.

Theme 2: Challenges

a) Community Vandalism

Vandalism is one of the major challenges faced by local municipalities regarding their water and sanitation infrastructure. The study findings revealed that, like other communities, Mquma Local Municipality faces the same challenge as participants emphasized the strain it is placing on the municipality. The municipal manager answered in his reply that;

“...One of the sad things that we face is that despite everyone knowing the consequences of vandalism, the Zizamele Township residents continue to damage the infrastructure. This is despite them knowing that they are the ones who use this infrastructure to get water, and they know that vandalism slows down the progress of the infrastructural developments in the community, but

they don't stop. However, we don't stop as the municipality to ensure that they have services; we make every effort to continue providing them with the services...".

Municipal officials, however, raised the need for more education and awareness campaigns to educate the public about the significance of giving the existing infrastructure first priority because it significantly affects the availability of water, particularly in townships and informal settlements.

Emphasizing the aspect of vandalism, participants were concerned on the health impacts posed by the broken infrastructure. One focus group participant highlighted that:

"...Due to vandalism, the municipality is not always on time to do repairs, and in some cases, they are not even aware. As a result, the taps are left leaking, and you can only imagine the mess, not to mention the mosquitoes, and on top of that, the water is not clean at all...".

The impact of vandalism is one of the major challenges in South Africa which has detrimental impacts on overall WASH services. According to Hutete (2022), a significant proportion of water is lost through leakages. As negative consequences, communities will be left with insufficient access to water services such water loss will result in a loss of municipal revenue, which in turn has a negative effect on the financial sustainability of the municipality. However, participants revealed that one of the reasons of the high vandalism issues is due to the inadequate water service provision in Mnquma Local Municipality which then forces communities to engage in protests and acts of violence resorting to vandalism as a means to draw attention from the authorities responsible for addressing their concerns (Mudombi, 2020). From this finding, it may be inferred that vandalism in Zizamele may be connected to protests against the provision of services intended to compel the relevant authorities to take action and guarantee their constitutional right to adequate water and sanitation.

b) Climate Conditions: Drought

The findings further revealed that Amothole District Municipality is one of the municipalities that was struck by drought since 2015. And MLM falls under this district municipality's jurisdiction. One of the municipal officials interviewed expressed these sentiments,

"...Water supply to all households in Butterworth (Gcuwa) has decreased due to the drought. As a result, the dam levels have become low and even the natural sources are drying out. While these sources may not be safe and recognized as formal methods for water sources, they have been assisting our communities in most cases in getting water. However, due to drought, now they have depleted and posing strain to the limited formal water sources such as community taps..."



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According to a different official, the district's water supply has slowed down as a result of the Amathole drought. In response, a representative from the DWS highlighted that:

"...The long-term project to connect water from Chris Hani will offer a long-term and sustainable solution to MLM's water and sanitation problems, and it will also help this region of ADM meet its goal of universal access to water and sanitation..."

The problem of weather patterns and their impact on water supplies is also connected to Cape Town Day Zero, when around four million households were expected to lose their water supply due to an early dam dry-out (Enqvist & Ziervogel, 2019). More so, ADM WSDP 2017-2022;19 indicated that for the past two and half years, the extremely dry condition has been a result of low rainfall and some of the main areas affected include Mquma Local Municipality, Raymond Mhlaba, and Mbashe Local Municipality

c) Open defecation habits in South Africa is disproportionately higher among the disadvantaged population.

With the aim of alleviating inequality among the communities most impacted by these discrepancies, civil society is essential. There is still a risk to the public's health associated with open defecation. Specific characteristics, such as age, level of education, amount of media exposure, economic status, as well as accessibility to clean drinking water were found to be correlated with open defecation (Belay et al, 2022). More specifically, a disproportionately high proportion of the impoverished in South Africa practice open defecation. Every country should prioritize abolishing the practice of open defecation in areas with limited access to clean water, poorer neighborhoods, and rural populations (Belay et al, 2022). An estimated population of four hundred and ninety-four million are still using open defecation as per the WHO and UNICEF reports (Joint Monitoring Programme, 2021).

Sub-Saharan Africa was home to over half of these people (48%) and most of them (92%) were rural dwellers. Countries in Central and Southern Asia, open defecation decreased by about 50% (from 23 to 12%) between 2015 and 2020 but in sub-Saharan Africa, it decreased by approximately 18% (Belay et al, 2022). The focus group discussion further revealed these concerns with one participant stating:

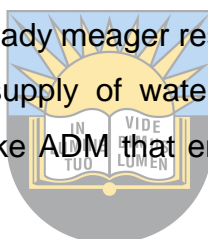
"...Yes, open defecation is being performed because other recently constructed residences lack bathrooms. There are some tiny fields and plants that smell terrible, which seriously violates my rights..."

d) Maladministration

Maladministration was determined to be one of the causes of the decline in the delivery of water and sanitation services in the township of Zizamele. After the focus group, participants stated that “the primary perpetrator of such discrepancies is inadequate management by the municipality. Along with the councilor's incompetence and the misappropriation of public funds.” Participants further alluded to the fact that:

“...Regardless of the fact that they have resided there for more than ten years, conditions have worsened as opposed to improving...”

These results are also consistent with research by Zvobgo et al, (2020), which found that corruption and poor governance in Chitungwiza Municipality, Zimbabwe, rather than natural disasters, are the main causes of Day Zero for its citizens. Furthermore, according to AGSA data from 2019 and 2020, supply chain management issues and illegal and irregular spending are among the financial worries facing municipalities, placing additional strain on the already meager resources available. As a result, there will be no advancement in the supply of water services due to limited finances especially in rural municipalities like ADM that endure a more marginalized income base.




4.2.3 OBJECTIVE 3

To establish the effectiveness of a log frame intervention planning strategies for monitoring and evaluating the provision of water and sanitation in Mquma Local Municipality.

The participants interviewed revealed that the log frame can be an effective tool or strategy for monitoring and evaluating the Mquma Local Municipality. One participant highlighted, “...*The log frame can be an effective tool as it provides a structured approach to what and when things should be done. Doing so helps hold people accountable, and the process is clear...*” [Participant]. Additionally, another participant opined “...*The log frame can help us engage stakeholders when sourcing support and assistance as it shows a clear and structured approach on what is needed and where we need to be...*” [Participant]. Lastly, the importance of the log frame was emphasized by one participant who raised its ability to identify and help in risk management, which is a critical component in WASH services provision. This aspect is critical given the impacts of climate change, such as flooding and droughts, which need to have mitigating strategies in place.

While the above participants showed positive responses, other participants showed mixed feelings towards the effectiveness of the Log frame, with one participant stating, “...*The frame can be an effective tool, however, it needs to be backed by resources and aspects such as consequence management need to be strongly applied so that each part, stakeholder, department or personnel knows that if we do not do our part, we will be held accountable...*”. Expressing the same sentiments, another participant emphasized the need for the log frame to be supported by sufficient resources. Additionally, concerns were raised on the need for each stage to be thoroughly done as failure would compromise the whole process. For instance, not providing inputs will affect the process, outcomes, and inputs. This in turn, will affect the overall impacts of WASH services provision. Other participants raised their concerns, arguing that the log frame can increase the municipality’s overreliance on quantitative measures and neglect the other important aspects; it had a rigid structure, which may make it difficult to follow in cases that require flexibility. Notably, one participant raised a remarkable concern stating;



“...*Such approaches are good, but they have a limitation that they focus on outputs rather than outcomes. For instance, there are so many projects that have been done, and there are taps, but water is not running out through those taps. So, when using such approaches for monitoring and evaluation they may offer incorrect or insufficient information which in turn may affect the whole provision of basic services...*” [Participant].

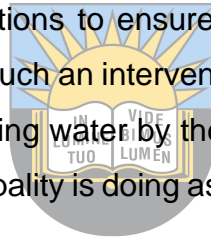
These sentiments were also noted by Hutete (2022) who noted that among the major challenges being faced in municipalities' water service provision is the fact that the projects are being done, but after their completion, water is not running through the taps, and sadly instead of making sure that water is running through new projects are commenced instead. The study concluded that while the log frame can be an effective tool, it needs to be flexibly applied and supplemented with qualitative assessments to deal with evolving local conditions and other socio-economic factors that are faced in WASH services. Additionally, incorporating the social and political aspects enables the governance aspects to be incorporated, making it a stronger tool for monitoring and evaluation.

4.2.4 OBJECTIVE 4

Objective 4: To establish how sustainable water and sanitation provisioning in Mquma local municipality can best meet the Sustainable Development Goal 6, objective 6.1 and 6.2.

Theme 1: Increase space for infrastructural development

The study findings revealed that increased space for infrastructural development may allow the municipality to provide sustainable WASH services. This followed the realization that Zizamele consists of two sections, one of which is made up of houses and the other of which is populated by informal settlements and congested, making it difficult for residents to install taps in their homes. Participants, therefore, emphasized that given the nature of the informal settlements, it might be difficult to expand the infrastructure; hence, there is a need for increased space for development. Additionally, suggestions were raised highlighting the need for larger tanks and standpipes as necessary interventions to ensure that the residents have access to water if the taps run dry for days. Such an intervention implies a limited time in walking distance and time utilized for fetching water by the residents. However, the municipal officials highlighted that the municipality is doing as much as it can, with one participant stating;



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"...We are putting all our efforts, for example now in Tsomo, Ngqamakwe, and Butterworth, bulk water pipelines are under construction and are part of the infrastructural development..."

While this is the case, the study opines that due to the issue of informal settlement, areas for infrastructural developments need to be created as the informal settlements are not on plan, however, these communities still require WASH service. As such, mechanisms to ensure they have access to these basic rights should be created, such as spaces for community taps.

Theme 2: Increase the number of functioning taps and water sources

Participants emphasized the need to have an increased number of taps in the community. Concerns were raised as participants indicated that there are just a few water sources and a small amount of infrastructure. One focus group participant stated:

"...As residents, we need more standpipes, or the municipality can join pipes in our homes so that we can have full access to water, although Gcuwa is a scarce town. In addition, other community members have taps in their yards but have run out of water for months. Zizamele residents based in informal settlements share one community standpipe for now..."

Agreeing with the respondents from the focus groups, the municipal manager emphasized that more tanks should be installed to accommodate two homes sharing a tank rather than five. This point was also supported by focus group participants who said the following:

"...In the long-term, more taps are required while as a temporary measure, an increase in tanks must be delivered to improve water supply and ensure compliance with the 200-meter radius restriction..."

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The focus group also emphasized that people would have to use other water sources, such as rivers, which they share with animals and are dangerous to consume should the taps dry for several months. These results are also consistent with a study conducted in Lilongwe, Malawi, by Adams & Boateng (2018), who discovered that having a sustainable water supply is challenging due to insufficient infrastructure. Additionally, this study contends that what is more critical is not only the number of taps but the need to ensure that water is running from those taps. This is critical when drought is imminent and natural resources have been used as alternative methods are drying up.

Theme 3: Proper Sanitation and Hygiene Facilities for the Community in Rural Community

Residents of Zizamele brought attention to the problem of sanitation and hygiene. During one of the focus groups, a resident said,

"...We as inhabitants of Zizamele live under undesirable conditions with untreated waste flowing in their streets and homes...."

The study also observed the issue of bucket systems. One of the participants said:

"...We still use bucket systems here; they are unhygienic and they smell, especially when taps run dry. Our kids get sick every day, and we have no money to take our children to the doctor..."

The Njingana (2019) study confirms the observations of the Zizamele locals, claiming that the stench will cause flies to proliferate everywhere. Every time the municipality neglects to retrieve the buckets, the dogs also arrive and scatter all of the waste and dirt from the inside of the restrooms outdoors. The additional participant said,

"...It could take up to two weeks for the bucket to receive maintenance if it doesn't. Since it injures both the users' and the caregivers' human dignity when disposing of human waste from bucket toilets, the bucket system is regarded as one of the worst sanitation designs ever..."

And the Municipal manager stated that;

"...Constructing accessible restrooms, advancing hygiene education, and urging the adoption of hygienic behaviors are all part of setting up appropriate sanitation and hygiene facilities. Planning and executing sanitation initiatives should engage the local community; this is something that should be considered. The community's general well-being is also enhanced by increasing knowledge of the significance of good hygiene habits". Furthermore, creating communal restrooms to guarantee appropriate disposal of waste and minimize open defecation..."

A human rights based approach has a twofold objective: firstly, "to empower people (rights-holders) to claim and exercise their rights and secondly, to strengthen the capacity of the actors (duty-bearers), who have a particular obligation or responsibility to respect, protect and fulfil the rights of the poorest, weakest, most marginalised and vulnerable, and to comply with these obligations and duties" (UNICEF, 2015:8). As

such, in his book 'A Theory of Justice' (1971:112), philosopher John Rawls equates justice with fairness, to be achieved if and when public official in public service could divide up society's resources, inevitably arriving at the creation of a just society, through equitable distribution of rights, responsibilities and opportunities for self-development of communities and in the public interest. Rawls starts with a moral conjecture, that justice is tied to fairness, with a fair society and fair institutions. Closely tied to this thinking is John Rawls's 'original position', a central feature of a social contract account of justice (Rawls, 1971; Nozick, 1974). John Rawls' theory of justice thus, maximises the welfare of society or the utilitarian concept of maximising the greatest happiness for the greatest number principle. Thus, for Rawls theory of distributive justice assumes that society is a system of cooperation for mutual advantage between individuals. Human based approach advocates the right to safe and clean drinking water, are fundamental human rights that must be respected for all citizens to fully enjoy life, human dignity, and all other inalienable human rights (UNGA, 2010).

4.2.5 OBJECTIVE 5

To recommend intervention strategies for effectively providing WASH services to residents of Mngquma Local Municipality.



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Participants revealed that much needs to be done to ensure effective and efficient service delivery for WASH services in MLM. Highlighting their suggestions, one participant stated,

“...There is a need to have new water points given the state of our community. Boreholes must be drilled, water wells and alternative methods such as rainwater harvesting should be engaged in to ensure that residents have access to sufficient and clean water...”

Providing a more methodological recommendation, a municipal official stated that:

“...This means that the implementation of sustainable methods for providing water and sanitation calls for careful planning; consequently, a range of factors should be taken into account as they could affect the accessibility of these resources in rural areas...”

One of the participants in the focus groups stated that:

“...ADM must develop effective strategies such as public-private partnerships, water reuse, reducing water contamination, and improving water quality...”

Public-Private Partnerships (PPP) are seen as an essential instrument for helping the government with development when it comes to resolving water and sanitation issues, implementing WASH technology, and increasing the efficiency of water projects (Ammutenya,2020). As such, this study contends that taking this approach may assist the municipality in relieving the financial and capacity burdens as it will be assisted through the private sector.

Another municipal official recommended the need to strengthen community awareness by expressing these sentiments,

“...There is a need to maximize the use of water; educational programs on water conservation and technological developments that facilitate water conservation should be created. By doing so, our communities will know and understand that every drop of water is revenue lost and that it affects the community as a whole...”

Another participant recommended the need to engage in technological advancements, while others emphasized the need for the district municipality to strengthen its

institutional capacity arguing that by doing so, they will be more capable and committed to addressing WASH challenges in Mquma Municipality as well as the local municipalities under its jurisdiction.

A study by Mukheibir & Sparks (2003) supports the idea that improving water quality and lowering water contamination can enhance these communities' water supply. Water supplies can be safeguarded by, for example, having closed wells and tankers to guarantee that wash services are always available and safe to use. A municipal official (Water Infrastructure Director) alluded to the fact that:

“...Resource mobilization and community participation can be facilitated for sustainable wash service delivery through partnerships with local government, NGOs, and community leaders. Furthermore, putting strong monitoring and evaluation systems in place helps guarantee that policies remain effective and flexible over time, and furthermore, community education on water conservation and infrastructural enhancements will provide a steady supply for initiatives promoting sustainable development...”

Given the various responses from the participants, the researcher opines that while the community is facing WASH challenges, these recommendations from participants when effectively engaged in may provide a chance the better access to services in Mquma Local Municipality



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4.3 CONCLUSION

The chapter provided the empirical findings from Mquma Local Municipality with regards to the provisioning of WASH services. The following chapter presents conclusions and suggestions about sustainable WASH services that can be applied in rural or township areas in South Africa.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

The major aim is to determine how the Mngquma local municipality can sustainably provide its residents with water and sanitation while achieving SDG 6 objectives 6.1 and 6.2. To accomplish this goal, as demonstrated in the preceding chapter, the investigator gathered, presented, analyzed and interpreted data. This chapter provides a summary of chapters, study conclusions, and recommendations. Additionally, the chapter presents the study's limitations, areas for future research and concluding remarks.

5.2 SUMMARY OF THE STUDY

Chapter one provided the study overview, highlighting the research objectives and questions that guided the study. Chapter two provided a comprehensive literature review focusing on the sustainable development practices in WASH services. The chapter presented the legal framework underpinning the study. Additionally, various related studies on WASH were presented, with the chapter emphasizing the challenges being faced, particularly in developing countries such as South Africa. The chapter interrogated the theoretical perspectives underpinning the study, such as the Human Rights Based approach and the Rawls' Theory of Justice, arguing that their perspectives provide conceptual and theoretical lenses for effective, efficient, and sustainable WASH services provisioning. Lastly, the chapter identified the gaps in the existing literature, particularly the alignment of WASH services with the SDGs, and sets the foundation for the empirical investigation in the next chapters. Chapter three, provided the methodological approach used for this study. Chapter Four presented the findings, and the conclusions as detailed in section 5.3. Lastly, chapter five presented the study conclusions and recommendations.

5.3 CONCLUSIONS

This section provides a summary of how each objective was addressed.

Objective 1: identify factors that contribute towards sustainable water and sanitation provisioning, for the achievement of Sustainable Development Goal 6 in Zizamele township in Butterworth, Mquma local municipality.

The study question posed was, "What factors contribute towards sustainable water and sanitation provisioning for the achievement of Sustainable Development Goal 6 in Zizamele township in Butterworth, Mquma local municipality?" in order to address research aim number one. Chapter 4's findings suggest that a few measures have been taken, such as installing bucket systems and water tanks to reduce open defecation and improve water availability. The results also show that the Mquma local municipality's efforts to provide sustainable water and sanitation are not sustainable, as evidenced by the bucket system's lack of maintenance and the unfilled water tanks.

Objective 2: To determine opportunities and constraints faced by Mquma Local Municipality in the provisioning of WASH services to residents of Zizamele township in Butterworth, Mquma Local Municipality

The research objective was addressed as the study established that Zizamele residents in Mquma Local Municipality are facing challenges in WASH services provisioning. The conclusions followed the realization that despite opportunities such as the chance to engage in eco-friendly technologies, efficient resource management, and community engagement presented to ensure better service delivery, challenges such as community vandalism, maladministration, and drought remain threats within the community. These constraints make it challenging for residents to have their constitutional right to water, as outlined in Section 27 of the Republic of South Africa's 1996 Constitution.

Objective 3: To establish the effectiveness of a log frame intervention planning strategies for monitoring and evaluating the provision of water and sanitation in Mquma Local Municipality.

The research objective was fully addressed as the study concluded that the log frame could be used as an effective intervention for monitoring and evaluation in the provisioning of water and sanitation in Mquma Local Municipality. Emphasis was placed on its ability to offer a structured approach which may assist in ensuring transparency and accountability. However, the study concludes that the log frame

should incorporate the qualitative aspects, and it should be applied with flexibility to ensure its effectiveness.

Objective 4: To establish how sustainable water and sanitation provisioning in Mngquma local municipality can best meet Sustainable Development Goal 6, objectives 6.1 and 6.2 of universal access to safe drinking water, sanitation, and hygiene for all by 2030.

The research objective was fully addressed as the study concluded that there is a need for increased space for infrastructural developments, especially in the informal settlements. Additionally, the study emphasized the need for more functioning taps and water sources and the need to improve sanitation services to ensure that WASH services are improved.

OBJECTIVE 5: To recommend intervention strategies for effectively providing WASH services to residents of Mngquma Local Municipality.

The research objective was fully addressed as the study established that measures such as the use of Public-Private Partnerships, the development of new water points, more educational campaigns, and awareness and stakeholder engagement are some of the critical strategies that can be used to improve WASH services in Mngquma Local Municipality. The objective was further answered in the next section, where recommendations are provided.

5.4 RECOMMENDATIONS

Based on research results and findings, this section provides the researcher's recommendations to assist Amathole District Municipality, Mngquma Local Municipality, and other municipalities with the same context in enhancing the delivery of WASH services. These recommendations may, therefore, assist in the struggle to achieve access to goals 6.1 and 6.2 in rural areas dealing with similar issues.

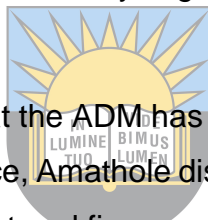
OBJECTIVE 1

- ❖ Sustainable provisioning requires the construction and upkeep of infrastructure related to water supply and sanitation, such as sewage systems, treatment plants, and safe and dependable water sources. It also requires ensuring that everyone, including disadvantaged and vulnerable communities, has equitable access to clean water and sanitation.

- ❖ In order to reduce water waste and enhance sanitation practices, it is important to promote hygiene education and encourage responsible water usage. ADM must create water and sanitation systems that are resilient to the effects of climate change, including drought.
- ❖ Adequate finance and investment in water and sanitation projects is vital to support infrastructure development and maintenance. Strong regulatory frameworks and effective governance facilitate the efficient and sustainable management of water and sanitation services.

OBJECTIVE 2

- ❖ The sustainability and efficacy of Wash efforts can be improved by involving the local community in decision-making and execution. Divides in socioeconomic status: Strategies to guarantee fair distribution are necessary because economic inequality in the community might result in unequal access to WASH services.
- ❖ As stated in chapter four that the ADM has limited funding which there is a lack of sufficient financial resource, Amathole district Municipality's ability is to invest in infrastructure development and fine ways to maintain WASH services.
- ❖ The provision of public service as mandated by the South African Constitution Act



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OBJECTIVE 3

- ❖ The Amathole District Municipality must establish a system for ongoing monitoring and evaluation to ensure the improvements in WASH services are sustainable and effective.
- ❖ To achieve sustainable development goals 6.1 and 6.2, universal access to safe drinking water, sanitation, and hygiene to all by 2030, policy review is pivotal in national to local policies and regulations related to WASH services to comprehend the legal framework within which the municipality operates.
- ❖ The Municipality must determine the state of facilities and their capacity to meet the community needs.

OBJECTIVE 4

- ❖ To encourage a high degree of knowledge and understanding of hygienic and health practices within the community.
- ❖ Engage with the residents of Zizamele to understand their perspectives, challenges, and preferences when it comes to WASH services

5.5 LIMITATIONS

The use of the purposive sampling method and the selected sample used to reach these findings might affect the generalisability of the results. Additionally, the researchers' limited finances restricted the ability to conduct in-depth interviews throughout Mquma Local Municipality. Therefore, the researcher only focussed on Zizamele Township, limiting the findings to the experiences of the participants from that township only. Despite these limitations, the study findings significantly revealed the state and urgency needed in Mquma Local Municipality state of WASH services and the required intervention to address the challenges. The findings further contributed to understanding the discourse and dynamics in providing WASH services within South African municipalities.

5.6 FUTURE RESEARCH

Given the limitations above, future research should focus on an expanded geographical area, expand the sample size, and use a different research methodology to further understand the dynamics and complexities of providing WASH services within South Africa. By doing so, alternative approaches to WASH provision can be devised, which may further assist in sustainable service delivery and achieving SDGs for water and sanitation.

5.7 CONCLUDING REMARKS

The study explored how Mquma local municipality can sustainably provide water and sanitation to its residents to meet SDG 6. The study objectives were fully achieved by demonstrating the need for continuous monitoring efforts in projects, effective community engagement, and expansion of infrastructure development for WASH services. Through the qualitative case study research design adopted, the structured interviews, and the focus group discussions conducted, the research highlighted the

challenges experienced in providing WASH services. The research findings also reflected the need for continuous efforts and effective engagement between the municipality and the communities to address WASH challenges. To address issues such as vandalism and maladministration, which hinder municipal efforts to achieve sustainable service delivery. Lastly, the study highlighted that the provisioning of WASH services remains a challenge across South Africa, and this is despite its efforts and strong regulation, which advocates for WASH services for all. As such, the study provided insights for policy makers aiming to implement more effective sustainable programs for WASH services. While future research is important to inform broader implications, this study laid sound foundations for exploring sustainable WASH services across South African Municipalities.



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APPENDICES

APPENDIX A: ETHICAL CLEARANCE



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ETHICS CLEARANCE REC-270710-028-RA Level 01

Project Number:	SIB021SMEN01
Project title:	Provisioning of sustainable water, sanitation and hygiene in Butterworth, Mnquma Local Municipality.
Qualification:	Master of Commerce: Public Administration
Student name:	Athenkosi Mena
Registration number	201614785
Supervisor:	Dr M Sibanda
Department:	Public Administration
Co-supervisor:	N/A

On behalf of the University of Fort Hare's Research Ethics Committee (UREC) I hereby grant ethics approval for SIB021SMEN01. This approval is valid for 12 months from the date of approval. Renewal of approval must be applied for BEFORE termination of this approval period. Renewal is subject to receipt of a satisfactory progress report. The approval covers the undertakings contained in the above-mentioned project and research instrument(s). The research may commence as from the 28/08/23, using the reference number indicated above.

Note that should any other instruments be required or amendments become necessary, these require separate authorisation.

Please note that UREC must be informed immediately of

- Any material changes in the conditions or undertakings mentioned in the document:
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research.

The student must report to the UREC in the prescribed format, where applicable, annually, and at the end of the project, in respect of ethical compliance.

UREC retains the right to


- Withdraw or amend this approval if
 - Any unethical principal or practices are revealed or suspected;
 - Relevant information has been withheld or misrepresented;
 - Regulatory changes of whatsoever nature so require;
 - The conditions contained in the Certificate have not been adhered to.
- Request access to any information or data at any time during the course or after completion of the project.

Your compliance with Department of Health 2015 guidelines and any other applicable regulatory instruments and with UREC ethics requirements as contained in UREC policies and standard operating procedures, is implied.

UREC wishes you well in your research.

University of Fort Hare
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Yours sincerely,



Dr A Nyika
Chairperson: Inter-Faculty Research Ethics Committee
31 August 2023

APPENDIX B: LETTER TO CONDUCT A STUDY

47 Kilepersoj Street
Extension 7
Butterworth
4950

14 July 2023
The Municipal Manager
Mankweng Local Municipality

REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN THE MANKWENG LOCAL MUNICIPALITY

Dear Sir/Madam

I, Mena Athenkosi, a student at the University of Fort Hare pursuing a Master's degree in public administration. I respectfully ask for permission to carry out a research project inside Mankweng local Municipality. Water, Sanitation, and Hygiene (WASH) service challenges are the main subject of my research. My dissertation is entitled *Provisioning of Sustainable Water, Sanitation and Hygiene in Mankweng Local Municipality* under the supervision of DR M. M. Sibanda with the Department of Public Administration, at the University of Fort Hare.

Upon your approval, face-to-face interviews lasting no more than 30 minutes each will be carried out with the following persons in Mankweng local municipality: public officials from the community services department and those with functional areas of water and sanitation. The structured interviews will involve the Municipal Manager, three (3) municipal officials from the Directorate of Water and Sanitation, and two (2) Ward Councilors. Three focus group discussions with 10 participants each will be carried out at the agreed places and community-based organizations. These focus group discussions will run for 30 minutes per session at most.

Participants' confidentiality and identities will be maintained at all times during the study process and after the dissertation is published.

Your support will be highly appreciated

Yours Sincerely,

Mena Athenkosi

Contact Number: 0723795822

Email: menakosimena@gmail.com

APPENDIX C: APPROVAL LETTER TO CONDUCT A STUDY



Mnquma Local Municipality • Corner King and Mthatha Street • Butterworth • 4960
Postal Address: • PO Box 36 • Butterworth • 4960
Tel: (047) 401 2400 • Fax: (047) 491 0195 • www.mnquma.oov.za

Date:
19 September 2023

Person dealing with the matter;
Sllumko Mahlasel Municipal Manager

Ref:
4/312

No 47 Klepersol Street
Extension &
Butterworth
4960.

To: Mr Athenkosl Mena
Student Number: 201614785
Email: athenkoslmena1@gmail.com



RE: REQUEST FOR PERMISSION TO CONDUCT A RESEARCH STUDY IN MNQUMA LOCAL MUNICIPALITY

The above matter bears reference

This serves to acknowledge your letter received by my office on the 19 September 2023 wherein you stated that you are enrolled at the University of Fort Hare pursuing a master's degree in Public Administration and your research topic is entitled: **Provisioning of Sustainable Water, Sanitation and Hygiene in Butterworth, Mnquma Local Municipality**

You are hereby granted the permission to conduct your research investigation at Mnquma Local Municipality.

Regards


**MUNICIPAL MANAGER
S MAHLASELA**

MUNICIPALITY
P.O BOX BUTTERWORTH 4960
2023-09-19
MUNICIPAL MANAGER

APPENDIX D: INDIVIDUAL INFORMATION SHEET



University of Fort Hare
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INDIVIDUAL INFORMATION SHEET AND INFORMED CONSENT FORM

(AGES 18 YEARS AND ABOVE)

This form is to be completed and signed by the participant prior to the commencement of the research. Copies of the signed form must be filed in the research file (To be adapted for individual circumstances/needs)

Title of Study: Provisioning of sustainable water, sanitation and hygiene in Butterworth Mquma Local Municipality



Dear participant,

My name is Mena Athenkasi. I am studying at the University of Fort Hare. I am conducting research on Provisioning of sustainable water, sanitation and hygiene in Butterworth, Mquma Local Municipality.

Purpose of Study: The study purpose is to explore how Mquma local municipality can sustainably provide water and sanitation to its residents to meet SDG 6, objectives 6.1 and 6.2

We would like you to allow us to conduct a brief 10 minutes interview with you about

¹ Approved by UREC (13 November 2019)

(Study Procedure: [St11dv](#) [will](#) use the qualitative research strategy. As such participants' emotions, feelings, attitudes, and experiences will be solicited. For these reasons, the study will collect primary data through focus group discussions and structured interviews. To ensure trustworthiness of the research, primary data will be triangulated with secondary data from official documents. Before participating in the study, the entire study process will be based on the principles of anonymity and confidentiality. Therefore, the researcher will make participants sign consent forms, which clearly indicate that participants' data will be kept in very strict confidence and that data will be protected. However, the researcher will encourage them to participate in the study by explaining the benefits of doing so, for the participant, municipal residents, and [Moama](#) Local Municipality. Participants will be fully debriefed on the questions being asked, how data will be used, and any potential benefits and or harm. Also, participants will be made aware of their right to withdraw from participating in the study, should they feel or find the need to do so at any point during the study data collection process.

Some questions may be of a personal and/or sensitive nature. I will be asking some questions that you may not have thought about before. We know that you cannot be absolutely certain about the answers to these questions, but we ask that you try to think about these questions. When it comes to answering questions there are no right and wrong answers.

Please understand that your participation is voluntary and you are not being forced to take part in this study. The choice of whether to participate or not, is yours. However, we would really appreciate it if you do share your thoughts with us. If you choose not to take part, you will not be affected in any way whatsoever. If you agree to participate, you may stop me at any time and tell me that you don't want to go on with the interview. If you do this there will also be no penalties and you will NOT be prejudiced in ANY way.

The information will remain confidential. This means that your name and address will not be linked in any way to the answers you give. We study and report on the answers given by all the people we interview and not on an individual basis. The research data will be anonymous - with all personal respondent information removed and will be archived at the University.

At the present time, we do not see any risks in your participation. The risks associated with participation in this study are no greater than those encountered in daily life.

There are no immediate benefits to you from participating in this study. However, this study will be helpful in finding out the sustainable water and sanitation provisioning in Eastern Cape municipalities, especially in Mnaama Local Municipality. The study is significant in that it can inform municipal public officials on viable and effective strategies for attaining (SDG) 6, objective 6.1 and 6.2. Mandates that by the year 2030, everyone should have access to clean water, proper sanitation and personal hygiene. This can potentially resolve water and sanitation issues, implementing WASH technology and increasing the efficiency of water and sanitation infrastructure projects. The recommendations could be used to drive monitoring and evaluation and intervention strategies for effective provisioning of WASH services to residents in local government, in the case study, and similar local government contexts in South Africa and elsewhere.

Risk-Benefit Ratio: The benefits that individuals will be well educated about their constitutional rights (chapter 2; Bill of Rights) recognises citizen rights. By 2030, the (SDGs) seek to eradicate poverty, preserve biodiversity, provide sufficient access to water and sanitary facilities, and advance world peace and prosperity. As a result, the Theory of Justice and the Human rights-based approach advocate for water, sanitation, and hygiene access, as well as their fair distribution to all citizens and as well as equality without discrimination. It is thus critically important that human rights to water and sanitation be met for communities and residents in Mnaama Local Municipality, as they are dependent on the fulfilment of other rights, such as the right to freedom, education, health, and a safe environment amongst others,

Who to contact if you have been harmed or have any concerns

This research has been approved by the Inter-Faculties Research Ethics Committee (IFREC) as per delegated authority of the University Research Ethics Committee (UREC). If you have any complaints about ethical aspects of the research or feel that you have been harmed in any way by participating in this study, please call the IFREC Administrator Mr Aphwe Iodunoi on (040 602 2561/ AJadezwi@vfh.ac.za)

Reporting and Complaints

If you have questions at any time about this study, or if you have concerns/questions you may contact the researcher/project leader whose contact information is provided on the first page. If you have questions regarding your rights as a research participant, or if problems arise which you do not feel you can discuss with the researcher/project leader, please contact the IFREC Chairperson, [Othliko](mailto:Othliko@ufh.ac.za) on (040 602 2516 / ANYIKO@ufh.ac.za) or the UREC Chairperson, 0-Tnole-Miimhn on (043 704 7507 / Tcole-Mjimba@ufh.ac.za)

If you have concerns or questions about this study please feel free to contact the project coordinators: Researcher/Project Leader:

Name: [Athenkosi](#) Meno

Department: Public Administration

Address: [47Kienersol](#) street, Extension 7 Butterworth

Phone: 072 379 5822

Email: athenkosimenol@gmail.com / 201614785@ufh.ac.za



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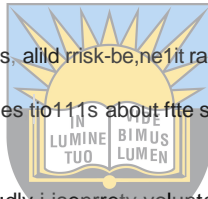
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INFORMED CONSENT FORM

INFORMED CONSENT FORM

(Edit as Required)

I (name of participant)
have been informed about the study by the researcher: (provide name of researcher/leader/.....
fief.civ rke.r)



I understand the purpose, process, risks and benefits of the study.

I have been given the opportunity to ask questions about the study and have had the opportunity to satisfy my needs.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any procedures that will usually be entailed to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

I understand that I will be given a copy of this informed consent form.

I understand that I have all the rights or complaints about my rights as a study participant, or if I may have concerns about any aspect of the study, I may contact the Chairperson of the Inter-Faculty Research Ethics Committee, Prof. TM (details available from the Researcher or by contacting the University of Fort Hare or Website www.11.11ru1c.za).

Participant signature:

Consenting for Audio Recording - (if necessary)

YES/OR

Participant signature:

APPENDIX F: INTERVIEW SCHEDULES



University of Fort Hare
Together In Excellence

My name is Mena Athenkosi a fulltime Masters student in the Department of Public Administration under the Faculty of Management and Commerce, at the University of Fort Hare. I am conducting research on Provisioning of sustainable water, sanitation and hygiene in Butterworth, Mnaama Local Municipality. The research is strictly for academic purposes and there will be no financial benefits for participating in this study. Therefore, participants' data will be kept in very strict confidence and data will be protected in an encrypted computer-based file and on

Structured Interview



a) Structured Interview Questions for the Municipal Manager

Section A: identify factors that contribute towards sustainable water and sanitation provisioning, for the achievement of Sustainable Development Goal 6 in Zizamele township in Butterworth, Mmama local municipality.

- (i) Please kindly tell me how the municipality provides water and sanitation in lizamele towosho?
- (ii) What factors contribute to sustainable water provisioning in Zizamele?
- (iii) Can you please tell me how Mnaama local municipality seek to achieve sustainable water provision to its residents?
- (iv) Can you please tell me what the municipality is doing to promote WASH?
- (v) What is your understanding of SDGs, especially goal 6 and the role of your municipality in achieving that goal?
- (vi) In your view are there any contributing factors that inhibit sustainable water and sanitation provisioning?
- (vii) In your view please kindly tell me how the municipality can best contribute to the achievement of Sustainable Development Goal 6 in Butterworth, Mnaama Local Municipality?

INDIVIDUAL INFORMATION SHEET AND INFORMED CONSENT FORM¹

(AGES 18 YEARS AND ABOVE)

Please note:

This form is to be completed by the researcher(s) as well as by the interviewee before the commencement of the research. Copies of the signed form must be filed and kept on record (To be adapted for individual circumstances/needs)

Title of Study: Provisioning of sustainable water, sanitation and hygiene in Butterworth, Mquma Local Municipality

Dear participant,

My name is Mena Athenkosi and I am studying at the University of Fort Hare. I am conducting a research Provisioning of sustainable water, sanitation and hygiene in Butterworth, Mquma Local Municipality.



Purpose of Study: The study purpose is to explore how Mquma local municipality can sustainably provide water and sanitation to its residents to meet SDG 6, objectives 6.1 and 6.2

University of Fort Hare
Together in Excellence

We would like you to allow us to conduct a brief 10 minutes interview with you about

(Study Procedure: Study will use the qualitative research strategy. As such participants' emotions, feelings, attitudes, and experiences will be solicited. For these reasons, the study will collect primary data through focus group discussions and structured interviews. To ensure trustworthiness of the research, primary data will be triangulated with secondary data from official documents. Before participating in the study, the entire study process will be based on the principles of anonymity and confidentiality. Therefore, the researcher will make participants sign consent forms, which clearly indicate that participants' data will be kept in very strict confidence and that data will be protected. However, the researcher will encourage them to

¹ Approved by UREC (13 November 2019)

participate, in the study by explaining the benefits of doing so, for the participant, municipal residents, and Mngquma Local Municipality. Participants will be fully debriefed on the questions being asked, how data will be used, and any potential benefits and or harm. Also, participants will be made aware of their right to withdraw from participating in the study, should they feel or find the need to do so at any point during the study data collection process.

Some questions may be of a personal and/or sensitive nature. I will be asking some questions that you may not have thought about before. We know that you cannot be certain about the answers to these questions, but we ask that you try to think about these questions. When it comes to answering questions there are no right and wrong answers.

Please understand that **your participation is voluntary**, and you are not being forced to take part in this study. The choice of whether to participate or not, is yours. However, we would really appreciate it if you do share your thoughts with us. If you choose not to take part, you will not be affected in any way whatsoever. If you agree to participate, you may stop me at any time and tell me that you don't want to go on with the interview. If you do this there will also be no penalties, and you will NOT be prejudiced in ANY way.

The information will remain confidential. This means that your name and address will not be linked in any way to the answers you give. We study and report on the answers given by all the people we interview and not on an individual basis. The research data will be anonymous with all personal respondent information removed and will be archived at the University.

At the present time, we do not see any risks in your participation. The risks associated with participation in this study are no greater than those encountered in daily life.

There are no immediate benefits to you from participating in this study. However, this study will be helpful in finding out the sustainable water and sanitation provisioning in Eastern Cape municipalities, especially in Mngquma Local Municipality. the study is significant in that it, can inform municipal public officials on viable and effective strategies for attaining (SDG) 6, objective 6.1 and 6.2, mandates that by the year 2030, everyone should have access to clean water, proper sanitation and personal hygiene. This can potentially resolve water and sanitation issues, implementing WASH technology and increasing the efficiency of water and sanitation infrastructure projects. The recommendations could be used to drive monitoring and evaluation and intervention strategies for effective provisioning of WASH services to

residents in local government, in the case study, and similar local government contexts in South Africa and elsewhere.

Risk-Benefit Ratio: The benefit is that individuals will be well educated about their constitutional rights (chapter 2; Bill of Rights) recognises citizen rights. By 2030, the (SDGs) seek to eradicate poverty, preserve biodiversity, provide sufficient access to water and sanitary facilities, and advance world peace and prosperity. As a result, the Theory of Justice and the Human rights-based approach advocate for water, sanitation, and hygiene access, as well as their fair distribution to all citizens and as well as equality without discrimination. It is thus critically important that human rights to water and sanitation be met for communities and residents in Mnquma Local Municipality, as they are dependent on the fulfilment of other rights, such as the right to freedom, education, health, and a safe environment amongst others,

Who to contact if you have been harmed or have any concerns

This research has been approved by the Inter-Faculties Research Ethics Committee (IFREC) as per delegated authority of the University Research Ethics Committee (UREC). If you have any complaints about ethical aspects of the research or feel that you have been harmed in any way by participating in this study, please call the IFREC Administrator, Mr Aphiwe Jabezweni, on [040 602 2561/ AJabezweni@ufh.ac.za]



University of Fort Hare
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Reporting and Complaints

If you have questions at any time about this study, or if you have concerns/questions you may contact the researcher/project leader whose contact information is provided on the first page. If you have questions regarding your rights as a research participant, or if problems arise which you do not feel you can discuss with the researcher/project leader, please contact the IFREC Chairperson, Dr Nyika, on [040 602 2516 / ANyika@ufh.ac.za] or the UREC Chairperson, Dr Taole-Mjimba on [043 704 7507 /Taole-Mjimba@ufh.ac.za]

If you have concerns or questions about this study please feel free to contact the project coordinators: **Researcher/Project Leader:**

Name: Athenkosi Mena

Department: Public Administration

Address: 47 Kiepersol street, Extension 7 Butterworth

Phone: 072 379 5822

Email: athenkosimena1@gmail.com / 201614785@ufh.ac.za



University of Fort Hare
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APPENDIX E: INFORMED CONSENT FORM

INFORMED CONSENT FORM

(Edit as Required)

I (*name of participant*) have been informed about the study by (*provide name of researcher/ project leader/ fieldworker*)

I understand the purpose, procedures, and risk-benefit ratio of the study.

I have been given opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any procedural that I would usually be entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as result of study-related procedures

I understand that I will be given a copy of this informed consent.

I understand that if I have any questions or complaints about my rights as a study participant, or if I may have concerns about any aspect of the study or the researcher/s then I may contact the Chairperson of the Inter-Faculty Research Ethics Committee, Prof. Pumla Gqola or Chairperson of University Research Ethics Committee, Prof Renuka Vithal (details available from the Researcher or by contacting the University of Fort Hare or Website www.ufh.ac.za)

Participant signature:

Consenting for Audio Recording– when necessary

YES / OR

Participant signature:

Witness signature:

(to be altered according to the study)

Translator signature:

(to be altered according to the study)

Data curation – I understand that the information that I provide will be stored electronically and will be used for research purposes now or at a later stage (to be altered according to the study)

Participant signature:

Date:



University of Fort Hare
Together in Excellence

APPENDIX F: INTERVIEW SCHEDULES



University of Fort Hare
Together in Excellence

My name is Mena Athenkosi, a full time Masters student in the Department of Public Administration under the Faculty of Management and Commerce, at the University of Fort Hare. I am conducting research on Provisioning of sustainable water, sanitation and hygiene in Butterworth, Mquma Local Municipality. The research is strictly for academic purposes and there will be no financial benefits for participating in this study. Therefore, participants' data will be kept in very strict confidence and data will be protected in an encrypted computer-based file and on iCloud.



Structured Interview

University of Fort Hare
Together in Excellence

a) Structured Interview Questions for the Municipal Manager

Section A: identify factors that contribute towards sustainable water and sanitation provisioning, for the achievement of Sustainable Development Goal 6 in Zizamele township in Butterworth, Mquma local municipality.

- (i) Please kindly tell me how the municipality provides water and sanitation in Zizamele township?
- (ii) What factors contribute to sustainable water provisioning in Zizamele?
- (iii) Can you please tell me how Mquma local municipality seek to achieve sustainable water provision to its residents?
- (iv) Can you please tell me what the municipality is doing to promote WASH?
- (v) What is your understanding of SDGs, especially goal 6 and the role of your municipality in achieving that goal?

- (vi) In your view are there any contributing factors that inhibit sustainable water and sanitation provisioning
- (vii) In your view please kindly tell me how the municipality can best contribute to the achievement of Sustainable Development Goal 6 in Butterworth, Mngquma Local Municipality?
- (viii) What alternative sustainable strategies of water deficiency can be implemented in rural communities in MLM?

Section B: To determine opportunities and constraints faced by Mngquma local municipality in the provisioning of WASH services to residents of Zizamele township in Butterworth, Mngquma Local Municipality.

- (i) What would you say about your municipality's financial viability and WASH service provision?
- (ii) In your view how does WASH and waste management practices impact on the environment, the ecosystem and human health in your municipality?
- (iii) What constraints are faced by the Municipality when implementing Sustainable Development goal 6 in Zizamele township?
- (iv) Kindly tell me what measures the municipality has put in place to alleviate water deficiency to municipal residents in Zizamele community?
- (v) What challenges are faced by the municipality in achieving equitable Wash provision?
- (vi) What Opportunities are faced by the municipality in achieving equitable Wash provision?
- (vii) What measures have been put in place by the municipality to ensure townships have sufficient access to water and sanitation?

Section C: To establish how sustainable water and sanitation provisioning in Mngquma local municipality can best meet the Sustainable Development Goal 6, objective 6.1 and 6.2 of universal access to safe drinking water, sanitation and hygiene for all by 2030.

- (i) How can accessibility of WASH services be increased in Zizamele Township?
- (ii) In your view, would you say the municipality is encouraging community participation to meet sustainable development goal 6?
- (iii) What infrastructural development interventions are in place to ensure water is supplied in Zizamele township?

- (iv) In your view, how can municipality prevent community actions affecting policy implementation and services delivery in water and sanitation?
- (v) What strategies does the municipality have provide access to Wash services to all its resident?

Section D: To recommend intervention strategies for effective provisioning of WASH services to residents of Mquma Local Municipality.

- (i) What interventions are adopted by the Mquma Local municipality regarding access to water and sanitation in Zizamele township?
- (ii) What intervention strategies can Mquma Local Municipality use for the effective provisioning of WASH services to its residents?
- (iii) What other factors contribute to achieving fair distribution and access to Wash services to Zizamele residents?
- (iv) Is there anything else you would like to tell me about Provisioning of sustainable water, sanitation and hygiene in Butterworth, Mquma Local Municipality?



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APPENDIX G: FOCUSED GROUP DISCUSSION GUIDE



My name is Mena Athenkosi, a full time Masters student in the Department of Public Administration, in the Faculty of Management and Commerce, at the University of Fort Hare. I am conducting research on Provisioning of sustainable water, sanitation and hygiene in Butterworth, Mnquma Local Municipality. The research is strictly for academic purposes and there will be no financial benefits for participating in this study. Participants' data will be kept in very strict confidence and data will be protected in an encrypted computer-based file and on iCloud.

Focused Group Discussion Guide - Questionnaire

a) First Focus Group

- (i) How can service delivery be improved in terms of water and sanitation provision to avoid unusable water and to eliminate open defecation?
- (ii) What challenges do you as residents of Zizamele face in accessing WASH services provision?
- (iii) Kindly tell me how as residents you participate effectively to address issues of fairness, justice and equal access to WASH services in this community?
- (iv) Is open defecation still practised in this community? If so, how does this affect your constitutional right for proper sanitation and hygiene?
- (v) Are there any WASH educational campaigns in this community? If so, how are they conducted and in your opinion are they effective?
- (vi) How do municipal officials educate the community about water and sanitation in the community?
- (vii) Is there anything else you would like to tell me about Provisioning of sustainable water, sanitation and hygiene in Butterworth, Mnquma Local Municipality?

b) **Second Focus Group**

- (i) What are the causes of deceleration of water service provision to all households in Zizamele Township?
- (ii) Is fair distribution promoted by the municipality? What intervention measures are in place for those who lack access to WASH services?
- (iii) What is the source of water access?
- (iv) What must be done to prevent untreated and undesirable conditions with untreated waste flowing into your streets and homes?
- (v) Do municipal officials often come and inspect water infrastructure?
- (vi) What changes would you like to see from now onwards with WASH related challenges?
- (vii) Is there anything else you would like to tell me about Provisioning of sustainable water, sanitation and hygiene in Butterworth, Mnquma Local Municipality?

Third Focus Group

- (i) What sustainable measures have the residents of zizamele adopted to fight illegal water connection?
- (ii) What do you think should be done to ensure that the distribution of WASH services is fair and equal to everyone?
- (iii) In your opinion, would you say the municipality is encouraging community participation in Wash service programmes?
- (iv) Are there any alternative strategies currently in place to provide sufficient WASH Services?
- (v) Is water and sanitation awareness promoted in Zizamele township on how water should be used? If so How is it done?
- (vi) How residents with disabilities affected from accessing WASH services?
- (vii) Is there anything else you would like to tell me about Provisioning of sustainable water, sanitation and hygiene in Butterworth, Mnquma Local Municipality?



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APPENDIX H: TURNITIN REPORT



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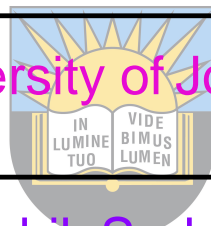
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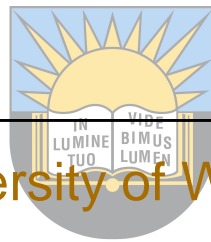
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
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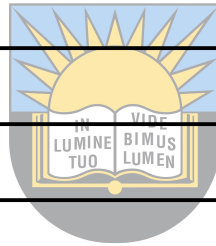
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APPENDIX I: EDITING CERTIFICATE



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English Language Editing Services

*I **Evangelista Vambe** hereby confirm that I have proof read and edited the Masters Research Titled "Provisioning of sustainable water, sanitation and hygiene in Butterworth Mquma Local Municipality" by*

MENA ATHENKOSI

The windows tracking system was used to reflect my comments and suggested corrections given for the author. During the process of proofreading and editing, the following changes were recommended : punctuation, grammatical sentence construction and coherence on the document. Uniformity referencing style was given although greatest care was taken in editing this document, the final responsibility of the product rests with the author

30/10/2024

EDITOR'S SIGNATURE

Evangelista Vambe

BA Dual Hons in English &
CommunicationMBA
(Business Administration)
MSU MA (Monitoring and
Evaluation)-LSU

email :

evambe@gmail.c

omvambe@isa-

fellow.com

+491773674164