ACCOUNTING FOR SUSTAINABLE DEVELOPMENT IN WATER SERVICES: A CASE OF LEPHALALE LOCAL MUNICIPALITY IN THE LIMPOPO PROVINCE, SOUTH AFRICA

BY

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DEDICATION

I dedicate this dissertation to my parent's (Makgatho Jackson Madumetsa and Makgatho Veronica Ramathabata) who encouraged me to register for my studies during a difficult time when I was doing nothing.

DECLARATION

I, Selina Magugudi Makgatho hereby declare that this dissertation entitled "Accounting for sustainable development in water services: A case of Lephalale Local Municipality" is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references. I further declare that I submitted the thesis/dissertation to originality checking software and that it falls within the accepted requirements for originality. I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

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SIGNATURE **DATE**

MAKGATHO SM

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LIST OF ACRONYMS

ASD- Agenda on Sustainable Development
DWS- Department of Water and Sanitation
FAO- Food and Agricultural Organization
IWMI- International Water Management Institute
MDG-Millennium Development Goal
MIG- Municipal Infrastructure Grant
NEMA-National Environmental Management Act 107 of 1998
NWA- National Water Act 108 of 1998
NWRS- National Water Resource Strategy
SD- Sustainable Development
SS- Social Sustainability
SPSS- Statistical Package for Social Science
ES- Economic Sustainability
RDP- Reconstruction and Development Program
RSA-Republic South Africa
UN- United Nations
UNDP- United Nations Development Plan
WDM- Waterberg District Municipality
WHO- World Health Organization
WIGO- Water Integrity Global Outlook
WSA- Water Service Authority
WSAA- Water Service Authority of Australia
WSIG- Water Service Infrastructure Grant
WWC- World Water Council

ABSTRACT

Local government, in terms of its constitutional obligation is liable for service provision. But in the provision of service there is a need for accountability. This will assist municipalities to track improvement derived in the realization of national developmental requirements of the residents which is frequently in par with the world commitment on sustainable development on service delivery. The study was conducted based on few goals of the 2030 Agenda on Sustainable Development, on water supply services in Lephalale Local Municipality with specific reference to Lephalale Town, Onverwacht, Marapong, Mamojela Park, and Mahlakung. The participants were Councillors (5), Municipal Officials (10) and the community (50).

The objectives of the study were to explore the level of equitable, safe and affordable water services within the municipality, to evaluate the community participation of their water services, assess the monitoring and evaluation framework of the municipality in water services and explore challenges the municipality faces in accounting for sustainable development. The study used triangulation and a purposive sampling approach.

The study discovered that the community of Lephalale have sustainable level of equitable access and affordable water service in urban, location, rural and informal settlements, but this requires upgrades. In terms of community participation in water services, the residents are not participating. Lack of community participation affects monitoring and evaluation of water services because they must wait for maintenance teams that take longer to respond. The study recommends that the municipality should develop mechanism that will encourage community participation. The municipality should change and reinforce the culture of accountability.

Key Concept: Accounting, Sustainable Development, Community Participation, Monitoring and Evaluation, Access

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CHAPTER 1: ORIENTATION OF THE STUDY

1.1 INTRODUCTION

Brundland's (1987) definition of Sustainable Development is development that ensures that the present population meet their demand without inhibiting the coming population to meet their demand. The Reconstruction and Development Programme (RDP) has been used by local government in water services provision since 1994 as a policy framework. The main goals of the RDP are to afford potable water of 20-30 litres with 200m radius and harmless sanitation facilities to communities in South Africa (RDP, 1994).

The commitment of the ANC's RDP document is actualised by the Constitution of the Republic of South Africa (1996) which dedicates a full chapter two on the Bill of Rights, Section 27 subsection 1(b) which affords all citizens the right to water and food. Chapter 7, Section 152 subsections 1(a) (b) oblige municipalities to offer a representative and responsible administration for local communities and guarantee the delivery of services in a continuous manner. But, in light of the values in Chapter 1 of the National Water Act 36 of 1998, it posits that: "Sustainability and Equity are recognised as the main regulatory values in the protection, application, improvement, preservation, management and control of water resource" (NWA, 1998).

Despite substantial progress having been made in the delivery of water services, there are still challenges encountered in most municipalities and Lephalale Local Municipality which is no exception. Local government is faced with inherent challenges of operation and maintenance of aged infrastructure, consumers not paying their debt, lack of technical knowledge or skill, and municipalities being unable to fill vacant posts (Kanyane, 2014). Many communities in local government are unhappy with the quality, quantity, level of access, and lack of accountability in water services (Toxopeus, 2019). The shortage of access to safe water services has an immediate and negative consequence creating well-documented health, environmental, and socio-economic problems (Cloete, n.d.).

Provided with the current challenges of demand facing water services provision there is a need to develop technologies that can ensure that municipalities meet the demand in their jurisdiction (Cloete, n.d.). Water provisioning is a human rights issue. Gupta, Ahlers and Ahmed (2010) discovered that, though there is a rising agreement on the social right to water, the destruction of water control suggests that the effect of the agreement is restricted. There is a genuine urgent demand to consider access issues in terms of social rights, but because of execution challenges there is an additional active need to change from public-private collaboration to public-non-governmental collaboration (Gupta *et al*., 2010).

Lange, Mungatana and Hassan (2007) revealed that there are substantial inequalities in water yield between countries of Botswana, Namibia, Lesotho and South Africa, which must be taken into consideration in future judgment about water provision, valuing and infrastructure development. The Mokolo River is a tributary to the Limpopo River where countries around the Limpopo River are implementing restrictions, so should Lephalale Local Municipality. Kanyoka, Farolfi and Morardet (2008) learned that communities in villages are eager to pay for developments in water service.

This is because of the recent inadequate level of water service in the area. Consumers are mainly worried about key domestic use and therefore the need for productive uses is low (Kanyoka *et al*., 2008). Muller (2008) learned that South African's knowledge with available essential water thus proves that tackling the three dimensions of sustainable development being: social, environmental and economic dimensions can lead to more efficient and sustainable policy.

Kapfudzaruwa and Snowman (2009) established that the state government system and traditional governance structures are appropriate to water resource management; however, management is primarily driven by state-driven approaches which are centred on statutory legal systems. Local government is closer to people given its relative proximity to the people and resembles people ideas of a small government (Wolak, 2020:314).

However traditional governance structures comprising customary laws, cultural and religious practices, have a crucial part to play in attaining the objective of the water user association (Kapfudzaruwa and Snowman, 2009). There is still a need for more studies to be conducted since, the studies conducted did not assess indicator versus a precise vision or goal that they are attempting to attain regarding sustainable development, while an uncertain idea might disturb the application irrespective of the model. The aim of the research is to investigate accounting for sustainable development in water services in the Lephalale Local Municipality. This chapter discusses the background to the study, problem statement, scope and limitations of the study, importance of the study, and ethical consideration.

1.2 BACKGROUND TO THE RESEARCH PROBLEM

Water Services Act 108 of 1997 legislate the municipal functioning of water services provision. In general, the Act (1997) intent is to help local government to carry out their function as water service authority and to consider the concern of users. Section 27 of the Constitution (1996) sets a foundation for the various spheres of government to operate, and or even create a compulsory framework to be able to operate. It obligates national and provincial government to have a judicial and administrative mandate to see to it that local government effectively perform their roles including the supply of water services in their area of jurisdiction.

Water service is decentralised to municipalities who make local guidelines, and have lawful and economic means to implement and impose pronouncements and guidelines (Toxopeüs, 2019). The role of Waterberg District Municipality (WDM) is to provide support to all local municipalities under their district. Lephalale Local Municipality is a water service authority since the inception of the municipality, but the functions of water service provision rest upon Exxaro and Eskom in the urban area. Sanitation facilities are water borne (flushing system) in urban areas, and in the rural areas they are using pit latrines and bucket systems.

Water provision in villages is from the boreholes which do not meet the RDP standard of service. Communities still must travel more than 200 meters to fetch water. The construction of Medupi power station sparked a lot of stress on aged infrastructure as there was no plan in place to provide for the development (Phadi and Pearson, 2017). The Lephalale Town and Onverwacht are overpopulated with a lot migrant workers since the start of Medupi power station which requires water services provision. Attempts were made to improve infrastructure in urban areas and to replace old asbestos pipes for carrying water (Marapong ponds and reservoirs within Onverwacht), but this failed.

To date the municipality is still experiencing sewer spillages, water quality and quantity issues (Kruger, 2019). This violates the rights of the community and puts the lives in constant danger. Villages are continuously impacted by lack of water due to lots of projects being implemented but not yielding the intended results, even though they are handed over to communities.

The municipality must resort to water tinkering to reduce the level of water stress within the area, which has proven to be a costly exercise. Beyers (2016), argues that municipalities struggle in water services provision on issues of access and finance many resorts to temporary measures. Local government has challenges in the advancement and progression of service delivery which are caused by: financial capacity, equitable access to service and failure to adhere guidelines (Madumo, 2015).

Government use accounting on issues of service delivery as a mechanism to survive community unrest (Okoro, 2014). This usually take place when the community is in dissatisfaction with the kind of service, they receive which does not meet the legal and policy framework laid out in the Constitution (1996), Water service Act 108 of 1997. The legal and policy framework enforce municipalities to be accountable on service delivery provision. This will help the municipalities to track improvement done in attempting to accomplish the provincial and national development targets in water services provision. This study investigates accounting for sustainable development in water service provision in Lephalale Local Municipality.

1.3 PROBLEM STATEMENT

Chapter 7 of the South African Constitution, Section 152, authorizes local government to deliver services to the people in their area of authority. The municipality does not have its own water treatment works but, is getting its water from Eskom for the supply of the town such as Onverwacht and Marapong (IDP, 2021/22). The municipality struggles to perform its function as a water service authority and a provider, and this struggle impacts on its goals of delivering a sustainable development service (Mogol Post, 2018).

In villages, the Lephalale Local Municipality is failing to supply water according to the RDP standards. The non-replacement of aged infrastructure of sewer and water, unsustainable supply of water due to dry boreholes and lack of maintenance of the existing infrastructure persist within the municipal area. This is because the municipality rely heavily on private companies like Eskom and Exxaro in the past for its urban and location water service provision.

The municipality lacks capacity for the maintenance of its own infrastructure. There is no proper intervention from national and provincial government in assisting the municipality to prepare and implement projects that would have an impact on communities (IDP, 2021/22). Though the Department of Treasury provides the municipality with two different grants - being the Municipal Infrastructure Grant (MIG), and Water Service Infrastructure Grant (WSIG) - on a yearly basis, but still issues of water service provision persist which is becoming more evident in rural area (IDP, 2021/22).

Furthermore, there is high level of incomplete infrastructure within the municipal area (IDP, 2021/22). Lack of proactive maintenance due to unavailable material in stores makes maintenance impossible and employees' resort to reactive maintenance. Though the constitution mandates local government to be accountable on the provision of service, some local government are unable to account on issues of service delivery and Lephalale Local Municipality in no exception. The Municipality receives financial support from MIG and WSIG, but there is minimal progress in terms of water services provision (IDP,2021/2022). Projects from previous years documented in the IDP's are still implemented in the rural areas even in this year's IDP.

This study investigates accounting for sustainable development in water services in the Lephalale Local Municipality. The Lephalale Local Municipality, as a local government entity is unable to fulfil its constitutional mandate in-terms of section 152, subsection 1 (b), to guarantee the delivery of services in a continuous approach. The constitution further encourages that municipalities should take sufficient judicial and other actions, within its obtainable means, to attain the gradual fulfilment of every one of these right's as set out in the Bill of Rights. This study will assist the municipality in tracking its progress in the realisation of its constitutional mandate of water service provision in a sustainable manner.

1.4 AIM AND OBJECTIVES

The aim of the study is to investigate accounting for sustainable development in water services in the Lephalale Local Municipality by achieving the following objectives:

- To determine the level of equitable, access and affordable water services within the municipality.
- To evaluate if the community is strengthened and supported in the participation of their water services.
- To assess the monitoring and evaluation framework of the municipality in water services.
- To explore challenges the municipality faces in accounting for sustainable development.

1.5 RESEARCH QUESTIONS

- What are the levels of equitable, access and affordable water services within the municipality?
- Is the community strengthened and supported in the participation of their water services?
- What are the monitoring and evaluation frameworks of the municipality in water services?
- What are challenges the municipality faces in accounting for sustainable development?

1.6 SCOPE OF THE STUDY

Scope of the study is factors under which the research will be working (Simon and Goes, 2013:1). It clearly defines the scope of the subject that will be investigated and reaches a more sensible ending and thus give definite reasonable answers to the study question (Insights, 2019*)*. The researcher focused on accounting for sustainable development in water service in the Lephalale Local Municipality. The municipality will be accounting on progress made to few targets on goal 6 as established in the 2030 Agenda on Sustainable Development (ASD). A few targets were chosen to establish if local government is still on track with the strategies outlined by the United Nations (UN) on goal 6 of the 2030 ASD.

1.7 LIMITATIONS OF THE STUDY

James and Murnan (2004:66) define limitations of the study are the futures that influence the analysis of the findings of research. They further impact on the application of the study result to determine internal and external validity (James and Murnan, 2004:66). The researcher limited the study to water service provision within Lephalale Local Municipality. The researcher selected the municipality because it is the municipal area that the researcher resides in.

In this study, the researcher selected a case study approach as design which permits a particular case to be selected. Case study bounds the researcher to generalize the research results to other municipalities- this prompts study in other municipalities. Furthermore, the study is restricted selected deliverables as designated in goal 6 of the 2030 ASD. In a case study, various deliverables influence intersection of information. The results of the research will not completely represent goal 6 since few deliverables will be reported on. This will prompt study for other deliverables in the similar case.

1.8 IMPORTANCE OF THE STUDY

The importance of the study offers an intense insight of the practice's communities get to know, act, and operate their day-to-day conditions in specific locations (Maxwel, 2012). The study findings will add to a body of knowledge. It will further advise the municipality how to account on water service relative to sustainable development.

The study will further assist the municipality to plan and monitor and evaluate water services. This study will assist the Local Municipalities to implement strategies and policies that will assist in achieving the 2030 Agenda on Sustainable Development. The municipality will then be able to report on trials and development on high level of planning in government.

1.9 SAMPLING METHOD

A sample is a class of individuals or things brought from a bigger population for measurement and should be representative of the population to guarantee that the results from the study sample may be generalised to the population (Mukherjee, 2019). There are two kinds of sampling methods - probability and non-probability sampling. A probability sampling technique randomly selects the participants in the study giving all participants an even opportunity of being chosen. A non-probability or purposive is a sampling method that when the researcher apply it has an intent.

In this study purposive sampling technique is going to be applied. Creswell (2013) argues that purposive sampling, when selected can advise on the study topic and also highlight on the significant problems in the study. In this study the researcher gathered data from various participants within the municipality and municipal area. The employees in the infrastructure, supply chain management and councillors were chosen to take part in the study. The researcher will approach different people purposively for the collection of data in the municipality. The sample size was 65 participants comprising 10 municipal employees, 5 councillors and 50 community participants.

1.10 SOURCE OF DATA (PRIMARY AND SECONDARY DATA)

Source of data is the primary and secondary location where data comes from and is raw data (sometimes called automatic data) that has not been processed for meaningful use to become information which can be further categorized into primary or secondary data (Rouse, 2014). Salkind (2010) defines primary data as the original data source, that is one in which the data are gathered first-hand by the researcher for a particular research project, which can be collected in numerous ways. There are various means in which primary data can be gathered and the most common methods are self-administered surveys, interviews, field observation and experiments (Salkind, 2010). Salkind (2010) further stated that: secondary data are contrary to primary data as they are gathered and issued previously by particular organization, they are reduced in the sense that they have endured statistical action at least once. The study will use both primary and secondary data using a self-administered questionnaire, field observations, and review of policy and strategy documents to validate and strengthen the data being collected.

1.11 DATA COLLECTION METHODS

Creswell (2013) posits that data gathering is a method of collecting information from various sources to respond to the study questions posed. Data will be collected relative to water services within the Lephalale Local Municipality. The participants of the study were the municipal officials, councillors and residents of Lephalale. There are various methods in which data can be gathered. In this study the following methods of data collection will be used - being personal observation, questionnaire, interview and document analysis.

Salkind (2010) states that in individual study, the surveyor gathers information himself or herself through observation, the data gathered is dependable but right for small projects. He further avers that the questionnaire may be applied to probe particular questions that suit the study and attain answers from participants (Salkind, 2010).

During primary data collection the researcher will send a questionnaire by email and social media platform. During secondary data collection official municipal documents and records will be collected, Integrated Development Plan (IDP) and any other document, articles or any other information relative to water services within the municipal area. The data collected will be filled in note book. All the data collected will be kept in a field note file, record and computer archives that are backed up.

1.12 DATA ANALYSIS METHOD

Wong (2008) describes data analysis as reading a massive quantity of transcript looking for matches, variances and successively discovering a theme and emerging sets. He further states that, lately the use of software precisely intended for qualitative data organization significantly decreases technical complexity and ease the labour, thus creating the method moderately simpler (Wong, 2008). In this study data was analysed by means of a computer program used in qualitative research or qualitative data analysis called **ATLAS.ti,** and quantitative data analysis method being **SPSS.**

The researcher in this study will further organise data gathered as per the drafted questionnaire, then be implicit with the focal subjects of inquiry to assess and weigh the results of every inquiry. The data was captured on a computer by the instrument that will be used for data analysis. This will aid the researcher in the analysis of data gathered.

1.13 ETHICAL CONSIDERATIONS

Bryman and Bell (2007) posit that ethical consideration is the greatest significance portion of the study and the study might even be doomed or let-down if this portion is omitted. Creswell (2013:57) argues that ethical consideration in a qualitative research take place before the study can start, during data collection, data interpretation, reporting results and issuing the study. He further iterates that before the study can continue it is essential to acquire authorisation from the universities institutional evaluation panel (Creswell, 2013:57).

A letter of approval to continue with the study was requested from UNISA's review board. Another letter was written to Lephalale Local Municipality to appeal for approval for the study to take place in the municipality. Furthermore, another letter was written to invite / request the participant to form part of the study. The selected participants will not be put in any harm or risk when partaking in the study. In this study, participation was voluntary and at any stage should they feel not comfortable to continue with the study, they were withdrawn from the study. Privacy and anonymity of participants was adhered to and was very important in this study. Proper language that is not offensive or discriminatory and ambiguous to participants was avoided. The researcher accredited all sources of data acquired to complete the investigation in the form of references.

1.14 TIME FRAMEWORK

The researcher delivered data about a projected timetable showing likely order of research stages and the period that the researcher might possibly necessity for each stage.

Table 1.1: Time frames

TENTATIVE TIMETABLE		
PHASES	**ACTIVITY**	**DURATION**
1. Stage 1	• Research Proposal	3 months
	• Review	3 months
	• Literature Review	3 months
	• Review	3 months
2. Stage 2	• Formulation of Questionnaire	2 Weeks
	• Data Collection	3 Months
	• Data Capturing	1 month
	• Results Discussion	3 months
	• Review	1 week, 2 months
3. Stage 3	• Editing of the research paper	1 month
	• Printing	1 day
	• Review	1 month
	• Laminating	4 days

1.15 CHAPTER LAYOUT

The study comprises the following chapters.

1.15.1 Chapter 1: Orientation of the Study

In the introduction and objectives, the researcher directs the reader from a general focus area to a specific theme of inquiry to determine the possibility, setting, and implication of the study to be directed by summarising the present view point and background data about the subject. Additionally indicate the purpose of work / study to be assumed by outlining the ‘research problem’ and a set of inquiries briefly clarifying the procedural technique to be used to inspect the study problem, data gathering, and emphasizing the possible result research can find and outlining the arrangement and association of the study.

1.15.2 Chapter 2: Literature Review on Accounting for Sustainable Development in Water Service

The study provides an outline of sources the study covered and explored while investigating an issue, and to validate to the readers how the study fits within a bigger field of research.

1.15.3 Chapter 3: Research Methodology and Design

Chapter 3 provides the research methodology and includes the following: research design, sampling technique, data collection method utilized, and data analysis method used in conducting research.

1.15.4 Chapter 4: Presentation and Interpretation of Research Results

Chapter 4 reflects and deduces the outcomes as well as describing the implication of the study results considering what was previously recognized about the study problem being explored and explains any new knowledge about the problem after the researcher has brought the findings into thought.

1.15.5 Chapter 5: Summary, Findings, Conclusion and Recommendations

Chapter 5 pulls the overall steps together after guiding the research by deducing the results depicting conclusion to aid in creating recommendations centred on the information collected and analysed.

CHAPTER 2: LITERATURE REVIEW ON ACCOUNTING FOR SUSTAINABLE DEVELOPMENT IN WATER SERVICE

2.1 INTRODUCTION

The previous chapter provided contextual data to the study problem, study questions, aim and objectives of research. This chapter will discuss review of literature in relation to 'accounting for sustainable development' in water services provision. Hart (2018:13) defines literature review as the basis of every academic study, since it finds out if the topic is researchable before proper research can continue. Coverdale (2009), Ramdhani, Ramdhani and Amin (2014), and Hart (2018:13), posit that literature review choosing obtainable documents both published and unpublished on the subject which contains information, ideas, data, and confirmation emblazoned from a definite viewpoint.

Furthermore, Hart (2018) and Hayward (2017), opined that it justifies convinced objectives of the subject studied and the actual assessment of the documents relative to research being planned. Some document that has information relating to 'accounting for sustainable development' in water service provision are used to broaden the knowledge or even provide ideas and assist in the narrowing of the study topic to fulfil the aim the study is trying to attain. Conceptualisation of 'water accounting' is discussed next to afford the reader with improved understanding.

2.2 CONCEPTUALISING WATER ACCOUTING

According to the Food and Agricultural Organization (FAO) (2016:3), "Water Accounting as a concept has evolved over the years and started to get recognition or momentum recently when it comes to implementation". Many scholars and international organizations like FAO, and the International Water Management Institute (IWMI) have been researching and writing about the concept of 'water accounting' and defined it in many ways. Molden (1997:4) defines it as a process for examining the use, reduction and yield of water in a water basin context. In this regard, the level of water accessibility is weigh in-terms of how it is used.

Similarly, Molden and Sakthivadivel (2010:57) define ‘water accounting’ as a procedure established to justification for usage and output of water resources. Chalmers *et al.,* (2012:1001) agree that it is a methodical procedure of classifying, identifying, enumerating, reporting, and promising data about water, rights and other privileges to water and duties against water. Furthermore**,** Karimi *et al.,* (2013:2459) posit that it is a new agenda intended to offer clear spatial data on water reduction and net extraction procedures in multifaceted river basins”.

International Water Management Institute (2014) define it as, a methodology that quantifies available water resource, their use, though constructing water balance, overtime space of varying complexity and details. Bastiaanssen, Tha Ha and Fenn (2015:1) posit that it is: “… a coherent water resource reporting methodology that comprises of a hydrological process, distribution to various competing sectors, consumption and the benefit and services”. FAO (2016:3) illustrate that it is the methodical study of the status of tendencies in water supply, demand, accessibility and use in stated territories. Schenau (n.d.:2) posits it as: “… a conceptual framework for organising water information to study the interaction between economy and the environment”.

Water accounting’ assists water service authorities to do water governance which leads to sustainable development (World Water Council, 2018). Global Water Partnership 2000, in World Water Council (WWC) (2018) illustrate that current water challenges are caused by lack of water governance, even with high technology there is still a need for water accounting. An assessment of water quantity, authority and resources used to develop water service infrastructure is significant (Tissington, Langford & Dugard, 2008; Escriva-Bou, McCann, Hanak, Lund and Gray, 2016). However, information will not assist with water challenges, but through effective water management development of comprehensive, authoritative and user-oriented ‘water accounting’ (Tissington *et al*., 2008; Escriva-Bou *et al.*, 2016). Water governance depends on ‘water accounting’ provided data is going to assist with water governance and data alone cannot solve all water challenges (Turner, Baynes and Mcinnis, 2009; WWC, 2018).

Furthermore, water accounting' helps to track progress in relation to sustainable development captivating into consideration all economic, social, and environmental dimensions (Aromoshegbe, Emeni and Uniamikogbo, 2019; WWC, 2018). Global perspective relative to accounting on water service provision is discussed next.

2.3 GLOBAL PERSPECTIVE IN ACCOUNTING FOR WATER SERVICE PROVISION

Research on sustainable development existence is conducted in many international and national situations, with numerous and cumulative body of knowledge in quantifying of sustainable development (Mensah and Casadevall, 2019). Global perspective refers to the trends towards increasing international, interconnectedness among people and entities world-wide (Bird and Thomlinson, n.d.). The purpose is to enquire and reflect on accounting for sustainable development independently and in collaboration with other countries. Upon reflecting and enquiring, the researcher will be drawing lessons from other countries relative to accounting for sustainable development in water service provision. Two countries were used to draw lessons relative to 'water accounting' being Australia and Vietnam.

2.3.1 Australia

According to the Water Service Association of Australia (WSAA), Local Government in Australia has been able to supply 90 per cent of its population with water services (WSAA, 2017a-2018b). Furthermore, several years of change in Australian water service has made a viable and resilient water sector to be sustainable (WSAA, 2017a-2018b). Goswami and Lodhia (2014) argue that the South Australian local government council on an annual basis account on issues of sustainable development relative to those in the global reporting initiatives sector. As the sole provider of water services, local government can draw on Agenda 21 on Sustainable Development which is the action plan by the UN about sustainable development. Since accounting supports reform, a range of structural and regulatory model reforms have been applied successfully in Australia (Lee and Cassell, 2017: WSAA, 2018).

Through accounting, the local government has been able to function under the following principles as per WSAA (2018:8) - sound government arrangement including independent skilled panels, parting policy creation roles, a self-governing valuing procedure to back up complete retrieval of efficient cost and national agenda for water quality.

The lessons that can be drawn from Australia by South Africa are as follows: Proper implementation of Agenda 21 on sustainable development, application of regulatory and structural reform, separate policy-making roles for proper implementation of operation and maintenance plan and public participation, an independent pricing process for equitable access, proper sound government arrangement including independent skilled board which will assist with challenges facing municipalities and proper implementation of a national framework for water quality.

2.3.2 Vietnam

Nguyen, Ha and Loan (2019) discovered that, although Vietnam has issues regulating to accounting for sustainable development data of enterprise comprising data on environmental and social obligation, the amount of initiatives that have not yet revealed obligation data is relatively large and the quality of capacity of obligation information revelation of corporate is still incomplete. When an organisation is struggling to disclose data on environmental and social elements it is a pure indication that there is no incorporation of all elements of sustainable development in its operations.

Hence, there is still a need for other organisations within other countries like Vietnam to incorporate sustainable development pillars in their operations. The World Bank Group (2014) in their service delivery assessment indicated that Vietnam has managed to attain the millennium development goal relative to water service provision. It has also developed business performance indicators that should be incorporated inside the sustainability report, which include the environmental and social indicators (International Finance Corporation, n. d.).

The ‘business performance’ will be covering the following aspects: (i) Set a vision and corporate pledge for sustainable performance and reporting; (ii) Appoint a senior manager with oversight and accountability for the reporting process and report development; (iii) Generate a cross-departmental group to plan and concoct the sustainability report; (iv) Take stock of where the company is in the sustainability journal, include with accomplices, and found the greatest dominant problem to report on; (v) Plan the information gathering procedure, development of a report; (vi) Build reports and truthfulness; and (vii) Plan for constant development (International Finance Corporation, n. d.). Lessons that can be learned by South Africa from Vietnam are as follows: (i) Development of a sustainability handbook which is going to assist with accounting for water service; and (ii) Incorporation of the environmental and social indicators in the accounting report.

2.4 NATIONAL PERSPECTIVE ON ACCOUNTING FOR SUSTAINABLE DEVELOPMENT IN WATER SERVICE PROVISION

South Africa has developed National Water and Sanitation Master Plan, Water Service Development Plan, Strategic Framework for Water Services and National Sanitation Policy, and National Water Policy that regulate ‘accounting for sustainable development’ in water service. Accounting for sustainable development permits the combination of qualitative and quantitative data using indicators (Bebbington, 2006). Kee and de Haan (n.d.) posit that measuring sustainable development is important for preserving the current available resources.

This is in line with the definition of Brundland (1987:41) about improving the desires of existing inhabitants without conceding the capability of the upcoming population to meet their own demands since resources provided will have time to replenish or renew. Makerenko and Plastun (2017), posit that accounting professionals are still trying to establish their part in Agenda 21 on Sustainable Development Goals even with the necessary skills available in both the public and the private sector. Similarly, Sachs (2012), Okoro (2014), and Kee and de Haan (n.d.) posit that there are three sectors that need to come together to realise sustainable development - the economic, socio-political, and environmental sector in their broadest sense.

The economic, socio-political, and environmental dimensions are embedded in sustainable development theory (Muñoz, 2010). Various legal documents have been drawn to govern water service in South Africa, namely - the Constitution of South Africa, National Water Act 36 of 1998, Water Services Act 108 of 1997 and Environmental Management Act 107 of 1998. They provide a legal framework within which planning, strategies, monitoring and evaluation of water service provision is conducted.

2.4.1 Constitution of Republic of South Africa 1996

Chapter 3 of the corporative governance principles provides that domains of government must labour together completely. In working together, they should deliver operative, apparent, answerable, and clear government for the state in service delivery provision.

Chapter 7 of local government section 151, subsections 1-4, provides for the establishment, authority, rights, and powers of municipalities relative to the provision of service. Water and sanitation are some of the service deliveries which are being provided for in this section. Section 152 subsection 1 (a-e) provides for accountable local government in ensuring service delivery sustainability through the elevation of social, economic, and environmental improvement by inspiring stakeholder contribution. In service delivery provision, local government is expected to be answerable to local communities in their area of jurisdiction and there is no exception with water service provision.

Chapter 10 of public administration on elementary standards and norm overriding civic management, section 195 subsection 1 (a-i), delivers that civic management must be administered with standards and norm as per the Constitution. These standards and norms promote a developmental local government administration that is ethical, equitable, participatory, transparent, accountable, and representative of local communities.

2.4.2 National Water Act 36 of 1998

The National Water Act 36 of 1998 provides for the defence, use, improvement, safeguarding management and regulator of natural resources. The provision of this act legislates that the Department of Water and Sanitation (DWS) be the leading department to preserve and conserve the water resources. The mandatory role of the DWS is to provide support and oversee the delivery of water service within local government in cases where such a municipality cannot perform its functions. The provision of this service should be regulated by the DWS relative to quality and quantity through the established values and norms. The norms as set by the department also specify the quantity that can be abstracted from the source and sets the price regarding sustainable water service provision to be guaranteed.

2.4.3 Water Services Act 108 of 1997

The act pronounces the roles of local government in terms of 'water service provision' relative to the Constitution of the Republic of South Africa of 1996. It also provides ways in which 'water service provision' can be achieved through development of plans, sets of quality and quantity standards, financial assistance, tariff, institutional support, and accountability. All elements needed that promote accountable and sustainable development are included in this act when including the three components of sustainable development. Municipalities are compelled to uphold their constitutional mandate as water service providers within their area of jurisdiction.

2.4.4 Environmental Management Act 107 of 1998

The principle established in this act applies throughout the Republic of South Africa to the activities of all structures of state that may significantly distress the environment. The Environmental Management Act obliges WSA through their mandate of water service provision, especially sanitation, to come up with proper operation and maintenance procedures and water service development plans that will ensure that there are no environmental incursions that might occur. The provision of water services at times faces challenges of sewer spillages that last longer periods.

The sewer spillages cause pollution to the water sources especially rivers. In the developed plans, municipalities should be able to respond to spillages within 24 hours and clean the environment. Sustainable development theory is discussed next to provide insight into the theory used in this research.

2.5 SUSTAINABLE DEVELOPMENT THEORY

Theory is important in supporting the research under study, since this determines the relevance of the research study (Van der Waldt and Du Toit, 2011). The general goal of sustainable development is: consistency in economy development, social inclusion and environment protection through their interaction (Emas, 2015). Sustainable development is about reducing the stress that society put on the environment which the environment cannot take anymore (Bebbington, 2006). Developmental needs of communities rely on the use natural resources, hence sustainable development is considering the reduction of the impact on natural resources (Mensa and Casadevall, 2019). Bebbington (2006) posits that government should start with the process of guiding the economic systems to move away from a narrower focus of economic growth.

2.5.1 Sustainable Development

Brundland's (1987:41) defines sustainable development as improving the desires of existing inhabitants without conceding the capability of the upcoming population to improve theirs. The future generation should enjoy the same benefits of available resources as the present generation. Mensa and Casadevall (2019) posit that the whole matter of sustainable development is centered on three interconnected components, being the social, economic, and environmental. The three - economic, environmental, and social components, - cannot be separated from each other and they should be considered at the same level when viewing sustainable development. Muñoz (2010) indicates that there are two concepts that are connected to sustainable development which are - 'weak' sustainability and 'strong' sustainability.

2.5.1.1 Weak sustainability

Barua (2016:1) posits that ‘weak’ sustainability is regarded as non-declining common stock resources and undertakes that artificial resources can be substituted with natural resources. The economic profits cannot be compromised due to depletion of natural resources like water service provision, boreholes and wells get dry, and rives get contaminated.

Ekins, Folke and de Groot (2003), Neumayer (2003), and Neumayer (2012) in Pelenc (2015:1), argue that weak sustainability undertakes that natural resources and manufacturers resources are basically compatible and deliberates that there is no difference amid the types of well-being they produce. Shi, Han, Yang and Gao (2019) posit that there is no difference in the number of resources that are being used as long as the economy benefits.

In contrast, Brundland’s (1987:41) argues that the future generation must inherit equal number of resources or even more. When natural resources are being excessively used to make economic gain, it is often impossible for future generations to gain the same amount since natural resources get depleted, even water does. Local government should be accountable in water service provision so that monitoring of the regulation and standards will be implemented to avoid overexploitation.

2.5.1.2 Strong sustainability

Barua (2016:1) posits that strong sustainability implies that natural resource cannot be replaced by any other resource. Resources must be used at an equal level to allow regeneration so that the future generation can enjoy the same benefits”. Pelenc (2015:2) argues that natural wealth cannot be regarded as plain ordinary resources, but intricate schemes that interact with each other to provide the ecosystem with extensive collection of roles and facilities that provides to society directly or indirectly”. Different components of resources cannot replace each other so that a higher form of sustainability can be achieved.

Furthermore, weak sustainability is established when there is system-system supremacy while strong sustainability is established when there is no system-system supremacy (Muñoz, 2010). This means that resources must operate at an equal level since they cannot replace each other. Muñoz (2010) illustrates a framework for measuring SD where there must be an active role of all components which is a better way of measuring SD, since a combination of the economic, environmental, and social indicators will be reported on. There must be an active play of indicators for water services provision for sustainable development to occur. The active interaction of components will assist indicators in accounting for sustainable development in water services provision to be clear.

2.5.2 Social Sustainability (SS) (Society -A)

Takai (2014) is a just access to resources and prospects and complete partaking in the social and cultural existence of the public, as a dominant aspect for stimulating liveability and capability, currently and into the future. In water service provision, social sustainability occurs when communities no longer must wait long hours, travel long distances to fetch water and there are sanitation facilities within their yards.
Similarly, Daly (1992) in Mensa and Casadevall (2019:21) posits that SS involves the idea of equity, enablement, availability, contribution, traditional identity and institutional steadiness. Mensa and Casadevall (2019:24) opined that SS theory should not mean unjustified environmental degradation or economic instability". SS involves lack of all elements that impact society in their communities which indicates the level of poverty and environmental destructions and water service provision as one of those elements (Elliot, 2013). Mensa and Casadevall (2019:22) opined that: "… poverty alleviation should be achieved through access to environmental and economic resources within a community".

Eizenberg and Jabareen (2017:17) opined that: "… social sustainability attempts to confront threat while addressing communal distresses, which are equity, safety, eco-presumption and urban forms". In water service provision, the risk associated with lack of equitable access to water, the use of unsafe water sources and old sewer systems, being unable to afford water service provision and also unsafe communities are what SS should try to do away with (Elliot, 2013).

These are values that should be taken into consideration when striving to achieve social sustainability as being - constitutionalism, democratic values, representation and empowerment, legitimacy, transparency and accountability (Fox and Van Rooyen, 2004). Indicators that can assists in accounting in this regard are a participatory approach, level of equitable access to water service, and changes in the social well-being of communities.

2.5.3 Economic Sustainability (ES) (Economy – B)

Reddy and Thomson (2015:8) argue that economy will not be continuous if natural means are used beyond the bounds and if society endures to depend on occurrences that drove development earlier. The economy must be continuous with the level of current available resource for production within the same environmental condition. In water service provision, the value of infrastructure development to supply and treat wastewater should be at a level which community can afford and that infrastructure can be maintained. Mensa and Casadevall (2019:19) posit that: ES is a system of manufacturing that fulfils the current depletion without compromising coming needs. The provision of water service should not take place under conditions whereby access and availability are compromised while the municipality is making a profit.

It is also understood that economic growth if followed by industrial progression to renew ordinary means damaged in the manufacturing (Mensa and Casadevall, 2019). Water service provision should be abstracted in a manner that permits natural resources with an opportunity to renew. Actions that are conducted in an economy are manufacturing, circulation, and ingesting, but the accounting agenda used to guide and appraise the economy about these actions completely misrepresents standards and this does not predict well for society and the environment (Mensa and Casadevall, 2019).The economic value of water service, at times, makes the WSA neglect rural communities and only focus on urban areas.

Indicators are the proportion of communities who can afford the tariff for water service, and if revenue is collected it can cover the cost of maintenance of infrastructure. Fox and Van Rooyen (2004) concluded that there is an exhaustive list of values that can be taken into consideration during the economic sustainability being - effectiveness, efficiency and economy, productivity, professionalism, entrepreneurship, and social equity.

2.5.4 Environmental Sustainability (Environment –C)

Gillaspy (n.d) in Elliot (2013:1) posits that it is the liable interface with the environment to evade exhaustion or dilapidation of natural resources and consent for a long-term environmental quality. When communities are involved in their developmental needs for economic growth they are not supposed to harm or deplete the current natural resources. Since the environment influenced by natural resources for existence, livelihoods are the greatest susceptible impacted by environmental variation, thus great scarcity can only be ended if environmental dilapidation is ceased or inverted (United Nations, 2012).

Mensa and Casadevall (2019:10) posit that environmental sustainability is around natural environment and how it stays fruitful and irrepressible for sustenance of human existence. The high extraction of water in rivers, wells and boreholes cause these sources to dry up and this can cause poverty because of lack of water. Similarly, Elliott (2013:31) posits that: "… the environment is degraded and used unsustainably as a result of increasing the supply of service". In water service provision, the WSA when abstracting water from water sources, they abstract all available water, and this leads to a lack of water service. The indicators are the proportion of water loss as compared to supply and incursions of water sources.

2.6 EQUITABLE ACCESS AND AFFORDABLE WATER SERVICE

Lessons that can be drawn from a global perspective is that South Australia was able to improve the overall access to water service provision up to 90% over the years using 'accounting for sustainable development' as a framework (South Australian Council of Social Services, 2020). This was done through proper implementation of pricing strategies to ensure equitable access to water service using indicators.

Though there is no clear indication of the level of access in Vietnam, there is an indication that they are moving towards a more practical approach since there is an indication of reporting (IWMI, 2018). South Africa must further integrate government systems relative to planning and implementation of programmes that incorporate issues of sustainable development on daily operations in local government on issues of access to water service provision (National Strategic Framework, 2008).

There is no clear distinctive definition for access in water service provision, since different countries each try to define it incorporating the following - distance, time, and quantity (Aiga and Umenai, 2003). Ezbakhe, Gine-Garriga and Perez-Foguet (2019) indicate that a score card can be used to assess water service provision in relation to access, availability, quality, acceptability and affordability. The use of a score card will provide data relative to the standard of service that is being allocated by local government to societies and provide a clear indication as to where the need for improvement might be required.

Carrard, Madden, Chong Grant, Nghiêm, Há Bui, Thi Thi Há and Willets (2019) argue that fees for infrastructure connection are often being the ones that exclude poor households to yard connections irrespective of who is providing the service. Social and economic inequality in relation to poor household and affordability also is a contributor of deprived or absence of access in water provision. Martins, Antunes and Fortunato (2020) argue that the continuation of issues of affordability in the municipality will impact on social sustainability.

Carrard *et al.,* (2019) found that, where poor households are subsidized, they can realize the same service as others living in richer or urban households. This is often the case in most local municipalities that there is a notion that urban communities are subsidising the rural communities in payment of water service provision because rural communities do not pay, and one will discover that there is poor service in the most part. Amit and Sasidharan (2019) posit that the high-income class pay less for water services provision whereas the low-income class pays more, hence the need for policy development.

Usually, households in rural communities that have their own source of water often charge their counter parts more when they sell water to them, and other households that hire honey sucker for septic tank emptying paying more for the service since this is provided by private companies (William, 2006).

In assessment of the level of access of water service provision within communities', indicators need to be used. Moe and Rheingans (2006) posit that indicators will include the following: Percentage of treated waste water as compared to supply within the municipality, percentage of households using safely managed water sources, measure of protecting supply in confirming that water is potable, times of supply within a week, basic drinking water sources, types of supply (household taps, public taps, tinkering and tube well boreholes), proportion of households consuming a simple water source with aggregate gathering period of 30min or less for return trip, percentage of households using a basic safe water, civic strategies must try to alleviate water strain and cope water resources sustainably, and the percentage of the total renewable water source used.

2.7 COMMUNITY PARTICIPATION IN WATER SERVICE

William (2015:197) posits that community participation is the straight involvement or engagement of communities in decision making. Community participation is a broad concept, means dissimilar things to dissimilar people. In this study community participation is the involvement of all participants on all phases of development, on outcome and enablement (Social Capital Research, 2004). The South African Constitution (1994) in Section 152 encourages community participation and organizations in issues of local government. Takai (2014) further argues that inclusive community involvement in planning is critical in refining the quality of public projects and the affiliation between the public and government as well as increases the overall quality of life for communities.

Involving communities in their developmental needs, like water service, is a step towards sustainable development. Proper implementation of developmental initiatives requires the input of local communities from the beginning to the end; this will assist with local operations and maintenance of their service.

Dungamaro and Madulu (2003) posit that community participation is a vital component of sustainable water resource management since it incorporates the use of the local people's knowledge, experience and opinion. Often local people are the ones who are more familiar with the previous and current areas where water source can be identified since they know their own area very well. In contrast, Jones (2011) posits that community participation can be used to encourage payment of service delivery. This is a shift from the normal or perceived participation; hence, there is a different outcome that is anticipated which is payment.

Arnstein (1969) developed a ladder for community participation that starts from non-participation in which communities are not participating, but they are educated; tokenism is where communities are involved in the feasibility study from the very beginning, and citizen control is where communities take ownership of development from the beginning including maintenance. In contrast, Choguil (1996) argues that community participation should involve a ladder that constitutes the following: enablement, partnership, conciliation, dissimulation, diplomacy, informing, conspiracy, and self-management.

The realisation of community participation needs to be assessed using the following: community empowerment, capacity building, increased project effectiveness, improved project efficiency and project cost sharing. Miakatra (2014) confirms that a participatory procedure is a stretched method for explaining difficulties in the delivery in disadvantaged regions since accountability is at the local level.

2.8 MONITORING AND EVALUATION OF WATER SERVICE

The United Nation Development Plan (2009) in Water Integrity Global Outlook (2016: 25), defines monitoring as a procedure for determining development made towards realizing goals and objectives, putting emphases on the use of capitals, but furthermore on following policies, activities being engaged in, establishing what is new with regard to policies and activities that need to be taken in development. Continuous monitoring in water services delivery is for controlling the quality and quantity and its effects on access.

Evaluation is the procedure of shaping the applicability, competence, efficiency and influence of actions in line with objectives in a methodical and impartial way; it involves the collection of data, attained through monitoring, to take a decision and yield knowledgeable verdict about an assumed process (UNDP, 2009 in WIGO, 2016:25). Evaluation is only done using data gathered during monitoring when quality or quantity issues are gathered during monitoring using the data to make informed decisions.

Kumasi, Adank, Dickinson, Abbey, Chimbar, Atengdem and Agbemor (2014), and Dickinson and Bostoen (2013), posit that rural water supply monitoring so far is restricted to a portion of Community Water Service Agency guidelines, i.e. trailing the amount of amenities supplying water services and their functionality**.** Functionality does not lead to sustainability when considering issues of water service delivery (Kumasi *et al.,* 2014; Dickinson and Bostoen, 2013).

In this study, monitoring and evaluation is continuous activities that involve assessment of quality, quantity, and continuity in water service provision projects even after project completion. This is conducted on a daily basis to assists in reporting on impact or progress made in service delivery. They can further be used to assess infrastructure condition so that proper operations and maintenance can take place. There are different elements that contribute to sustainability such as access and functionality but they cannot be pointed out as the only contributors.

Water service infrastructure can at some point in time be unable to provide services of good quality and quantity to realize the demand of the community that they are providing the service to. This might lead to prolonged hours of fetching water (Kumasi *et al*., 2014; Dickinson and Bostoen, 2013). This might lead to a situation where the water services infrastructure is delivering services that are not at the suitable level / standard. These authors further maintain that is important to do functionality testing and put strategies into place to ensure that water service infrastructure is working properly (Kumasi *et al*., 2014; Dickinson and Bostoen, 2013). This is a way in which challenges can be resolved by trying to investigate possible solutions.

Monitoring give provision to preempted maintenance to trail the level of service over a period and the routine technical, financial and management tasks which are essential to permit difficulties expected to be resolved (Kumasi *et al.,* 2014; Dickinson and Bostoen, 2013). The motoring and evaluation of water service provision can be achieved through the development of a framework. It includes a method where numerous pointers are measured; which include the following – extent measured by the source type**,** endurance measured by the times per day and days per year that water is provided**,** amount measured by the capacity provided per capita**,** quality measured by faecal coliform amount gauge, and cost measured by price paid per month per family (Kumasi *et al.*, 2014; Dickinson and Bostoen, 2013), The municipality should implement a water service tariff policy based on the type of service, coverage, volume and quality supplied for fair billing.

2.9 CHALLENGES FACING MUNICIPALITIES IN ACCOUNTING FOR SUSTAINABLE DEVELOPMENYT IN WATER SERVICE

Municipalities characterised by a lot of challenges that hinders service delivery to their area of jurisdiction and at times is due to old infrastructure, lack of operation and maintenance, in-proper planning, or lack of skills (Kanyane, 2014). These challenges differ from municipality to municipality, and there are a lack or are fewer common issues that municipalities face on a day-to-day basis. Asha and Makalela (2020) posit that there are various challenges that face municipality's service delivery, and they include the following: lack of resources, unfinished plan, insufficient community participation, political interfering, and inadequate capacity.

Maretu, Dagnew and Dana (2020:98) opined that: "… the local government is characterized by less accountable and transparent service delivery provision, corruption, poor management, and bureaucratic delays and incompetency". Adding to that, Mohammed (2020:12) posits that inadequate financial plan provision and lack of principles for certifying private service providers are also trials to service delivery.

In contrast Omarova, Tussopova, Hjorth, Kalishev and Dosmagambetova (2019) posit that though water service has been provided to communities, the community still find their own alternative water source since they do not trust the quality and quantity and reliability of the source provided by their local government.

2.9.1 Lack of Capacity

Mdlongwa (2014) posits that most municipalities lack personnel with technical skills, and if they have municipal personnel they cannot perform their function. Lack of key technical staff and employment or replacement with those who are less qualified or experienced is inhibiting infrastructure maintenance (Council for Scientific and Industrial Research, 2007). Wanyama and Mutsotso (2010) argue that difficulties like weak supervision and training employees with know-how, essential abilities and understanding can be resolved through worker efficiency to advance performance in organisations.

Furthermore, lack of capacity leads to a deprived service delivery, organisational incompetence, deprived community associations, and consumer discontents at times prominent to publics refusing to pay for services. Toxopeus (2019) argues that, variability in crucial vacancies is one of the motives for lack of responsibility. Eales (2010:37) argues that most municipalities have not resourced their water services functions properly which led to skill gaps in key positions.

2.9.2 Corruption and Maladministration

Lack of responsibility and clearness in service delivery is a case for worry in local government (Zerihun and Mashigo, 2022). Supply chain’s colliding with service providers to defraud the municipality, hinders service delivery (Maduku and Enaifoghe, 2018). Awarding of infrastructure tenders to cadres hinders infrastructure development and delays service delivery (Krsteski, 2017). Manyaka and Nkuna (2014:1574) argue that feeble use of regulation, omission of appliance, inadequate political determination, political positioning and lack of meritocratic structures affords chances for fraudulent, unprincipled and immoral actions to flourish. This is a contravention of the Constitution 1996.

2.9.3 Financial Challenges

Local government is either insolvent or at the verge of insolvency in many areas, which affect their capability to deliver services to their communities (Mdlongwa, 2014; Toxopeus 2019). Furthermore, local government is incapable to paying their creditors (water boards) since consumers are reluctant to pay for water service as the main consumers of the service (Toxopeus, 2019). Lack of proper budgeting for operations and maintenance hinders service delivery within municipalities. Mismanagement of project causes payment of service that was not rendered (Locatelli and Greco, 2017). Municipal employees being unable to follow proper supply chain procedures in the awarding of tender projects causes financial challenges (Ramaphoma, 2020). Non-compliance of supply chain policies within municipalities lead to irregular expenditure (Toxopeus, 2019).

2.9.4 Incomplete Projects and Lack of planning

The Development Action Group (DAG) (2014) illustrate that there are factors that contribute to incomplete project, inadequate funding, complicated legal processes, inadequate capacity, and no specific strategy to execute the project. Furthermore, Williams (2016:2) argues that corruption and failed inter temporal bargaining among local political actors contribute to incomplete projects. Lack of technical skill to manage projects causes incomplete projects due to poor monitoring. Toxopeus (2019) argues that most municipal integrated development plan water service development plans which are out-dated, and they are crucial planning documents within the municipality. Moreover, municipalities lack infrastructure maintenance plans and are unable to conduct functional assessment so that they can properly budget (Toxopeus, 2019). This affect access to water service within the municipality as maintenance will not be preventative but reactive.

2.9.5 Insufficient Community Participation

Enshassi, Kullab, Alkilani and Sundermeier (2016) posit that lack of interest, support for local council and lack transparency led to inadequate participation. Furthermore, shortage of skill is also a contributing factor to lack of participation and financial challenges (Enshassi *et al.,* 2016).

Disagreement in the type of developmental needs required by the community also leads to inadequate community participation, at times rejection of projects. Low community influence and control over developmental needs where control is on people who are not benefiting and staying in the area hinders participation (Chifamba, 2013). Harvey, Baghari and Reed (2002) illustrate that some of the reasons why communities may be reluctant to participate in their developmental needs are as follows: Lack of a service delivery awareness campaign, unfair distribution of work or benefits in public, extremely personal people where there is slight or no sense of community, the sentiment that municipalities must deliver service and community treated as being helpless.

2.9.6 Limited Budget Allocation

The allocated budget does not cover the required operations and maintenance required within the municipality to make infrastructure functional (Phadi and Pearson, 2017). Limited budget in projects causes poor quality service by the service provider and project not to make an impact. Improper functional assessment of infrastructure leads to inadequate budgeting since nothing informs planning. Toxopeus (2019) posits that the money received from external sources (Department of Water and Sanitation and Treasury) is unable to make an impact in service delivery provision, since only a limited amount is used for water services because a huge portion is used for roads.

2.9.7 Aged Infrastructure

Most municipalities are faced with inherent old infrastructure in water service provision that cause loss of water and South Africa is a water scares country (Toxopeus, 2019). Most municipalities' wastewater treatment works are unable to service the area leading to untreated wastewater polluting the river system (Toxopues, 2019). Lee and Schwab (2005) argue that ageing, stressed and poor maintenance infrastructure affect the quality and quantity of water service within municipalities and pose serious health risk. Aged infrastructure causes less pressure and poor water quality due to rusted pipes and constant pipe burst.

2.10 CONCLUSION

Chapter two discussed a review of literature about the research whereby ‘water accounting’ as a concept has been discussed with the assistance of different scholarly articles. Understanding ‘accounting for sustainable development’ also has been explored and importantly, sustainable development as a theory. Different scholarly articles addressing the same topic have been reviewed and other supporting activities of sustainable development. The study further discussed challenges that hinder service delivery. The next chapter will discuss research methodology and design that will be undertaken to validate data collected. The reviewed literature will assist in the development of a questionnaire.

CHAPTER 3: RESEARCH METHODOLOGY AND DESIGN

3.1 INTRODUCTION

The earlier section presented a literature review on ‘accounting for sustainable development’ in water service provision. The literature review concepts were centred on the intents of the study, sustainable development theory and ‘water accounting’ by examining scholarly articles.

In this chapter - the research methodology, research design, area of the study, population, sampling of the population, sampling technique, data collection method, validity and reliability, and data analysis method used in the study are discussed. Furthermore, it will specify the process which was followed in conducting the study on ‘accounting for sustainable development’ in water service provision in the Lephalale Local Municipality.

3.2 DISCRIPTION OF THE STUDY AREA

The study was conducted in Lephalale Local Municipality of the Limpopo Province. The Lephalale Local Municipality is a category B municipality established in line with the Local Government Municipal Structures Act (Act 117 of 1998). It was formerly known as Ellisras from 1960. It is a former white area controlled and managed under the then Grootgeluk Mine (currently Exxaro) with a high level of water service provision. The vision of Lephalale Local Municipality is to build a vibrant city and energy hub. The town was developed with one township, 42 villages and 6 informal settlements. The population in this town is growing very fast due to migration from other provinces and villages caused by an increase in industrial areas.

Figure 3.1: Lephalale Local Municipality (Source**:** Lephalale Local Municipality IDP, 2021/2022**)**

The municipality is located on the western side of the Limpopo Province on coordinates (23˚30' and 24˚00' south, latitude 27˚30' and longitude 28˚00' east) approximately 40 km from the Botswana border. The municipal area is 14000km^2 in size and has a population of approximately 140, 240. According to the Lephalale Local Municipality Integrated Development Plan (IDP) (2020), the water services infrastructure is old and there is a need to replace or upgrade this. Water services is characterised by pipe bursts, brown water and sewer overflows in most areas around town. This has resulted in the drop in the property prices around Lephalale town and frustration of the residents.

The municipality replaced some of the old water pipes of asbestos cement (AC) with Unplasticised Polyvinyl Chloride (UPVC), but pipe bursts are still high. The municipality is not able to replace all pipes due to lack of funds as it relies on grants from the provincial government. The residents are forced to install tanks in their yards to assist with water storage when pipe burst occur. The sewer system pipes are replaced when they are damaged or during blockages that require digging out a line. This has resulted in many households making an overflow line to the storm water drainage. The community is not receiving appropriate water service due to the constant sewer overflows in their yards and supply of water that is not of good quality.

3.3 RESEARCH DESIGN OF THE STUDY

Research design attaches all elements of research together or an idea of the planned study (Akhtar, 2016). Boru (2018:2) defines it as the technique for gathering, examining, interpreting, and reporting information in a study. According to Cresswell (n.d.), there are various types of research designs -qualitative, quantitative, and mixed research.

3.3.1 Qualitative approach

Bhandari (2020) posits that the ‘qualitative’ research approach encompasses gathering and examining non-numerical information to comprehend ideas, views or experiences. Furthermore, this study technique can be used to collect in depth awareness of a problem to produce new thoughts for the study (Bhandari, 2020). Similarly, Aspers and Corte (2021:604) posit that it is a multi-method emphasising on, connecting and interpreting a topic. Almalki (2016:290) posits that, it places emphasis upon discovering and accepting the significance of individual or group endorsed to a public difficulty. According to Ibrahim (2016), there are six kinds of qualitative research design being: ethnography, narrative, phenomenological, grounded theory and case study. In this study the researcher used case study. Data that was collected using the ‘qualitative’ approach based on people experience in the form text and observation of the natural setting was gathered.

3.3.2 Quantitative approach

Bhandari (2020) posits that quantitative design is a procedure of gathering and examining statistical information. Furthermore, it can be applied to discover configurations and regular, make forecasts, check causal association, and simplify findings to a broader population (Bhandari, 2020). Almalki (2016:291) argues that it is considered as a reasonable method towards the study, it regards the world as separate and that there is an object of actuality free of any surveillance”.

Moreover, the collection and analysis of data is conducted utilising mathematically based method focus on gathering numerical data (Almalki, 2016). The mixed methods technique offers extra comprehension of the study problem than either technique individually (Creswell n.d.). The researcher used a mixed method approach in guiding the research.

3.3.3 Mixed Method approach

Fischler (n.d.) argues that a mixed methods research design is a method of gathering, examining, and mixing both 'quantitative' and 'qualitative' research approaches in a single study to comprehend a study problem. Similarly, Schoonenboom and Johnson (2017:108) define it as the kind of study in which the researcher syndicates features of qualitative and quantitative research methods. The aim of research design is to find convergent in mixed methods by investigating 'accounting for sustainable development' in water service. Cresswell and Cresswell (2017) argue that convergent mixed methods are mixed design in which the study combines both quantitative and qualitative information to offer a complete examination of the study problem.

A mixed technique style was selected due to the researcher endeavours to counterbalance the weakness of 'qualitative' and 'quantitative' approach by convergence. The researcher used mixed method approach in data collection. The researcher collected data using both open-ended and closed-ended questions at the same time, and the data is incorporated in the findings. The closed and open-ended questions were used to probe participants during data collection. In closed ended question the data gathered was in the form of statistics whereas in the open ended the information was in the form of a narrative. The researcher used different type of information that affords additional and a whole understanding of the study problem. The researcher used the following techniques for gathering information – a questionnaire, interview and document analysis to understand 'accounting for sustainable development' in water service in the Lephalale Local Municipality.

3.3.4 Research design: Case Study

The researcher chose a case study since it merges well with triangulation (Cresswell, 2017). Cresswel (2007:245) posits that case study research constructs a detailed, appropriate consideration of the circumstance, depending on several information sources. The researcher chose case study since it explores the interaction of participants within a specific area and single unit. In this study the specific area is Lephalale Local Municipality. The participants in the study expressed their views about accounting for sustainable development in water service.

Case study is an exhaustive investigation of a particular entity which provides the researcher with much more information as possible to understand the case entirely (Creswell, 2017). The component of examination in this research is water services. Ibrahim (2016) argue that a case study includes a profound understanding through various kinds of information sources. Multiple types of data source used in this study were interview, questionnaire, document analysis and observation.

3.4 POPULATION AND SAMPLING OF THE STUDY

3.4.1 Population of the study

According to Tarsi and Tuff (2012), a population is a crowd of persons of similar class existing and reproducing within the same known area. Furthermore, a population is the entire participants that meet an established requirement or a stated standard existing within the similar lit or boundaries (Lynch, n.d.).

Nayak and Singh (2015) posit that a study cannot involve the whole population in the chosen area, a sample need to be ascertained. The study's attention was in three areas in Lephalale, being - Town, Onverwacht and Marapong together with informal settlement surrounding these areas.

The study involves the Lephalale Local Municipality officials as internal participants, those involved in the water and sanitation services together with supply chain staff, councillors, and ward committee members. The unit of analysis was the people who use the water services in the three selected areas (Trochim, n.d.).

3.4.2 Sampling

Phrasisombath (2009:3), and Turner (2020:9), claim that sampling comprises of choosing research components from a distinct research participant. Elder (2009:11) indicates that a sample is a percentage or subsection of a bigger set named a population. Lynch (n.d.) posit that is a lesser type of the population of which it is a portion just similar to it, so that by learning the sample we may justly generalize the outcome back to the population from which they were chosen. Furthermore, is a crowd of people who will participate in the research investigation (McCombes, 2019:2). A sample reflects a valid representation of the whole population (McCombes, 2019). Furthermore, Mukherjee (2019) asserts that the researcher can conclude results for the whole population centred on this representative sample. There are two types of sampling methods that can be used being the likelihood sampling technique and non-probability sampling technique.

3.4.2.1 Probability Sampling

Adwok (2015) posits that probability sampling stipulates that every section of a recognised population will be symbolized in the sample, and examination. Furthermore, Elliot (2020) says that participants are aimlessly chosen to partake in study.

There are various types of probability sampling, being - simple random sample, stratified random sample, cluster sample, and systematic sample.

3.4.2.2 Non- Probability Sampling

Elliot (2020) defines non-probability sampling are participants in a study that are carefully chosen not by chance, but by some aspects that provides them with a chance of partaking in research that others in the population do not have. Showkat and Parveen (2017) define it as a sampling technique that uses a non-randomised method of drawing a sample. Some of the nonprobability sampling techniques are convenience sampling, purposive sampling, quota sampling and snowball sampling. Relative to the ‘qualitative’ research approach, the researcher will adopt the purposive sampling technique.

- **Purposive Sampling**

Nayak and Singh (2015:84) posit that purposive sampling is choosing a sample on a foundation of a researcher's individual information of the population. The study will use purposive sampling which is a non-probability sampling technique. Biasness was addressed through different information gathering techniques such as questionnaires, interviews and document analysis. The researcher deliberately chose purposive sampling because of the qualities the participants possess (Muzata, 2020; Etikan, Musa and Alkassin, 2016). The participants are residents of Lephalale, municipal employees in supply chain, infrastructure and councillors. Moreover, the researcher chose purposive sampling because of limited resources, time and workforce and can be implemented quickly (Etikan *et el.*, 2016). Furthermore, purposive sampling is centred on the objective and purpose of the study (Palys, 2008; Etikan *et al.,* 2016).

Similarly, Sibona and Walczak (2012) posit that the intention is to locate participants who have had experience with a particular event under investigation. Tangco (2007) posits that selecting purposive sampling is crucial to the quality of information collected through reliability and validity of data. Moreover, purposive sampling assists the study to have high internal validity (Andrade, 2020). The researcher chose purposive sampling since it can be used in both qualitative and quantitative study; hence triangulation in this study (Tangco, 2007). The researcher selected a sample that provides relevant data when conducting the research.

- **Sample size**

Elfil and Negida (2017:1) posit that sample size is very important for getting accurate, statistically significant results in conducting the study successfully. The researcher decision is centred on the intent of the study, time available, budget, and the essential degree of accuracy (Mukherjee, 2019). Furthermore, this must be secured contrary to having a large sufficient sample size with sufficient influence to notice accurate connotation (Mukherjee, 2019). Sample size is the number of participants who completed responses from the study at hand (Mukherjee, 2019). Furthermore, it is termed a sample since it only denotes a portion of the group of the target population whose views or conduct are important to the study (Mukherjee, 2019).

Similarly, Kibuacha (2021:1) states that sample size represent the entire amount of participants involved in research, and the quantity is regularly cracked into sub-groups by demographics such as age, gender, and location so that the total sample obtained embodies the whole population.

Table 3.1: Population of Lephalale Local Municipality

Population	Size	Targeted sample size
Municipal official	518	10
Municipal councillors	26	5
Water services users	139696	50

The researcher is going to conduct the study with a sample size of 65 participants, whereby the study stoped at data saturation during data collection. Lesser sample size will not produce effective outcomes or adequately denote the realisms of the population being investigated (Kibuacha, 2021). While big sample sizes produce lesser probability of error and are more symbolic, a sample size that is too large it may considerably surge the cost and time taken to conduct the study (Kibuacha, 2021).

3.5 DATA COLLECTION TECHNIQUES

Kabir (2016:3) posits that data collection techniques are the methods of collecting and evaluating data on matters of concern in a recognized logical manner that permits one to respond to the study questions. It exists in the form of content in either text (quantitative) or numerical format (qualitative) (Haradhan, 2017). The researcher used a questionnaire, interview observation and document analysis as data collection techniques.

3.5.1 Questionnaire

Ahmed (2012) argues that a questionnaire is an established inquiry on a subject or collection of subjects intended to be responded by the participants. Similarly, Kabir (2016) says it is a list of inquiries both open-ended and closed-ended which the participants provide responses. Roopa and Rari (2017:273) define it as simply a list of reproduced inquiries that are filled by participants to give their view.

Furthermore, it is the instrument applied to inquiries that the study participants respond to (Ahmed, 2012). The researcher developed a structured questionnaire comprising closed-ended questions relative the objectives and sub-investigative questions of the study. The questionnaire further allows the participants to clarify their answers by providing reasons for their response. The questionnaire was clear, questions that give a ‘yes’ or ‘no’ answer where avoided, avoid leading questions, do not assume answers and pass judgement (Nayak and Singh, 2015). The developed questionnaire was distributed to participants in the Municipality. While to other participants in the informal settlement, location, urban and Onverwatch it was administered in the form of an interview.

3.5.2 Interview

Mathers, Fox and Hunn (2000:1) define interviewing as a significant information collection approach concerning oral communication between the researcher and the participants. Kabir (2016:20) posits that it is a confrontational exchange with the participant. In interviewing, the challenge start when the participant deliberately hides information from the researcher; otherwise, it is a comprehensive source of data (Kabir, 2016). The researcher observed body language of respondents. This enables the interviewer to draw conclusions easily. The researcher used a developed questionnaire to conduct face-to-face interviews. Inquiries were conducted on an individual basis with one respondent in their household or offices so that technical honesty is upheld for the validity of the data.

Face-to-face interviews may be prohibited during information gathering due to the Covid-19 pandemic. According to the government response to the pandemic, restrictions are imposed on the South African citizens which impacts on data collection when interviewing. Restrictions are in the form of lockdown levels whereby it was only possible to conduct interviews during level 1. During level 5 to 3, citizens are prohibited to have close interaction with each other socially, academically and have close contact or interaction with each other. During harsh restrictions, data was collected by sending a questionnaire to the respondents via email or WhatsApp so that participants can complete the questionnaire and send their response back. The collection of secondary data was through conducting a literature review.

3.5.3 Document Analysis

The researcher collected both published and unpublished data in the following areas: published books, published surveys or other numerical information, information file internet articles, journals, and database. Published data can further be collected from the following sources – (i) numerous publications of national, provincial or local governments; (ii) several publications of foreign governments or of six (6) international bodies and their subsidiary organizations;
(iii) various investigation reports organized by research academics, universities, economists in dissimilar arenas; (iv) books of numerous writers, magazines, and newspapers; (v) numerous sources from university libraries: (vi) technical and trade journals; (vii) websites; and (viii) public records and statistics, historical documents and other sources of published data (Nayak and Singh, 2015). In this study, secondary data through literature research assisted the researcher to strengthen drawing conclusions when combining all data when analysing.

3.6 DATA ANALYSIS

Kawulich (2004:97) defines data analysis as the procedure in which the researcher decreases information to clarification. Kawulich (2004) argues that it is the method of conveying directive, assembly and sense to a bulk of information gathered. The researcher coded data and capture on the computer. SPSS was applied to examine quantitative information gathered, which presented information in a graphic form. Information was organised and analysed using graphic representation and narrative form the qualitative data (Nayak and Singh, 2015). Moreover, information was summarised and offered in tabular form, charts and graphs per question. The mean standard deviation, minimum and maximum percentages was computed to help analyse the findings. Furthermore, data from observation and the literature review was used to support the narrative examination.

3.7 VALIDITY AND RELIABILITY

3.7.1 Validity

Taherdoost (2016:28) defines validity as a degree to what study envisioned measured. Similarly, Drost (2011) in Kubai (2019:2) argues that validity is the level to which an extent sufficiently denotes the fundamental concept that it is intended to measure. Nayak and Singh (2015:125) argue that validity refers to the accuracy and trust worthiness of the instrument, information and results of the study. Singh (2017:793) posits that validity rest on the point of methodical fault. Furthermore, the validity of data is tied to the instrument (Nayak & Singh, 2015). There are two types of validity, namely, 'internal' and 'external' validity.

Internal validity suggests the absence of mistake in capacity and proposes that conclusion may be drawn (Singh, 2017). Singh and Masuku (2012) in Singh (2017:794), posit that 'external' validity relates to the procedure of simplifying study results to the residents from which the sample was taken. In this study, validity was achieved using a questionnaire as an instrument for data collection from the sampled population of Lephalale local municipality. The researcher ascertained whether the questionnaire measured what it is meant to measure. Moreover, the researcher ensured that the questionnaire measures the theme concept adequately.

3.7.2 Reliability

Drost (2011:106) defines reliability as the degree to which measurements are repeatable when dissimilar individuals execute the measurement on dissimilar events under distinct circumstances with allegedly an alternative instrument which measures the same thing. Moser and Kalton (1979) in Taherdoost (2016:33), define reliability as a degree to which a measure of experience offers steady and reliable outcomes. Similarly, Clifton (2020:260) posits that reliability is necessary but insufficient condition of measuring a consistent reading when measuring the same phenomenon. The researcher used similar objectives centred on the literature review to develop inquiry form for data collection. The same questionnaire was used to collect information from residents of Lephalale Local Municipality, councillors and also municipal officials.

The researcher applied qualitative data to support quantitative data, which provided validity and reliability for gathering and examination information in the study (Zohrabi, 2013). The study applied Cronbach's Alpha to test the reliability of the questionnaire. Questionnaire were designed relative to the intent of the study and the Cronbach;s Alpha value when tested where all above 0.7 threshold and way above the minimum of 0.257 value.

3.8 TRIANGULATION

Cohen and Manion (2000:113) define it as an effort to plan, describe entirely the depth and intricacy of human conduct by examining it from more than one perspective. O'Donoghue and Punch (2003:78), triangulation is a technique of validating information from various sources to explore consistencies in the study information. Similarly, Audrey (2013:48) posits that it also crosses check evidence to yield correct outcomes for certainty in data collection". Paulette (2008) opined that two or more approaches are applied in a study to verify the findings of the same subject matter. The study applied the qualitative and quantitative approach in information collection. This assisted the researcher to reduce weakness of each approach used independently by finding convergent (Creswell & Creswell, 2017). The researcher made use of both open-ended and closed-ended questions for data collection to offer a more complete understanding of the research problem. Furthermore, the study applied more than one approaches of collecting data through observation, interview, and document analysis.

3.9 ETHICAL CONSIDERATION

Arfin (2018:31) defines ethics as the defence of individual subjects over the application of suitable standards in research. Similarly, ethics in research are established rules and guidelines that define research conduct (Akaranga and Makau, 2016). Applying study ethics is crucial in day-to-day existence' the researchers safeguard the pride of the subjects and published information that is thoroughly researched (Akaranga and Makau 2016). Agunloye (2019:169) posits that ethics is the manner in which individuals should behave in a learning situation centred on what they should know.

Ethical consideration is important because research entails interface with corporations or representatives of the common community who assist as respondents (Polanski, 2004). Ethical consideration takes place at various stages when conducting research.

3.9.1 Ethical consideration before the study

University of South Africa (2016) posit that a researcher is not allowed to conduct a study without ethical clearance. The researcher completed an ethical clearance form together with supporting documents and sends this to the ethical clearance committee for ethical clearance. Furthermore, the researcher did not copy, piracy, fabrication or the creation of findings and any phase of the study (UNISA, 2016; Bryman and Bell, 2007).

The researcher ensured that all data collected or used from any source be acknowledged in the form of a reference. Moreover, the researcher, whenever gathering data from participants, participants signed consent form (UNISA, 2016). The researcher initiated the use of the consent form provided by the University for a Participant to sign before they play part in the study. A letter requesting authorization to conduct research at Lephalale Local Municipality was written to the municipal manager for permission before the study can continue and permission was granted.

3.9.2 Ethical consideration during the study

3.9.2.1 Considerable treatment of participants

Bryman and Bell (2007) posit that admiration of study respondents must be highlighted; application of violent, unfair or other undesirable language should was prevented. The researcher ensured that participants are respected and treated with courtesy and consideration, and where the need arise the questionnaire to be used was explained in a language they understand.

3.9.2.2 Withdrawal of participants from the study

Nayak and Singh (2017) posit that there should be no coercion. The researcher advised the respondents of their rights to refuse contributing to the study or to retract from participating at any time - partial data sheet was excluded from the study.

3.9.2.3 Debriefing of participants

The researcher debriefs research respondents to make certain that they are fully relaxed to the condition they were in prior the study (Nayak and Sing, 2017). The researcher certified that respondents are conscious of the intent of the study before an inquiry sheet can be administered to them.

3.9.3 Ethical consideration after the study

3.9.3.1 Anonymity of participants

Bryman and Bell (2007) argue that vagueness of people and organisations taking part in the study must be guaranteed. The researcher did not mentioned names in data analysis, only grouped opinion was provided.

3.9.3.2 Data analysis

Satisfactory level of discretion of the study information must be ensured (Bryman and Bell, 2007). During data analysis, all data collected was analysed without alteration of information. There was no data that can be identified belonging to a specific individual. Biasness was avoided during data analysis for fair presentation of the results.

3.9.3.3 Reporting research results

Bryman and Bell (2007) posit that all research should be reported widely with objectivity and integrity. The researcher avoided presenting data that is based on experience.

3.10 CONCLUSION

Chapter three covered the research procedure and design of the study. The chapter discussed how the study employed the research methodology and design. The study applied the mixed methods design for collection of both qualitative and quantitative information. The chapter further covered sampling and population, gathering information, data examination methods, validity and reliability and ethical considerations. The next chapter present the presentation and interpretation of study findings.

CHAPTER 4: PRESENTATION AND INTERPRETATION OF RESEARCH RESULTS

4.1 INTRODUCTION

The previous chapter presented the process which was followed in conducting the study on 'accounting for sustainable development' in water service provision in the Lephalale Local Municipality. In this chapter, the researcher presents and interprets the findings from the quantitative and qualitative questionnaire administered to the residents of Lephalale. The questionnaire was administered to the residents of Lephalale in the towns of Onverwacht, Marapong, informal settlements, rural areas, and to municipal officials. The results in this chapter are presented in graphic and tabular form.

This chapter is divided into three sections.

- Section one: demographic profile of the residents of Lephalale.
- Section two: reliability of results (quantitative), and
- Section three: qualitative results.

Section two on reliability, presents and interprets results on the objectives of the research; level of equitable access and affordable to water service provision, community participation in water service provision, monitoring and evaluation in water service provision and challenges facing municipality in accounting for sustainable development in water service. Section three provides a qualitative presentation of the views and thoughts of residents of Lephalale on 'accounting for sustainable development' in water services.

4.2 QUANTITATIVE ANALYSIS PROCEDURE

The researcher was aided by a university statistician who is a specialist in quantitative research. The specialist steered the researcher in several parts of the study. Information was prepared for analysis, the specialist offered advice on selecting the most applicable information interpretation techniques as well as how to utilize the Statistical Package for Social Science (SPSS) software to examine information gathered.

Furthermore, the researcher upon the return from the gathering data discard questionnaires that were unfinished as well as those in which the similar question was replied all over, as it indicated that some of the participants had not learned the issues. The data was captured Microsoft excel computer package. The excel document was then trade into the International Business Machines Statistical Package for Social Science (IBM SPSS) Statistics Version 27 where it was encrypted in preparation of information examination. Information examination implicated numerous precise numerical tests such as reliability tests, descriptive statistics and inferential statistics**.** A complete graphic depiction of the study direction assumed information analysis present in the study is also made in following section.

4.3 SECTION 1: DEMOGRAPHIC PROFILE

A demographic profile refers to socio-economic data specified statistically, concerning occupation, education, income, marriage rates, birth, and death rates, and age (Hyes, 2021). Furthermore, it can be used in various ways to learn more about generalities of specific residents (Hyes, 2021). Section 1 of the questionnaire obtained data relating to respondents' demographic characteristics. This comprised of four-items, namely: gender, age, highest qualification, and residential area.

4.3.1 Gender of respondents

Gender qualities of the participants were important in knowing gender of the respondents and involvement of the various genders with regard to accounting for sustainable development in terms of water services in Lephalale Local Municipality. The findings of the respondent's gender are presented in a Figure 4.1 below:

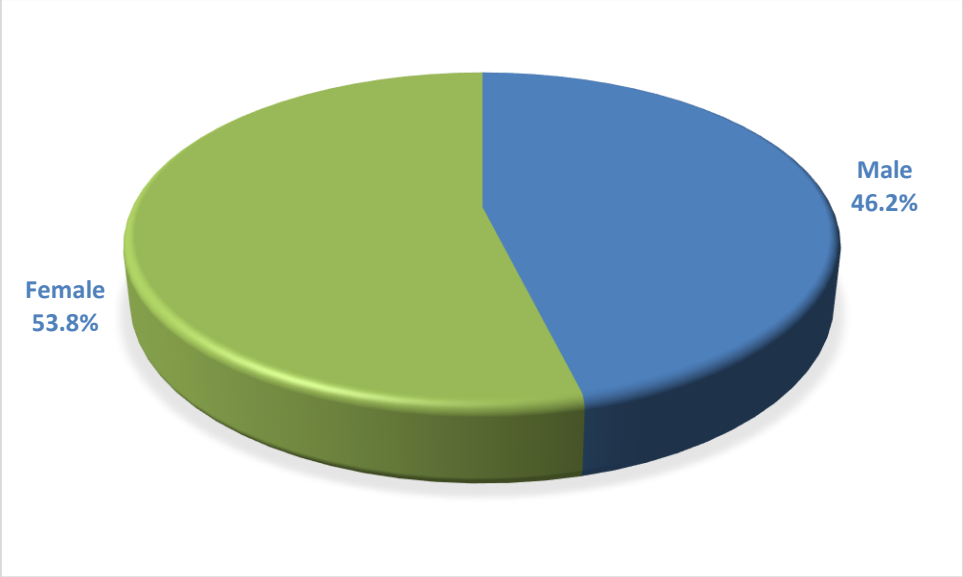


Figure 4.1: Gender of respondents

Figure 4.1 above established that 46.2% of the participants were male and 53.8% female. The outcomes of the research showed that marginally more participants in this research were female. Notwithstanding the variations in proportion, the disparity wasn't very big signifying a steady sample for both genders. There was a reasonable dissemination between males and females who were involved in 'accounting for sustainable development' in terms of water services within the Municipality.

4.3.2 Age of the respondents

The distribution age qualities of the participants were crucial in understanding the impact or integrity of the results as reflected by the majority dominant working age group (31-50 years). The results of the 65 age features of the participants that were partaking in research are accessible in a Figure 4.2 below:

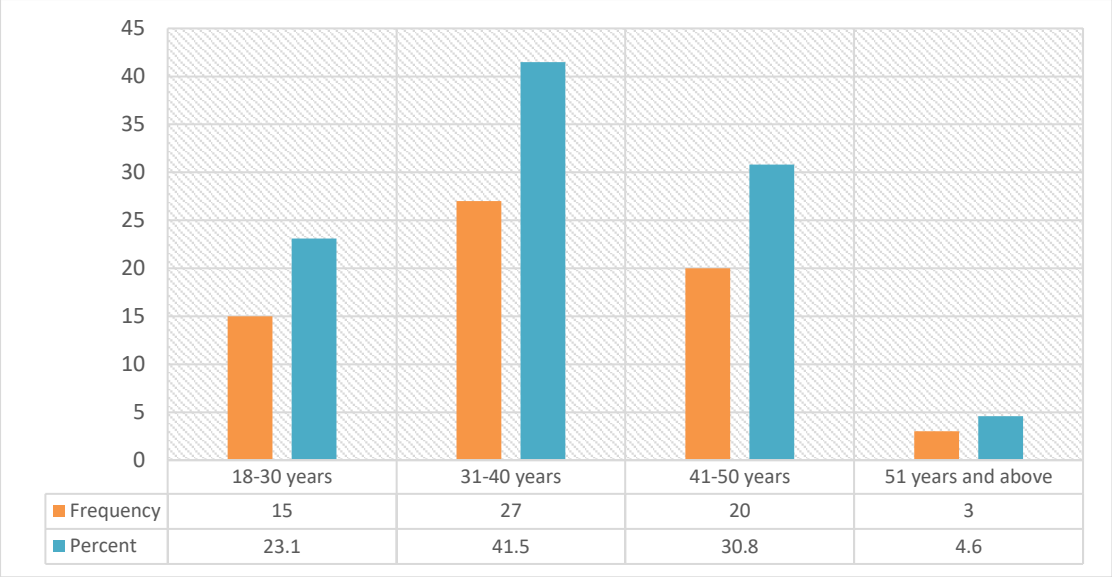
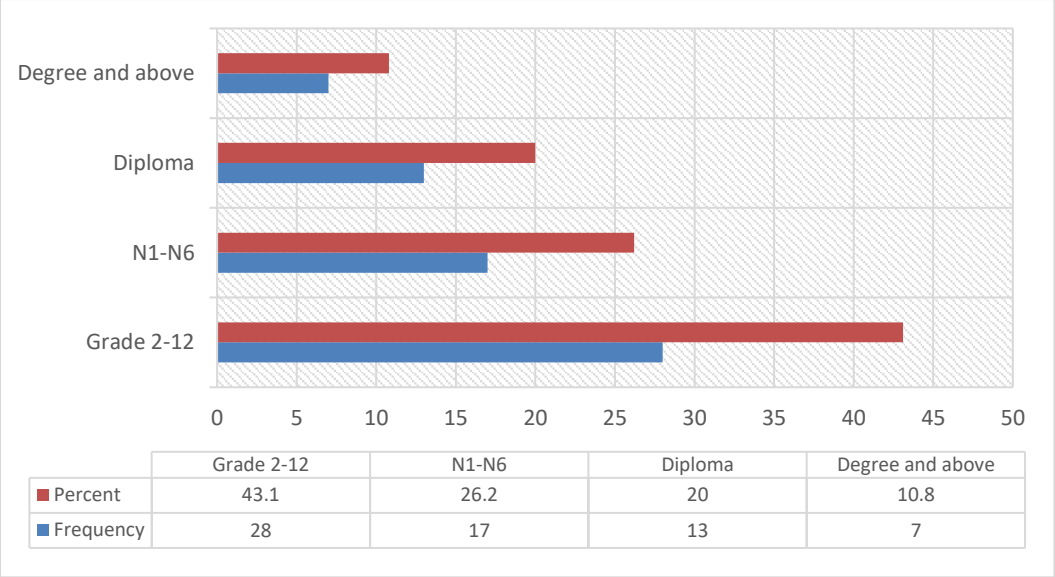


Figure 4.2: Age of the respondents

Figure 4.2 above illustrate that, greater part of the participants (41.5%) comprised the age group of 31 to 40 years, implying that, many of the respondents may present an expanded broader opinion. Followed by 30.8% between 41 to 50 years, 23.1 % of the participants were aged between 18 to 30 years, and 4.6 % as 51 years and above.

4.3.3 Highest qualification

The findings of the distribution by education level of the respondents are presented in Figure 4.3 below. These range from grade 2-12, N1-N6 certificate, diploma, bachelor's degree and higher. Data on educational level is important, it assist the study to analyse the effect of education on accounting for sustainable development. It also indicates the level of literacy of the respondents.



	Grade 2-12	N1-N6	Diploma	Degree and above
Percent	43.1	26.2	20	10.8
Frequency	28	17	13	7

Figure 4.3: Highest qualification of respondents

Figure 4.3 established that 43.1% of the respondents possessed a grade 2-12 education, 26.2% N1-N6 certificate education, 20.0% a diploma, and 10.8% a bachelor's degree and higher. The results of the study also highlighted that many of the participants had no formal education. The level of education of the residents of Lephalale can never be undermined if the Municipality wants to ensure accounting for sustainable development in water service. This is critical in modelling of 65 participants of the study.

4.3.4 Residential area

Figure 4.4 below provides a breakdown of respondent's residential details which are urban, location, rural and other. It is essential for the researcher to know the residents of the participants, which community is overly affected so that the researcher can be able to evaluate those areas.

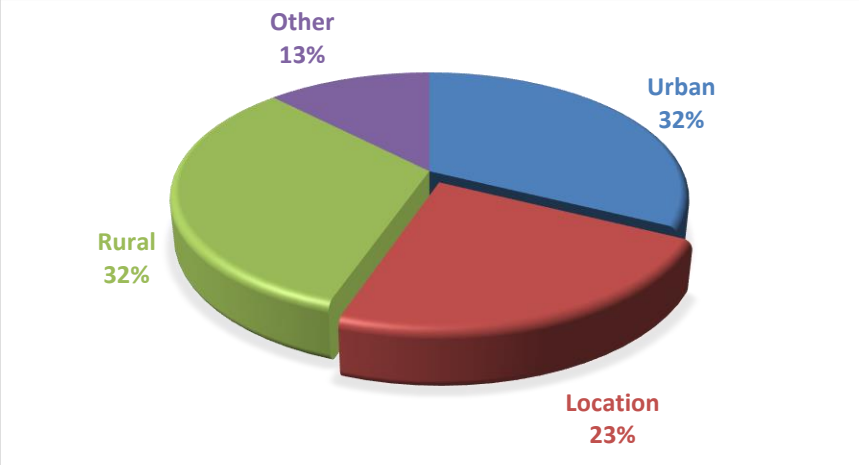


Figure 4.4: Residential area of respondents

Figure 4.4 above shows that 32.0% of the respondents resided in the urban area of Onverwacht and Town, while 32.0% resided in rural areas, 23.0% in the location (the community of Marapong), and 13.0% in the informal settlement. In this study the participants in Town and Onverwacht are in urban whereas, participants in Marapong are in Location. The researcher had thus acquired a fair distribution of respondents within the community of Lephalale. The data presented will thus assist the researcher to determine at what level the accounting officer is to be being able to account on issues of service delivery for each resident.

4.4 SECTION 2: RELIABILITY ANALYSIS

Cronbach's Alpha trials the amount which the objects in a tool are connected (Van der Stoep and Johnston, 2009:63). Hair, Bush and Ortinau, (2000:44); Babbie, (2013:49) indicate that Cronbach's Alpha coefficient and the CR, the suggested that rates must be more than or equivalent to 0.70 for every level. Vogt (2007:115) argue that an Alpha of 0.70 or greater is often reflected acceptable for most study objectives. Table 4.1 discloses that the Cronbach's Alpha coefficients were amongst 0.420 and 0.858 for all the eight study underlying objects respectively.

Cronbach's Alpha estimates of every study objects applied were exceeding the tolerable edge amount of 0.7 (Mujis, 2011:131). In brief, the quantity objects applied dependable since all the Cronbach's Alpha coefficients were beyond the suggested 0.7 threshold.

The outcomes provided in Table 4.1, the Alpha amount of Cronbach for every single test meaning differs from 0.454 to 0.774 all overhead the suitable value of 0.70, while the regular Alpha value of Cronbach is 0.654, is in a sensible threshold as recommended by Wells and Wollack (2003). In reality, the importance of the average inter-item association is greater than the minimum acceptable value of the association.

Table 4.1: Reliability analysis

	Cronbach's Alpha	No of item
Access to water service provision	0,781	8
Community participation in water service provision	0,750	6
Monitoring and evaluation in water service provision	0,795	11
Challenges facing municipalities in water service provision	0,841	10
Overall	0,889	35

Table 4.1 demonstrate that the Alpha value of Cronbach for every check description differs from 0.750 to 0.889 is above the correct value of 0.70, the usual Alpha value of Cronbach is 0.257, is a sensible threshold as suggested by Wells and Wollack (2003). The importance of the average inter-item association is advanced than the least sensible amount of association.

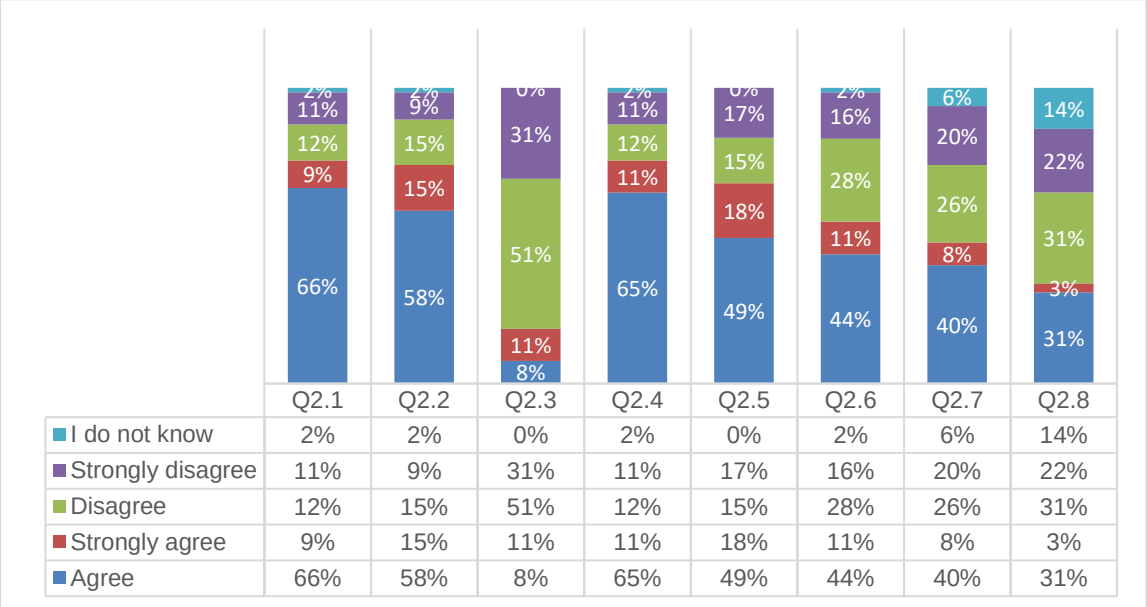
4.5 DESCRIPTIVE RESULTS OF THE INDIVIDUAL QUESTIONNAIRE ITEMS

Hussey and Hussey (1997:189) posts that a suitable major action in the examination of quantitative information is to assess the regularity circulation for individual subjects to determine the statistical value, which embodies the overall number of responses for a variable under study. Regularity allocation was commenced during examination of the inquiry outcomes. Fink (1995:53) indicates that the outcomes of numerical analyses are explanations, associations, comparisons, and forecasts. The study findings of the whole inquiry together with the statistical value used in numerical examination are embodied. The information was explained in according to ‘accounting for sustainable development’, in water services within the municipality and moderating variables.

The inquiry was designed in accordance with access to water service provision, community participation in water service provision, monitoring and evaluation in water service provision and challenges facing municipalities in water service provision.

4.5.1 Level of equitable access and affordable water service

The participants were requested to assess the efficiency of access to water service provision using 8 questions on the various parameters of water service; Residents are using - an improved water service (Q2.1); residents are using an improved sanitation facility (Q2.2); residents travel more than 30 minutes to get water (Q2.3); residents use safe sanitation facilities adequately (Q2.4); residents are having household water connection (Q2.5); water source provided is reliable (Q2.6); residents pay a water services bill provided by the municipality (Q2.7); and residents can afford the water service bill provided by the municipality (Q2.8). Brief descriptive verbal responses items are presented in Table 4.5 below were: SA =strongly; A= Agree; DA=Disagree, SDA =strongly disagree and DNK= I do not know.



	Q2.1	Q2.2	Q2.3	Q2.4	Q2.5	Q2.6	Q2.7	Q2.8
I do not know	2%	2%	0%	2%	0%	2%	6%	14%
Strongly disagree	11%	9%	31%	11%	17%	16%	20%	22%
Disagree	12%	15%	51%	12%	15%	28%	26%	31%
Strongly agree	9%	15%	11%	11%	18%	11%	8%	3%
Agree	66%	58%	8%	65%	49%	44%	40%	31%

Figure 4.5: Level of equitable access and affordable to water service

Figure 4.5 above provides results for the level of access of water services within the residents of Lephalale. The results of the participants of the study are interpreted below.

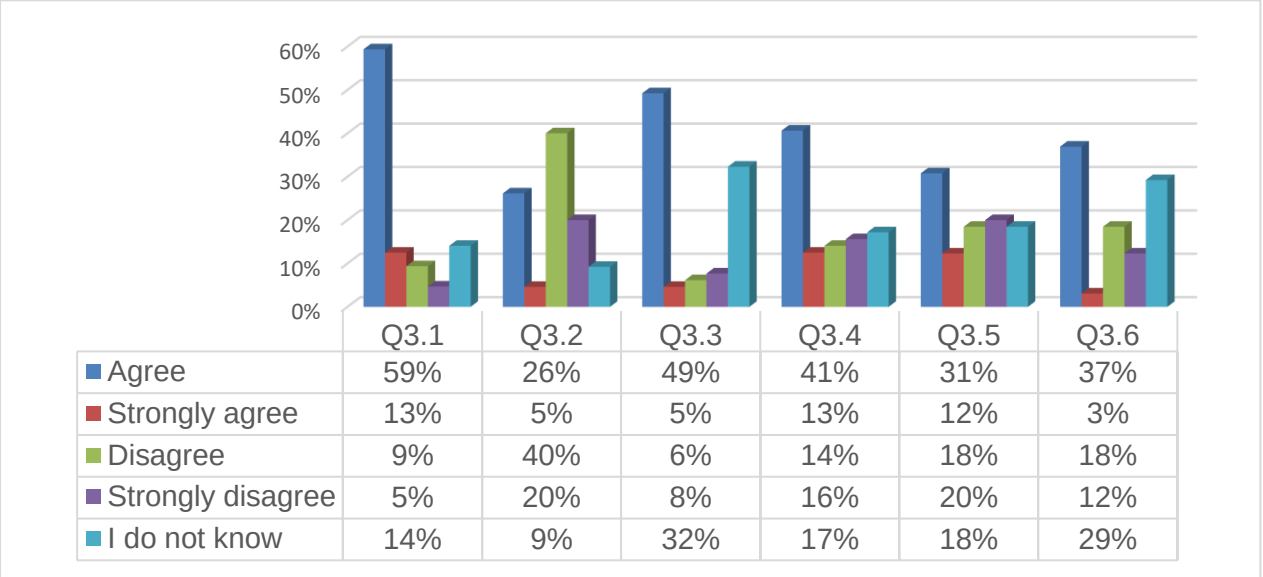
- The majority the responedents agreed 75.0% with the statement that - "*Residents are using an improved water service*", - while the minority of approximately 23.0% and 2.0% either disagree or do not know respectively. The result confirms the findings by WHO (2022) in the literature review that access to safe drinking water is measured by the percentage of the households having using improved water source, which is the case in Lephalale.
- Many of the participants agreed 73.0% with the statement that - *"Residents are using an improved sanitation facility",* - while the minority of approximately 24.0% and 2.0% either disagree or do not know respectively. The result of Lephalale participants concurs with the findings by WHO (2022) encountered in the literature review that the use of an improved sanitation facility by the residents indicates that there is access to water service provision.
- The data reveals that the majority 82.0% participants agreed with the statement that - *"Residents travel more than 30 minutes to get water"*, - while the minority of approximately 18.0% disagreed with the fact that residents travel more than 30 minutes to get water. The results of the participants in Lephalale confirm the finding by Moe and Rheingansr (2006) that not traveling more than 30 minutes to water is an indication of an improved access to water service provision.
- Most of the participants 76.0% agreed with the statement that - "*Residents use safe sanitation facilities adequately*", - while the minority of approximately 22.0% and 2.0% either disagree or do not know respectively with the fact that residents use safe sanitation facilities adequately. The results of the participants indicate that access to water and sanitation promotes better use of sanitation facilities adequately.
- The majority participants 67.0% agreed with the statement that - "*Residents are having household water connection"*, - while the minority of approximately 33.0% disagreed with the fact that residents are having a household water connection.

The results of the residents of Lephalale indicates that they are having a house water connection which also contributes to better or improved access to water services.

- Marginally more participants 55.0% agreed with the declaration that *"Water source provided is reliable"*, - while the minority of approximately 43.0% disagree, and 2.0% do not know whether the water source provided is reliable. The results of the participants in Lephalale indicate that the reliability of water resources depends on several issues that are at times beyond the accounting officer's control.
- Nearly half 48% of the respondents agreed with the statement that - *"Residents pay water services bills provided by the municipality",* - while approximately 46.0% disagree, and 6.0% do not know that residents pay water services bills provided by the municipality. The results of the participants in Lephalale indicate that up to half the residents pay their water services bill. The results are confirming the statement by WHO (2022) in the literature review that payment is attributed to the human right to water services enshrined in the constitution.
- A marginal majority 53.0% of participants agreed with the statement that - *"Residents can afford the water service bill provided by the municipality",* - while a minority of approximately 33.0% disagreed, and 14.0% do not know whether residents can afford the water service bills provided by the municipality. The results confirm the report by Phadi and Pearson (2017) that Lephalale has a mine (Exxaro) and two electricity generating stations (Matimba and Medupi) contributing to their working force, and that they can afford water services bills that are provided by the municipality.

4.5.2 Community participation in water service

In the assessment of community participation, the 65 respondents were asked the following questions - Q3.1, Water source is protected; Q3.2, Water source are maintained by the community; Q3.3, Water related diseases are reduced; Q3.4, Local leaders are playing a big role in mobilizing the community during water services projects; Q3.5, Community inputs are used to implement the projects;
Q3.6, Training is provided in water and sanitation projects. The results of the respondents are presented in the figure 4.6 below.



	Q3.1	Q3.2	Q3.3	Q3.4	Q3.5	Q3.6
Agree	59%	26%	49%	41%	31%	37%
Strongly agree	13%	5%	5%	13%	12%	3%
Disagree	9%	40%	6%	14%	18%	18%
Strongly disagree	5%	20%	8%	16%	20%	12%
I do not know	14%	9%	32%	17%	18%	29%

Figure 4.6: Community participation in water service

Figure 4.6 provides results of 'community participation in water service provision' of the residents of Lephalale. The outcome of the participant responses is interpreted below,

- Marginally more of the respondents 54.0% agree that – "Traditional leaders and councillors *are playing a big role in mobilizing the community during water service projects"*, - while17.0% do not know, and 30.0% disagreed that local leaders play a big role in mobilizing the community during water services projects. 38% of the participants are in urban and 18 % are in location, these are areas supplied by Exxaro and Eskom. The Municipality implemented only one water service projects in the previous year since a lot of the projects are planned for rural areas (IDP,2021/22). The results are in line with the Lephalale Local Municipality IDP (2021/22) that specified that participants are getting involved from the beginning of the projects until the end.
- Only 43% of respondents agreed that – "*Community inputs are used to implement projects"*, The findings of the study are in line with the Lephalale Local Municipality IDP (2021) that community inputs are done through councillors and at times they are done during IDP road shows. Whilst 38.0% disagree and 18.0% do not know.

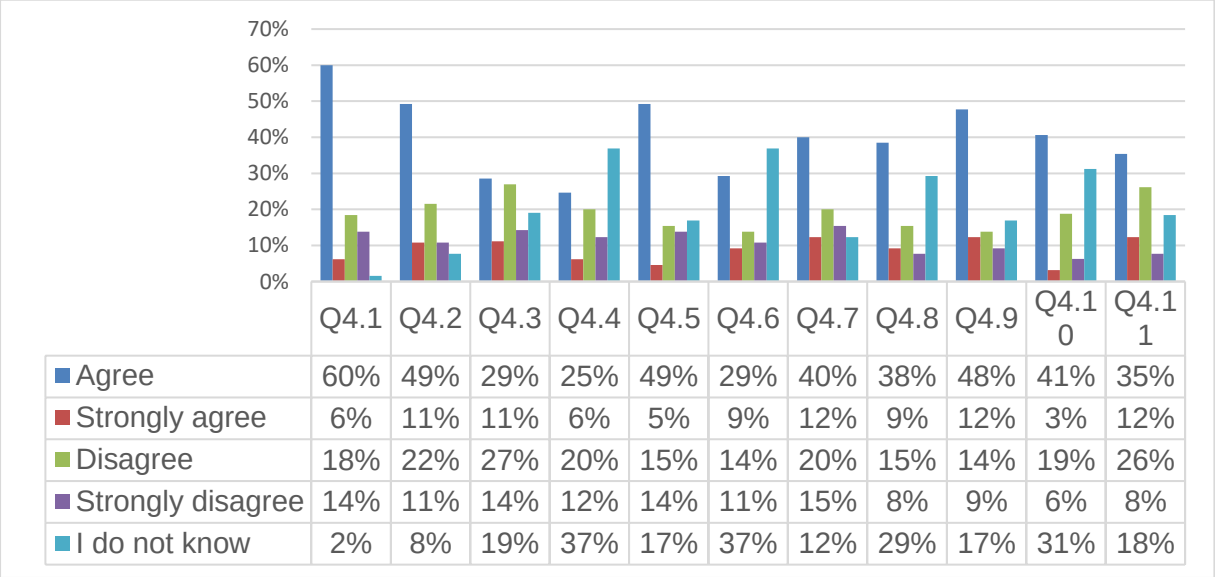
  The participants are residing in areas like urban, location and informal settlements where projects are rarely implemented.

- Up to 40.0% agreed that – *"Training is provided in water and sanitation projects"*.

  Whilst 30.0% disagreed, and 290% do not know. The results indicate that some training is provided during the water and sanitation projects. A greater awareness of training of the community needs to be considered.

4.5.3 Monitoring and evaluation in water service

In responding to questionnaires about 'monitoring and evaluation in water services provision', the 65 respondents answered the following questions - Q4.1, Water supply is regular; Q4.2, Water supply is of good quality; Q4.3, Sewer network system is working properly; Q4.4, The municipality disposes final sewer effluent that is of good quality; Q4.5, All pumped water from the reservoir is reaching the community or household; Q4.6, All sewer is pumped to the wastewater treatment works; Q4.7, Water and sanitation infrastructure is operated and maintained properly; Q4.8, The municipality has information to guide operations and maintenance; Q4.9, The municipality has operations and maintenance tools to work; Q4.10, The municipality takes operations and maintenance into consideration during projects; and Q4.11, The municipality has effective preventative operations and maintenance. The results from the residents are presented in Figure 4.7 below.



	Q4.1	Q4.2	Q4.3	Q4.4	Q4.5	Q4.6	Q4.7	Q4.8	Q4.9	Q4.10	Q4.11
Agree	60%	49%	29%	25%	49%	29%	40%	38%	48%	41%	35%
Strongly agree	6%	11%	11%	6%	5%	9%	12%	9%	12%	3%	12%
Disagree	18%	22%	27%	20%	15%	14%	20%	15%	14%	19%	26%
Strongly disagree	14%	11%	14%	12%	14%	11%	15%	8%	9%	6%	8%
I do not know	2%	8%	19%	37%	17%	37%	12%	29%	17%	31%	18%

Figure 4.7: Monitoring and evaluation in water service

Figure 4.7 provides the perceptions of the participants in terms of 'the level of monitoring and evaluation in water services provision'. The results of the participants are shown next.

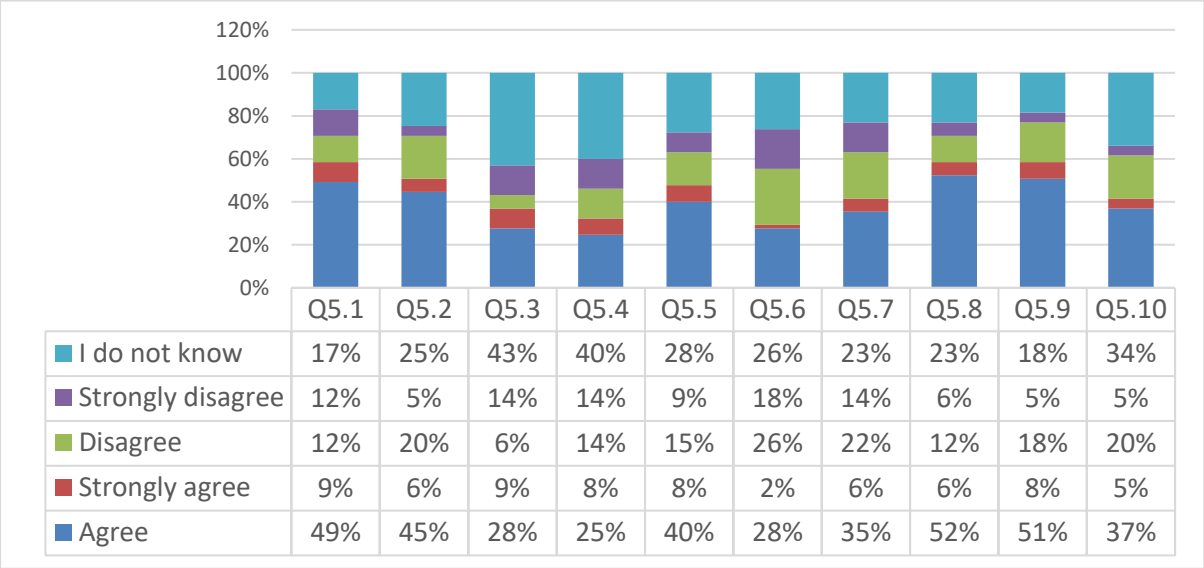
- Figure 1 above illustrates that 60.0% agreed and 6% strongly agree that – *"Water supply is regular",* - 18.0% disagreed and 14% strongly disagree, and 2.0% do not know. The results confirm the findings of Mokgobu (2017) who concluded that there will be mixed responses on the supply of water in most of the areas and so it is the case with Lephalale Municipality. The results are the social and politicised complaints like protests by *residents.* 6 in 10 respondents (49.0%) agreed and 11% strongly agree that – *"Water supply is of good quality",* - whilst 22.0% disagreed, and 11 % strongly agree and the minority 8.0% do not know. The results of the study relative to literature review of Mokgobu (2017) that when operations and maintenance are sustainable, cost effective and that there is an efficient approach to deal with waterborne diseases, there is a regular supply of water.
- Results reveal that 27.0% disagree and 14% strongly disagreed that – "S*ewer network system is working properly",* - whilst 29.0% agreed, and 11% strongly agree and 19.0% did not know. The findings of the study are in line with literature review of Matji and Ruiters (2017) that irrespective of the effort by municipalities there are still challenges such as namely, infrastructure delivery, asset management; water loss management, operation and maintenance, refurbishment of existing infrastructure are still a priority Infrastructure is being overloaded and having no plan for shutdowns to do proper maintenance.
- The finding indicates that 20% of the participants disagree and 12% strongly disagree, 25% agree and 6% strongly agree and 37% do not know if the municipality exposes sewer of good quality. In contrary to the findings of Sojobi and Zayedi 2022 that exposure of sewerage to water source has impact to environmental and social life.
- The result indicates that 49% of the participants agree and 5% strongly agree and 15% disagree and 14% disagree, while 17% do not know if all pumped water from the reservoir is reaching the community or household.

- Furthermore, the result indicates that up to 29.0% of respondents agree, and 9% strongly agree, while 37.0% do not know, and 14% disagree and 11% strongly disagree that – *"All sewer is pumped to the wastewater treatment works".* The results indicates that sewer accumulated from households is pumped / distributed to the wastewater treatment works, the sewer received at the wastewater is the same amount of sewer pumped from pump stations.
- Moreover, 40% of respondents agree and 12% strongly agree that – *"Water and sanitation infrastructure is operated and maintained properly"*, - whilst 20% disagree and 15% strongly disagree, and 12.0% do not know. The findings are like Matji and Ruiters (2017) encountered in literature review that some South African authorities equate well with the New Zealand authorities regarding many aspects of infrastructure maintenance, which assist with proper operation and maintenance.
- The result indicate that 38% of the respondents agree and 9% strongly agree, 29% do not know while 15% disagree and 8% strongly disagree that, the municipality has information to guide operations and maintenance.
- Furthermore the result indicates that, 48% of the respondents agree and 12% strongly agree, while 14% disagree and 9% strongly disagree and 17% do not know that: the municipality has operations and maintenance tools to work.
- The result indicates that 41% of the participants agree and 3% strongly agree, while 31% do not know and 19% disagree and 6% strongly disagree that: the municipality takes operations and maintenance into consideration during projects.
- Up to 35% of the participants agree and 12 strongly agree, whereas 26% disagree and 8% strongly disagree and 18% do not know that: the municipality has effective preventative operations and maintenance.

4.5.4 Challenges facing municipalities in accounting for sustainable development in water service.

The residents responded in the questionnaire to weigh in on the challenges facing municipalities in 'water service provision' by answering the following questions. Q5.1, The municipality has enough skill or capacity to provide service delivery; Q5.2, The municipality staff morale is good when conducting their duties; Q5.3, The municipality is following supply chain policies in the allocation of tenders; Q5.4, The

municipality is allocating tenders to the right companies; Q5.5, The municipality can provide service delivery with the available financial provision; Q5.6, The municipality completed water and sanitation projects allocated; Q5.7, The community adequately participate in the developmental needs of their communities; Q5.8, The municipality has budget to provide water and sanitation; Q5.9, The municipality maintains its infrastructure for service delivery; and Q5.10, The municipality is accounting on service delivery provision to communities. Figure 4.8 below illustrates the results sourced from the respondents.



	Q5.1	Q5.2	Q5.3	Q5.4	Q5.5	Q5.6	Q5.7	Q5.8	Q5.9	Q5.10
I do not know	17%	25%	43%	40%	28%	26%	23%	23%	18%	34%
Strongly disagree	12%	5%	14%	14%	9%	18%	14%	6%	5%	5%
Disagree	12%	20%	6%	14%	15%	26%	22%	12%	18%	20%
Strongly agree	9%	6%	9%	8%	8%	2%	6%	6%	8%	5%
Agree	49%	45%	28%	25%	40%	28%	35%	52%	51%	37%

Figure 4.8: Challenges facing the Municipality.

Figure 4.8 above presents the result of the challenges facing the municipality in 'accounting for water services provision'. The results are interpreted below as per the questions posed. The overall result is interpreted next.

- Figure 4.8 indicates that 58.0% of respondents agreed that – *"The municipality has enough skill or capacity to provide service delivery"*, - whilst 24.0% disagreed, and 17.0% do not know.

  This reveals that the municipality has enough skill or capacity to provide service delivery. However, the results contradict Davids (2022) findings encountered in the literature review that states that municipalities lack personnel with technical skills, and if they do, they have municipal personnel who cannot perform their functions.

- Half the respondents 51.0% agree that – *"The municipality staff morale is good when conducting their duties"*, - while 25.0% disagreed and 5.0% do not know. The results indicate the willingness of Lephalale maintenance team to work and they take responsibility of their duties very serious.
- Up to 43.0% of respondents do not know if the municipality is following – "Supply chain policies in the allocation of tenders", - whilst 37.0% agreed they do, from respondents in urban and location and 20.0% disagreed from respondents that are in urban and location at the same time being municipal officials and councillors. The 43% is from some participants in the rural areas and informal settlement who do not know supply chain policies and procedures. The results indicate that most participants who are in the rural and informal settlement are not aware of supply chain procedures and policies.
- Up to 40.0% of respondents don't know about whether the municipality has a tender process, whilst 33.0% agreed that – *"The municipality is allocating tenders to the right companies"* and 28.00% disagreed. The results indicate that the participants in Lephalale are not aware of procedures of tender allocation.
- Almost half 48.0% of respondents agreed that – *"The municipality is able to provide service delivery with the available financial provision",* - while 28.0% do not know, and 24.0% disagreed. The outcome of the study illustrates that Lephalale is still able to provide services with the current financial allocation.
- A fair majority 44.0% of respondents disagreed that – *"The municipality completed water and sanitation projects allocated"*, - while 30.0% agreed, and 26.0% do not know. The results thus reveal that Lephalale is unable to finish projects within the given time frame.
- Up to 41.0% of respondents agreed that – *"The community adequately participate in the developmental needs of their communities*", - whilst 36.0% disagreed, and 23.0% do not know. The results indicate that there is community participation taking place in Lephalale.
- A larger 58.0% majority of respondents agreed that- *"The Municipality has budget to provide water and sanitation"*, - while 23.0% do not know, and 18.0% disagreed. The results illustrate that there is support from external stakeholders in the provision of water and sanitation.

- A majority 59.0% of respondents agreed that – *"The Municipality maintains its infrastructure for service delivery"*, whilst 23% disagreed and 18% do not know. This reveals that Lephalale, like many municipalities, is maintaining its infrastructure.
- Up to 42.0% respondents agreed that – *"The Municipality is accounting on service delivery provision to communities"*, - whilst 34.0% do not know, and 25.0% disagreed. This indicates that Lephalale can identify, recognise, quantify, report, and assure information about water, privileges and other rights to water and duties against water.

4.6 SECTION THREE: QUALITATIVE DATA ANALYSIS

The subsequent section is about the application of qualitative information to strengthen the quantitative findings, assisting to develop agenda reliability. The qualitative part of the study applied a case study research design centred on interpretivism research philosophy. Strauss and Corbin (1998) and Ghauri and Gronhaug (2003:65), revealed that qualitative approaches are common in social sciences for authentication of structures as it offers the researchers with the capability to recognize skills of the participants. Also, the qualitative stage strengthens quantitative outcomes and supports the validation of the quantitatively developed context. McGloin (2008:45) indicates that qualitative study is involved with the description of a societal occurrence concentrating on society's conduct the effect of experiences on individuals, cultural effect, developments, and variations in community setting.

The qualitative stage of research accelerated the representation of encounters which couldn't be conveyed in statistics (Strauss and Corbin, 2003; Berg, 1989). It stressed knowledge from the respondent's viewpoint, understanding and the logical method, observations and measurements in natural locations, particular and insider picture and closeness to the information. This approach allowed the researcher to investigate accounting for sustainable development' in terms of water services within the Municipality. This informed the study on the perceptions of the whole conduct and disputes confronting municipalities in water service provisioning.

The researcher listed a few open-ended questions requiring participants to write or express their opinion in a form of a narrative or statement about questions asked. The researcher read what the participants had to say about each question. Similar questionnaire was dispensed to all 65 respondents and their responses were compared to obtain an overall picture of their views. The recurring themes and patterns were then identified and analysed.

4.6.1 Views or opinions of how the provision of water and sanitation has improved the lives of communities.

The views or opinions of respondents to the above question varied:

- 31.0% (20) do not know how the provision of water has improved the lives of communities.

  The one who expressed opinions and views said:" I do not know, we had water services since we started staying here long ago".
  Most of the participants who share the same sentiments are the ones staying in urban and location.
  The views illustrate that 'water service provision' has never been an issue in urban areas and location which confirms the findings by Phadi and Pearson (2018) in literature review.

- 25.0% (16) of respondents indicated that currently residents have easy access to water and sanitation provision.
  One of the participants said: "through proper access not having to travel long distance."
  who expressed opinions and views if the provision of water and sanitation has improved their lives of communities said:"
  The responses are in line with Agenda 2030, and participants who were answering this way are in the rural areas.

- Then again, 23.0% (11) of respondents reiterated that the provision of water has improved their livelihood.

One participant said that:" it has improved the livelihood of people, because they no longer travel long distance to get water everything is closer."

The responses are like that encountered in International Labour Office (2017), namely that rural livelihoods are often dependent on adequate water services provision.

- This was opined by participants in the informal settlement in Lephalale, followed by 5.0% (3) of participants who started to open business opportunities.
  The one participant said that: "due to clean water supply some community members have started doing business in the community, some by selling bottled water."
  The response was alluded to by participants in Marapong location. A few participants lost their jobs and started a car wash business since it was difficult for them to get a job.

- Lastly, 6.0% (4) recognised an improvement in health due to the provision of water and sanitation.

  One of the respondents said: "Because water and sanitation disease such as cholera and diarrhoea are no longer affecting people."

  The participants in Lephalale in the informal settlement posit that they have improvement in health, similarly to Lancet's (2005) findings.

4.6.2 Opinion if water and sanitation provision is sufficient for the future generations.

The researcher categorised data based on the response for it to make sense. The results from 65 respondents illustrate different views.

- The greater majority 41.0% of the respondents do not know if 'water and sanitation provision' is sufficient for the future generation.

Response of the participants: “I do not know. I have no idea where water comes from.”

The responses of the participants indicate that they lack knowledge of water source within their area. In contrary Oremo, Mulwa and Oguge (2019) indicate that knowledge on water sources is necessary in the development and implementation of policy decisions on water resource management.

- 30.0% think that ‘water service provision’ is insufficient.

The one participant said that: “It cannot be sufficient since we currently experience problems. It means even in future the problem will be worse.”

This response is from participants in Marapong Location since other areas do not get water. The result is parallel to that of the National Water Resource Strategy (2014) that the country will not be able meet its demand for water in the future.

- Lastly, 24.0% believe that ‘water and sanitation provision’ is sufficient for the future generation.

Responses from one participant said that: “The current supply is more than enough for our community. The provision is also enough due to the slow growth of our town. It will be sustained even in the future.”

The response is from some residents of Lephalale in Onverwacht and Town who have never been subjected to water shortage; interruption of supply happens only during maintenance or repairs.

In the contrary Boreti and Rosa (2019) argue that many countries are already experiencing water scarcity and many more will face a reduced availability of surface water resource by 2050.

4.6.3 Views or opinion if water and sanitation can be able to cater for the growing population.

The respondents provide a wide array of views whether ‘water and sanitation’ can be able to cater for the growing population.

- Up to 31.0% of participants do not know if ‘water and sanitation’ can be able to cater the growing population.

  Response from one participant: “I do not know; we use street taps we never experience any problems.”

  The views of the participants indicated that respondents do not experience any water shortages. In the contrary, Igamba (2022) argue that South Africa is already a water scares country.

- 26.0% think that ‘water and sanitation’ cannot be able to cater for the growing population.

  View from one participant: “No, there are many mines that would like to resume activities the problem is water.”

  The response shows that there is a need for improvement in terms water services provision within the area, to allow for development.

- 9.0% of participants think that ‘water and sanitation’ can be able to cater for the growing population.

  One participant said that: “through the implementation of water conservation and demand management strategies.”

  The response of the participants in Lephalale indicates that the water services are sufficient.

- A minority 8.0% opined that an upgrade is required.

  The participant said that: “upgrade is required; growing population requires additional water allocation.”

  The responses are in line with the National Strategic Framework which indicated that there is a need to improve the current infrastructure demand in water services to meet the 2030 agenda on sustainable development.

4.6.4 Explain how the community get involved in projects.

Respondents expressed their views in various ways.

- A majority of 71.4% do not know how communities get involved in projects.

  Response of one participant said that – “I do not know, many projects in Lephalale are implemented in rural areas”. These respondents, who do not know how the community get involved in projects, reside in urban and location areas. In the contrary Huvugimuna (2013) posits that factors such as community awareness about projects influence community participation.
- 16.0% get involved through employment opportunities posed by new projects.

  One participant said that: “we are invited by councillor to a community meeting with identity documents so that we can be employed as labours.”

  Water services projects are perceived as job creation for the community.

- Other respondents 25.0% get involved through community engagements sessions.

  One participant from Onverwacht posit that “we get involved through IDP road shows.”

4.6.5 Explain how the communities are involved in water and sanitation projects.

Though the above question is not far from the previous question in-terms of its context, it was a bit tough to get a clear answer from the respondents. These responses are summarised as follows:

- Approximately 35.0% of the respondents do not know how the communities get involved in water and sanitation projects.

  One participant said: “I do not know; there has never been such here.”

  Most of the response is from participants who reside in Onverwacht and Town.

- Up to 38.0% of the respondents claim to get involved in ‘water and sanitation projects’ as an employment opportunity.

  One of the respondents eluded that - “there are no job opportunities, projects are the only way we can be able to feed our families”.

- A further 16.0% of respondents were never involved in any water and sanitation project.
  One participant said that: “There has never been any project here.”

  These are the respondents for whom a water project was never implemented in their area they reside in. The responses are in contrast with the literature review of Arnstein (1969) and Choguill (1996); under normal circumstances, the stages of community participation are followed.

4.6.6 Express your views and thoughts of the water and sanitation services infrastructure.

In attaining responses to the above question, the 65 respondents answered differently.

- Up to 47.0% of the respondents do not know or have any views or thoughts about the ‘water and sanitation service infrastructure’.
  One of the participants said that: I do not know, always improving.

  The respondents are happy to be receiving their current water service provision and they do not see anything wrong with this.
- 23.0% of respondent posit that ‘water and sanitation service’ require an upgrade.
  One participant said that: “For urban areas water supply is adequate but for rural areas there is a need for the Municipality to work on lots of upgrades.”

- A further 14.0% think that it is in poor condition, or the quality of the infrastructure is very poor.

  One of the participants said that: “it is in a poor condition requires to be replaced.”
  The response confirms the findings of Phadi and Pearson (2018) that the Municipality is faced with inherent old infrastructure in water service provision that leads to loss of water.

- A small minority, 6.0% of respondents, think that the water and sanitation infrastructure is in good condition.

  One participant said that: “both water and sanitation are in good condition.”

  This response is a very rare response encountered to find a few participants being satisfied with the water service provision.

4.6.7 Explain how the community is benefiting from the provision of water and sanitation.

To answer the above question, the 65 respondents provided various answers.

- Majority 41.0 % of the respondents opined that the community is benefiting from the provision of water and sanitation through improved access to water services.

One of the respondents said that: “the poor gained directly from improved access to basic water and sanitation services through improved health.”

The response confirms the findings by Texopeus (2019) encountered in the literature review that: “… water service providers should provide clean water children and their families can count on”. This response is from some participants in Marapong, rural areas, and informal settlements.

- 30 % of the respondents do not know how the community is benefiting from the provision of water and sanitation.

  One of the respondents said that: “I do not know, we always had water.”

  These respondents were never deprived of water services because they live in Town and Onverwacht.

- A small minority 11.0% think that they have a business opportunity and better health respectively.
  One of respondents said that: “we have a lot of car wash business operating in our area”.
  An improved water service boosts economic growth and contributes greatly to poverty reduction (Sanctuary, 2007).

4.6.8 Express your views or thoughts of the skill gained from water service provision projects.

The researcher summarises the various answers of the 65 respondents to the above question below.

- Majority 57.0% of respondents do not know or have any views or thoughts regarding skills gained from ‘water services provision projects.

  One of the participants said that: “I do not know; I was never in projects.”

  These are some respondents who never participated in projects in Town, Onverwacht and Marapong.

- 20.0% of the participants, although claiming they took part in the projects stated they were never trained, or no skill was gained from this activity.

  One of the participants said: “I do not think there is any skill gained”.

  This response is from participants in the rural area who were involved in water projects.

- A minority of 24.0% believe participation was just for compliance purposes.

  One of the participants said that: “for compliance purpose as no one I know has ever used the skill for anything else.”

  These participants said that the training gained from the projects will not be used to get permanent jobs. The participants indicated that they were trained on how to use the recent VIP toilets constructed in their area.

4.6.9 List challenges facing municipality in the provision of water and sanitation services.

Respondents listed a few challenges that faced the municipality in ‘the provision of water and sanitation services. One respondent listed a few challenges; hence the percentage might be higher than the average score of 100 per cent.

- Out of the 65 respondents, 29.0% mentioned old infrastructure 19 times.

  One of the participants said that: “old infrastructure, budget, vandalism”.

  The response confirms the findings of Modimowabarwa (2014) and Texopeus (2019) encountered in the literature review.

- The researcher came across 18 (28.0%) participants who do not know any challenges the municipality faces in ‘the provision of water and sanitation service’.

  One the respondents said that: “Aged infrastructure, understaffed and insufficient budget”.

The responses are in contrast with Lee and Schwab (2005), Modimowabarwa (2014) and Texopeus (2019) encountered in the literature review; these are challenges facing the municipality.

- Insufficient budget or lack of budget has been mentioned by 12 (18%) participants.

  One of the participants said that: "Budget is the biggest challenge that affects water and sanitation."

  The response confirms the findings of Mohammed (2020) that was encountered in the literature review.

- Theft and vandalism are pointed out by 11 (16%) participants.

  One of the respondents said that: "theft and vandalism and old infrastructure."

  The response confirms the findings of Texopeus (2018) and Modimowabarwa (2014) encountered in the conducted literature review.

4.6.10 Explain briefly how the municipality informs the public of the interrupted water and sanitation services.

The responses of the 65 participants responding to the above question are:

- The majority 46.0% of respondents responded – "do not know … have never seen … not applicable" - and have no idea how the municipality informs the public of the interrupted water and sanitation service.
  One of the participants said that: I do not know, no information is given to the community.

  The results indicate that Lephalale is contravening the WSA 108 of 1997 which compels municipalities to provide information concerning water service provision.

- 29.0% of participants stated that the municipality does inform the public of the 'interrupted water and sanitation services' through social media, Facebook and radio station.

  One of the participants said that: "because of technology people use social media to inform them."

  This response confirms the finding of Toxopeus (2019) and the requirement by Water Services Act 108 of 1997.

- 17.0% of the respondents stated they derive information through the mayor, ward councillors, headman, notice board and newspapers via word of mouth because they do not have access to social media, but are reliant on word of mouth in the rural areas.

  0ne participant said that: "from time to time the Municipality engage with community members through community forums, imbozo, community meetings and other media platforms."
- The remaining 9.0% are not informed at all. The response is in contrast with literature review, in terms of Section 32 of the Constitution and the Paia as well as Section 31 of the Nema. This means that access to information can be requested from public bodies as well as from a natural or juristic person who is not a resident of Lephalale.

4.6.11 Explain how the municipality is informing the community about their water and sanitation provision progress.

The 65 respondents when explaining how the municipality is informing the community about their water and sanitation provision progress.

- 71.0% of the respondents do not know how the municipality is informing the community about their water and sanitation provision progress.

  One participant said that: "I do not know, we are never informed about any water and sanitation progress."

The responses are in contrast with the finding of Enshassi *et al.* (2016), and Algotson and Murombo (2009) they discovered that information is necessary not only for effective communication but also to hold municipalities accountable.

- 29.0% of respondents claim to listen to the radio interview of the mayor of the local radio station.
  One of the participants said that: “we are informed through media and local radio station.”

  The responses confirm the findings of Algotson and Murombo (2009) that information in some cases must be decoded into a language that residents can understand.

4.7. OBSERVATION

- Water shortages are common in some areas of Lephalale that have house connections, especially Marapong Extension 4, and some villages.
- The municipal area has a sewer smell or is characterized by blocked sewer systems that take longer to repair and failing sewer pump stations.
- There is no specific turnaround time in terms of repairs.
- The municipality still uses the old way of operations and maintenance.
- In informal settlements, residents still share sanitation facilities and taps.
- In the urban area, the municipality tends to restore or repair services faster than in rural areas or the location.
- There is rarely a community meeting in urban, and location and informal settlements.
- Most of the projects are implemented in the rural areas.
- The municipality is experiencing a lot of cable theft from sewer pump stations, freshwater pump stations, and main electrical supply mini substations by residents.
- The municipality has a few water services unfinished projects in the rural areas.
- Some projects are taking longer to complete.
- It takes the municipality longer to fill critical positions.

- The municipality has full control over operations and maintenance of water service infrastructure.
- Disruption of service is usually publicized on the municipal Facebook page.
- The mayor engages the community through a local radio station.

The above observation indicates a fair level of water service provision within Lephalale. The life of the residents is compromised by the high level of sewer spillage caused by cable theft and blockages that take longer to repair. The residents must wait long hours for water to be restored during repairs. The quality of water service within Lephalale is at stake.

4.8 CONCLUSION

Chapter four provided a presentation and interpretation of results of the study. This was done to answer the research questions of the study. The data was collected from the four areas of Lephalale Local Municipality and municipal officials. The results presented were based on data collected through open-ended and closed-ended questionnaires, observation, and documents. Results were organised in figures with discussions to provide answers to the research questions probed. chapter 5 will summarise the 4 chapters and provide summary, findings conclusions and recommendations based on the analysed data derived.

CHAPTER 5: SUMMARY, FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

Chapter 4 presented and interpreted the research results. This chapter discusses summary findings, conclusions, and recommendations of the study. The title of the study embarked on is ‘accounting for sustainable development in water service’ in Lephalale Local Municipality. The South African constitution mandates municipalities to provide water services in their area of jurisdiction, and furthermore, to be accountable. Many municipalities struggle to provide such service even though they are provided with the necessary support and Lephalale is no exception.

The aim of the study was to investigate accounting for sustainable development in water services provision in the Lephalale Local Municipality. Nevertheless, the issues of water services do not only affect residents in town, but the residents of Lephalale including the villages, informal settlement, and location. The importance of community engagement cannot be underestimated as they are the ones affected by the quality of service they receive. Based on the results of the report, it is apparent that an unrealistic leader with the resident’s interest at heart is paramount for the municipality to function successfully and professionally.

5.2 SUMMARY OF THE RESEARCH STUDY

The study is limited to the water services in the Lephalale Local Municipality area. Nonetheless, the ‘accounting for water services’ is not confined to this municipality only. Recommendations made in this study might be relevant to other municipalities even in other provinces. The research study comprises five chapters which are summarised below:

Chapter one discussed orientation of the study, aim, and objectives of the study. The chapter further formulated the problem statement, the sub-investigative research questions, and significance of the study, presented a literature review, research design and methodology and ethical considerations of the study. Moreover, justification of why the study should be conducted within the Lephalale Local Municipality.

Chapter two covered an in-depth literature review on accounting for sustainable development in water service of the study theme. In doing that, the researcher was guided by the following subheadings: introduction, conceptualising water accounting, global perspective in accounting for water services, national perspective in accounting for sustainable development, sustainable development theory. Furthermore, the study examined and selected various data source, both primary and secondary including theses, books, journals, and articles to understand the objectives of the study.

Chapter three discussed the research methodology and design of the study. Moreover, the research design, data collection method, validity and reliability and explanation why such approaches were used were covered. Furthermore, it specified the process which was followed in data collection for ‘accounting for sustainable development in water service provision; in the Lephalale Local Municipality.

Chapter four offered presentation and interpretation of research results. The data captured from administered closed and open-ended questionnaires, and observations. The responses from various participants were reviewed to understand their response on accounting for sustainable development in water service provision.

Chapter five discusses the summary, findings, conclusion, and recommendations of the study.

5.3 OBJECTIVES OF THE STUDY

The study attempted to attain the following objectives, namely, to explore the level of equitable, access, and affordable water services within the municipality, evaluate community participation of water services, assess the monitoring and evaluation of water services within Lephalale, and explore challenges the municipality faces in accounting for sustainable development in water service. The study was conducted in the following areas, Town, Onverwacht, Location (Marapong), Villages and informal settlements. The research question, summary, findings, conclusion and recommendations of the study are expounded upon in this chapter.

5.4 RESEARCH QUESTIONS OF THE STUDY

To achieve the objectives of the study, the researcher developed guiding questions which are as follows: What are the levels of equitable, safe and affordable water services within the municipality? Is the community strengthened and supported in the participation of their water services? What are the monitoring and evaluation frameworks of the municipality in water services? What are challenges the municipality faces in accounting for sustainable development in water service?

5.5 FINDINGS

The findings were derived from the data collected through questionnaire, observation, and document analysis to address the objectives of the study. The findings for each objective of the study are outlined below in two sections.

5.5.1 Key Findings

5.5.1.1 Level of equitable access and affordable water service

The study revealed that the residents of Lephalale in urban, location, rural and informal settlements have access to water service provision. They are using an improved water service and sanitation facilities which are in line with the World Health Organization standards. Furthermore, the study found that the residents do not travel more than 30 minutes to get water in rural areas and informal settlement. The study revealed that the residents of Lephalale in urban and locations use a safe sanitation facility within their homes and some in the rural areas are provided with Ventilated Improved Pit (VIP) latrines. The use of a safe sanitation facility is prompted by a household water connection and a reliable water source as indicated by the residents of Lephalale.

The study revealed that the residents of Lephalale in urban and locations pay their water services bill, and they can afford to pay for such bills when being billed by the municipality. The study further revealed that the municipal area is characterized by burst pipes of water and sanitation and it takes longer to repair. The municipality still uses the old way of operating and maintenance tools.

In informal settlements various households still share sanitation facilities and taps. In the Urban area, the municipality tends to restore or repair services faster than in rural areas or locations.

5.5.1.2 Community participation in water service

The study revealed that residents of Lephalale are not involved in water and sanitation projects or any projects. Communities do not know how to get involved in projects. Moreover, when they participate it is through employment opportunity. The study further finds that the residents of Lephalale lack formal education that inhibits public participation. Residents of Lephalale have insufficient knowledge to examine progress for the execution of projects. There is inadequate involvement of the community to monitor the performance of the municipality in the rural areas, and only residents in urban are doing that. There is rarely a community meeting in urban, locations, and informal settlements.

The study also revealed that local leaders play a vital role in mobilising the community during water service projects, but there is minimal participation. The study exposes that community inputs are used to implement the projects and that training is provided. The municipality does not provide the community wastewater quality result information when it comes to sewer waste disposal. The information is for compliance purpose, the municipality cannot be measured by the residents on complying with legislation in term of their mandate.

5.5.1.3 Monitoring and evaluation of water service.

The study finds that water supply in Lephalale is regular and of good quality in urban, locations and informal settlements. This is not the case for rural areas as the ground water is of poor quality. Furthermore, the study revealed that the sewer network is working properly, all sewer pumped from the sewer system reaches the wastewater treatment works. This happens, although the Lephalale is surrounded by old infrastructure that requires to be replaced. The study revealed that water services infrastructure is operated and maintained properly. This is done by the municipal official and there is budget allocation for such activities though not enough. The study finds that the municipality has information to guide operations and maintenance and has operations and maintenance tools to work with.

Moreover, the study revealed that the municipality takes operations and maintenance into consideration during projects. Lastly, the study revealed that the municipality has effective preventative operations and maintenance.

5.5.1.4 Challenges facing municipality in accounting for sustainable development in water service.

The study finds that the municipality has enough skill and capacity to provide service delivery. It takes the municipality longer to fill critical positions which hinder service delivery provision. The study reveal that the municipality is unable to complete water and sanitation projects allocated. Most of the water services projects are implemented in the rural areas. The municipality has a few water services unfinished projects in the rural areas while some projects take longer to complete.

The municipality lacks internal and external evaluation tools to monitor internal audit activities. Lephalale has minimal capital spending on own financed projects since it does not collect enough revenue due to some undetectable debtors. The municipality is experiencing a lot of cable theft from sewer pump stations, freshwater pump stations and main electrical supply mini substations by residents. The municipality does not have a formal communication module that can cater for all residents of Lephalale. The following main challenges were also discovered - old infrastructure, insufficient budget, theft and vandalism, Furthermore, lazy workers, poor management, bad water quality, understaffing, and lack of skills affected performance negatively.

5.5.2 Some unintended findings

When aligning the findings with the four pillars of sustainable development of -social, economic, environmental, and institutional, the study discovered the following:

- The researcher finds that Lephalale was able to attain social responsibility through reduction of time for fetching water in rural areas.
- Economic sustainability was achieved through payment of water service provision by residents both in urban and locations and improved livelihood and health.
- Access to water service provision has also prompted business opportunity.

- Environmental sustainability was attained by using sanitation facilities that are safe through the provision of VIP toilets and household sewer connection driven by reliable water source.
- Institution sustainability was achieved through plans to increase access as there are prominent mines that want to start-up in Lephalale.
- Access to water service provision is sustainable since all the four pillars of sustainability are achieved.

The main pillar of sustainable development being social sustainability and is not achieved in terms of community participation in water services provision. There is lack of community participation in all the areas in Lephalale. The economic sustainability is also not achieved since developmental needs are not identified by the residents and projects are unable to be completed. The environmental sustainability is not attained since the results of disposable sewer water is not published for residential knowledge, is an indicator that the municipality is hiding something.

Social sustainability is not achieved in terms of monitoring and evaluation of water services as done by the municipality. The economic sustainability is also not achieved, since all the required personnel and budget to do operations and maintenance is done by the municipality. The environmental sustainability is not attained since old infrastructure is characterised by a lot of sewer pipe burst which takes longer to repair. Monitoring and evaluation of water service provision is not sustainable.

5.6 LIMITATIONS OF THE STUDY

The study was confined to Lephalale Local Municipality water services. Since Lephalale is a small municipal area, the study was limited to Lephalale Town, Onverwacht, one location (Marapong), two informal settlements (Mamojela Park and Mahlakung) and two villages (Shongoane and Ga-Monyeki). The study was further limited to explore the level of ‘water service provision’ in line with few the objectives from the 2030 Agenda on Sustainable Development. A few objectives were selected from the 2030 Agenda on Sustainable Development. The questionnaire was constructed from the deliverable of each objective.

5.7 FURTHER RESEARCH AREA

The study found that:

- Lephalale has a problem of community participation and accounting for sustainable development. This is of concern to the residents of Lephalale as it undermines their right to information.
- Numerous studies have been conducted about community participation, and accounting for sustainable development in water services provision.

The researcher recommends that more studies be conducted on this title to address other objectives relative to water service provision. The study should at the same time add more objectives that were not touched upon in this study to ascertain how far the municipality is in terms of 'sustainable development in water services provision'.

5.8 CONCLUSION AND RECOMMENDATIONS

The study was able to conclude that the residents of Lephalale have sustainable access to water service provision in urban, location, rural and informal settlements, but this requires upgrades. This happens even though they use different sources of water. In terms of community participation in water services, the residents are not participating - they are just provided with services that they are not in the know or agreement of. This affects monitoring and evaluation of water services because they must wait for maintenance teams that take longer to respond. Monitoring and evaluation of water services is done with the correct tools.

Lephalale monitoring and evaluation is done, though there are challenges within the municipality that makes the effort to be limited or little. Lephalale Local Municipality, like many municipalities, is faced with challenges that when not resolved the municipality will be in trouble. The study also found that during normal operations of water services the municipality is still not complying with some legislative framework caused by old infrastructure. The study provided recommendations to remedy the challenges they face with water services that lead to unsustainable water service provision.

The researcher introduces the following recommendations to remedy the challenges faced by the municipality in water services that will ensure a sustainable provision. The recommendation should assist the Lephalale and other municipalities with water service provision.

The municipality should request additional funding to upgrade water services infrastructure, so that the future generation can be able to benefit.

- The municipality should develop mechanism that will encourage community participation. This will help when it comes to needs analysis for the residents.
- Formal training is required to increase the level of education for the resident of Lephalale. This will assist with monitoring and evaluation by the community.
- The available infrastructure requires to be refurbished, to reduce breakdowns.
- High technical positions should be filled within the limited time frame with the relevant skill for the position.
- The municipality should change and reinforce the culture of accountability.

After the analysis of the study, the municipality is not giving community participation and accounting for sustainable development the necessary consideration it requires. This is a concern as this affects monitoring and evaluation of the water service within the municipal area. This necessitates that the municipality develop public participation forums that are inclusive of awareness campaigns to assist in accounting. Training of municipal officials on a regular basis on project management, financial management and reporting is vital. This will assist in acquiring the necessary increment of budget from the external stakeholders.

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APPENDIX 1: QUESTIONNAIRE

My name is Selina Magugudi Makgatho, I am a student at the University of South Africa (UNISA).I am conducting a study in the fulfiLephalale Local Municipalityent of Master's degree in development studies. The purpose of this questionnaire is to obtain your views, opinions and experience regarding water service provision in Lephalale Local Municipality. I will be taking your response to generate a report about your experience. It will only take five minutes of your time to respond to the questionnaire. Your responses are anonymous, confidential and not tracked.

INSTRUCTIONS:

- *The questionnaire is divided into three sections section 1, section 2 and section 3.*
- *Please answer all questions as honestly as possible.*
- *Please complete the questionnaire by making a cross or a tick on the answers provided.*
- *Write as clearly as possible.*
- *Do not write your name anywhere on the questionnaire.*
- *Use a pen when completing the questionnaire.*

SECTION 1

1. BIOGRAPHICAL DATA

1.1 Gender of respondent.

Male	Female

1.2 Age of respondent.

18-30	31-40	41-50	51 and above

1.3 Highest qualification.

Grade 2-12	N1-N6	Diploma	Degree & above

1.4 Residential area.

Urban	Location	Rural	Other

SECTION 2

2 LEVEL OF EQUITABLE ACCESS AND AFFORDABLE TO WATER SERVICE

2.1 Residents are using an improved water service.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

2.2 Residents are using an improved sanitation facility.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

2.3 Residents travel more than 30 minutes to get water.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

2.4 Residents use safe sanitation facilities adequately.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

2.5 Residents are having household water connection.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

2.6 Water source provided is reliable.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

2.7 Residents pay water services bill provided by the municipality.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

2.8 Residents can afford the water service bill provided by the municipality.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

3. COMMUNITY PARTICIPATION IN WATER SERVICE

3.1 Water source is protected.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

3.2 Water sources are maintained by the community.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

3.3 Water related diseases are reduced.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

3.4 Local leaders are playing a big role in mobilizing the community during water service projects.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

3.5 Community inputs are used to implement the projects.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

3.6 Training is provided in water and sanitation projects.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

4. MONITORING AND EVALUATION IN WATER SERVICE

4.1 Water supply is regular.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____
_____
_____

4.2 Water supply is of good quality.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

4.3 Sewer network system is working properly.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

4.4 The municipality disposes final sewer effluent that is of good quality.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

4.5 All pumped water from the reservoir is reaching the community or households.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

4.6 All sewer is pumped to the wastewater treatment works.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

4.7 Water and sanitation infrastructure is operated and maintained properly.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

4.8 The municipality has information to guide operations and maintenance.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

4.9 The municipality has operations and maintenance tools to work.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

4.10 The municipality takes operations and maintenance into consideration during projects.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

4.11 The municipality has effective preventative operations and maintenance.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

5 CHALLENGES FACING MUNICIPALITIES IN ACCOUNTING FOR SUSTAINABLE DEVELOPMENT IN WATER SERVICE

5.1 The municipality has enough skill or capacity to provide service delivery.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

5.2 The municipality staff morale is good when conducting their duties.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

5.3 The municipality is following supply chain policies in the allocation of tenders.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

5.4 The municipality is allocating tenders to the right companies.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

5.5 The municipality is able to provide service deliver with the available financial provision.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional Comments

_____

_____

5.6 The municipality completed water and sanitation projects allocated.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

5.7 The community adequately participates in the developmental needs of their communities.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional Comments

_____

_____

5.8 The municipality has budget to provide water and sanitation.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional comments

_____

_____

5.9 The municipality maintains its infrastructure for service delivery.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional Comments

_____

_____

5.10 The municipality is accounting on service delivery provision to communities.

Agree	Strongly Agree	Disagree	Strongly Disagree	I do not know

Additional Comments

_____

_____

SECTION 3

Instruction

- *Answer the below questions in the form of statements or narrative.*
- *Use the lines provides to write your answers per question.*
- *When the answer is long write at the back of the paper with the correct numbers.*

6.1 Briefly explain how the provision of water and sanitation has improved the lives of communities.

_____

_____

_____

6.2 Express your opinion if water and sanitation provision sufficient for the future generation.

_____

_____

_____

6.3 Express your views if water and sanitation can be able to cater for the growing population.

_____

_____

_____

6.4 Explain how the community gets involved in projects.

_____
_____
_____
_____

6.5 Explain how the communities are involved in water and sanitation projects.

_____
_____
_____

6.6 Express your views and thoughts of the water and sanitation services infrastructure.

_____
_____
_____

6.7 Explain how the community is benefiting from the provision of water and sanitation.

_____
_____
_____

6.8 Express your view or thoughts of the skill gained from water service provision projects.

_____
_____
_____

6.9 List challenges facing municipality in the provision of water and sanitation services.

_____
_____
_____

6.10 Explain briefly how the municipality informs the public of the interrupted water and sanitation services.

_____

_____

_____

6.11 Explain how the municipality is informing the community about their water and sanitation provision progress.

_____

_____

_____

Thank you for your time.

APPENDIX 2: LETTER TO REQUEST PERMIT TO CONDUCT THE STUDY

Makgatho S M

33Valsdoring Street

Overwatcht

Lephalale

0555

Lephalale Local Municipality

Private Bag X 136

Lephalale

0555

Date: 05 June 2020

Subject: Request for permission to conduct research

Dear Madam

The above matter has reference:

That I Selina Magugudi Makgatho is a student of Masters of Development studies at the University of South Africa for the academic year 2020, request permission to conduct research in Lephalale Local Municipality.

That my proposal topic is "Accounting for sustainable development in water service provision: A case of Lephalale Local Municipality.

That I also request to have access to Municipal leadership, technical director and other managers who will be of assistance to my study together with relevant documents under study and other members who will provide relevant information within your municipality.

My supervisor is Dr Musitha M E and can be reached at mavhungu.musitha@gmail.com (082 452 4965).

Thanking you in advance

Your Sincerely

Makgatho S M
selinamakgatho@gmail.com
0798211239 or 0789279894

APPENDIX 3: PERMISION LETTER TO CONDUCT THE STUDY

LEPHALALE
LOCAL MUNICIPALITY

Tel: +27 14 763 2193
Fax: +27 14 763 5662
E-Mail: munic@lephalale.gov.za
Website: http://www.lephalale.gov.za

Private Bag X136
LEPHALALE
0555

Our Ref: 2/2/5-17332

Your Ref:

Enquiries:E M KGOBIWA

Attention of: Makgatho SM

Makgatho SM
University of South Africa
23A Landros Mare street
Polokwane
0700

07 October 2020

Dear Sir/Madam

PERSONNEL PERMISSION TO CONDUCT RESEARCH ON: ACCOUNTING FOR SUSTAINABLE DEVELOPMENT IN WATER SERVICE PROVISION: A CASE OF LEPHALALE LOCAL MUNICIPALITY

I have great pleasure in informing you that your letter dated 05 June 2020 on the above matter is approved, subject to the Municipality's best practice and conventions for students that undertake research on Council records viz.

- Research activities will not disrupt the normal operation of the Municipality.
- Prompt and timeous arrangement must be made with the Departmental Head concern when assistance is required.
- Copy of research findings and thesis must be submitted to the Municipality.
- The Municipality has no power over research conducted with community members and this part will be performed with the community at their own free will.
- Confidential records/ information must not be reflected in thesis document.
- The collection of data for research will be conducted based on prior arrangements to be made with the Departmental Head.
- The Municipality is indemnified against any claims for damages by the applicant which may result directly or indirectly from the research activity.
- Research information may not be used for any form of publication media other than the applicant studies except with permission of the Municipality.

- The authorization is granted in line with provision of the Access to Information Act and the National Archives Act and approved by the relevant Head of Department with regards to the classification of information.

Municipal Manager
MM Cocquyt

I Makgatho Selina Magagadi herein below confirm that I have read and understood the content of this letter and accept the conditions set out and undertake to abide by the conditions as outlined.

SIGNED AT Lephalale ON 09 October 2020

Signature by student

APPENDIX 4: LANGUAGE EDITOR CERTIFICATE

CERTIFICATE OF EDIT

Student Name: MAKGATHO S.M.

STUDENT NO: 61957259

DISSERTATION TITLE: ACCOUNTING FOR SUSTAINABLE DEVELOPMENT IN WATER SERVICES: A CASE OF LEPHALALE MUNICIPALITY

Submitted for the Degree: RESEARCH METHODOLOGY DEVELOPMENT STUDIES

As required by the COLLEGE OF HUMAN SCIENCE, UNIVERSITY OF SOUTH AFRICA, I hereby certify that the dissertation of MAKGATHO S.M. received full linguistic attention by me and that grammar, spelling and syntax errors were rectified and that the dissertation is on standard.

Signed: Wolfgang L Schmikl .....**Date:** 27-08-2022

Majors: English and German, BA Psychology, UP

Mobile 072-6010700

E-mail: wolfieschmikl@gmail.com