Assessing the capacity of municipalities for water provision within a rural context:

A case study of uMkhanyakude District Municipality, KwaZulu-Natal, South Africa

SINENKHOSI HLALANATHI DLAMINI

2018

Dissertation submitted to the School of Built Environment and Development Studies, University of KwaZulu-Natal, in partial-fulfilment of the requirements for the degree of Master in Town and Regional Planning, Durban

DEDICATION

To the late comrades Mandla Israel Dlamini and Musa John Dlamini

DECLARATION

I, Sinenkhosi Dlamini, declare that this dissertation is my own, unaided work carried out under the supervision of Dr Sithembiso Lindelihle Myeni. It is being submitted for the degree of Master in Town and Regional Planning at the University of KwaZulu-Natal. It has not been submitted previously for any degree or examination to this University or any other.

Student :……..

Signature :……...……

Date :……..……

Supervisor :…….

Signature :……

Date :……

ACKNOWLEDGEMENTS

Sincere gratitude is hereby extended to my supervisor, Dr Sithembiso Lindelihle Myeni for his patience, contribution in knowledge and unwavering support of my research and master's study. His guidance and continuous motivation have helped me navigate the obstacles in my journey to its completion.

I am also grateful to all those who assisted in forming part of this study for providing valuable insight and perspective on the topic.

I would also like to express the utmost gratitude to my mother Phindile Dlamini and brother Masibonge Dlamini for their consistent spiritual, emotional and financial support. I also extend thanks to my grandparents, the late Rev Margret Dlamini and the late Evangelist Nehemiah Dlamini, to the late Gorge Khumalo as well as to the entire Dlamini and Khumalo families for their various contributions at different stages of my life. Your contributions as a family have provided me with growth and vision to attain great heights.

Lastly, I extend my gratitude to the long list of friends who have supported me financially, emotionally and psychologically throughout this long journey. Your words of encouragement have given me the strength to continue chasing my dream when all was bleak.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

ANC	African National Congress
CMA	Catchment Management Agency
CoGTA	Department of Cooperative Governance and Traditional Affairs
CSIR	Council of Scientific and Industrial Research
DM	District Municipalities
DWAF	Department of Water and Forestry
DWA	Department of Water Affairs and Sanitation
GDP	Gross Domestic Produce
GIS	Geographic Information System
GRIP	Ground Water Research Project
GWS	Government Water Scheme
HDA	Human Development Approach
IDP	Integrated Development Plan
IFP	Inkatha Freedom Party
ISRDP	Integrated Sustainable development Programme
ILO	International Labour Organisation
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resources Management
IWMI	International Water Management Institute
KZN	Kwa Zulu Natal
LM	Local Municipality
MDG	Millennium Development Goal
MEC	Municipal Executive Council
MM	Municipal Manager
NDP	National Development Programme
NGO	National Governance Organisation
NFP	National Freedom Party
NUA	New Urban Agenda
NUA-LF	New Urban Agenda Localisation Framework
NWRS	National Water Resource Strategy
ODI	Overseas Development Institute
PTY LTD	Propriety Limited
PSPs	Precinct Structure Plans
RDP	Reconstruction and Development Programme
SALGA	South African Local Government Association
SDG's	Sustainable Developments Goals
STATSA	Statistic South Africa
UKDM	uMkhanyakude District Municipality
UN	United Nations
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund
UN-Water	United Nations-Water
URP	Urban Renewal Program
WB	World Bank
WBs	Water Boards
WSSA	Water and Sanitation Services South Africa

WTW	Water Treatment Works
WMA	Water Management Area
WRC	Water Research Commission
WSA	Water Service Authority
WSDP	Water Services Development Plan
WSP	Water Service Provider
WWC	World Water Council

ABSTRACT

The study assesses the capacity for water provision of the uMkhanyakude District Municipality. To establish a better understanding of the municipal capacity for water provision the study focuses on satisfying four main objectives. The first objective is to describe the arrangement for water governance and the impact it has on the municipality's capacity for water provision. The second objective focuses on reviewing how governmentality has had an impact on shaping access and control over water resources in the municipality. The third objective focuses on assessing the outcomes of how policy implementation has impacted the municipality's capacity to provide water. The final objective is to interrogate the influence of politics on water provision in uMkhanyakude municipality.

This study adopts the human development, basic needs and neo-intuitionalism theories, to provide a framework of analysis that acts as a lens for interpreting the research findings. Each of these theories provides the study with a critical base of analysis on the various topics discussed. The combination of the theories proves advantageous to the study as they address different research interests. The human development and basic needs theories, for instance, provide useful tools for assessing development with a human-centred perspective. The neo-institutionalism theory, on the other hand, helps the study to assess the municipality as an institution or vehicle for delivering development.

The study adopts a qualitative research approach for data collection and analysis to interrogate the complex relationship between capacity and the various factors of governance and politics affecting water provision in the municipality. In-depth interviews with officials from various institutions provided valuable insight into the study. The study found that the municipality's capacity has been affected by several governance factors. The study also found that the governmentality conditions within the institutional arrangement may have the dual effect of advancing development on the one hand and growing the divide in level and quality of access that exists between urban and rural areas (wealthy and poor neighbourhoods) on the other hand. The role and influence of power and politics have been found to be considerably instrumental in affecting the municipality's performance, as the abuse of power by politicians has been found to have an adverse effect on the municipality's functionality.

The study concludes that UKDM is regarded to have adequate physical resource capacity to provide water to its constituency. The study's findings confirm claims from literature reviewed on the capacity of institutions in water provision. UKDM's capacity to improve performance in water provision has been affected by a range of different factors including, governance issues, politics and the broader institutional dynamics. The study recommends that the municipality undertakes a capacity self-assessment to gauge the level of capacity they currently possess and identify areas of critical concern within the organisation and broader institution.

CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.1 Introduction and brief background to the study

Over the last two decades the South African government has dedicated a vast amount of energy and resources to eradicating the massive backlog in services and infrastructure challenging many parts of the country. The Group Areas Act (promulgated in the 1950s) was repealed in 1991, but it is still apparent that the persistence of apartheid planning is a reality etched deeply into the country's fabric (Frescura, 2000). Since the establishment of wall-to-wall local municipalities in 2000, the amount of capital injected into local municipalities by the National Treasury to enable the delivery of better-quality services and expand the provision of basic amenities has increased considerably. According to Statistics SA (2013), a growing number of municipalities around the country have recorded increases in the number of free basic water consumer units receiving access to the service. Municipalities in Mpumalanga recorded an increase in free basic electricity service access from 220 106 reported in 2008 to 279 044 in 2012 and an increase in free basic water services from 342 915 in 2008 to 424 285 in 2012. In the same period municipalities in Limpopo reported an increase in consumer units receiving free basic sewerage and sanitation from 155 780 reported in 2008 to 270 108 in 2012. Despites this apparent progress, many municipalities in South Africa are still challenged by issues of poor access to social and infrastructural services. Some observers argue that although the capital budget for most municipalities in the country has recorded over 80% expenditure on social and infrastructural services (National Treasury, 2006: 18), they have added only limited value to efforts aiming to address the service backlogs challenging local municipalities servicing the major parts of rural areas. The aim of this chapter is to give an overview of the entire study. This chapter contains the background to the study, the aims and objectives of the study, the motivation for the study, and lastly an outline of the study.

The inequality that exists in South Africa's society today is largely the consequence of a past marked by years of displacement, segregation and disempowerment (Earle *et al., 2005*). The effects of apartheid planning continue to be felt and its imprints will never be entirely removed from the country. According to Earle *et al.* (2005), one of the biggest challenges facing the post-apartheid government in responding to some of the remnants of apartheid planning is the need to tackle the major backlogs in the provision of housing, water and sanitation, electricity and so forth. This study focuses on the water sector specifically because of its unique centrality in improving and sustaining human lives and livelihoods, its environmental benefits and its role in driving the economy forward.

The study arises from a need to improve understanding around the issue of differentiated access to water and aims to assess the capacity (ability) of the rural uMkhanyakude District Municipality to provide water within its boundaries. The lack of sufficient capacity at local level to deal with the backlog in the water sector has been noted as one of the biggest constraints to advancing access to water more equitably across different groups in the South African society (National Water Resource Strategy, 2012). According to the United Nations Development Program Report (2010), one of the main problems arising from the transfer of service delivery responsibilities to local structures (District Municipalities) post 1994, was that they often lacked the capacity required for the effective and efficient implementation of plans and programmes. The effect is that many municipalities in the country's most remote areas are failing to address the historical backlog, exposing these already vulnerable communities to further water insecurities (DWA, 2012). This study adopts a case study approach to undertake a case specific assessment on capacity issues at a local level, with the aim of expanding the knowledge available to planners on the factors limiting a municipality's ability to successfully carry out its plans.

In 1996 South Africa became the first country in the world to include access to water as a fundamental human right in its Constitution. The implementation of this right has, however, proved to be rather challenging, especially considering the contradictions arising from balancing the provision of free water with principles of neo-liberal market-based polices (McDonald & Pape, 2002; UNDP, 2010). As is the case in many other developing countries the process of water provision in South Africa has been plagued by issues of inequality in distribution due to a combination of both natural and socio-political factors. The lack of access to a reliable water supply of an adequate quantity and quality has been proved to impact harshly on society, the environment and the economy (DWA, 2012). It is therefore for these reasons that this research project seeks to develop a better understanding around the lack of capacity that affects access to and the supply of water.

Besides being one of the first countries in the world to recognise water as a human right in its constitution, South Africa has proudly boasted the achievement of the Millennium Development Goal (MDG) for water by halving the number of people without access to water by 2015 (Muller, 2017). The task at hand is unfortunately far from accomplished considering that the number of households without a reliable and secure connection to water is still considerably high. The Institute for Democracy in South Africa (2008:1) has pointed out that even though the post-apartheid government has taken considerable steps to bring about reform and improve service delivery throughout the country; most municipalities are still dealing with the challenge of reducing the growing gap between services and demand.

The Department of Water and Sanitation widely acknowledges that they are faced with many challenges in the provision of water. Some of these challenges arise from management failures and lack of accountability to the misuse of funds at both local and national level. These challenges are further compounded by the reality that many municipalities fail to attract and hold appropriately qualified and skilled personnel (Marock, 2010). This issue is most apparent in rural areas, where the natural, social and economic conditions fail to attract the right personnel to occupy government positions that are otherwise left vacant and later filled by poorly capacitated individuals (Earle *et al., 2005*). One direct consequence is that despite the efforts of government and other stakeholders, many municipalities continue to struggle with the demand for water. The lack of capacity in any of its forms may act as a major constraint to a municipality's ability to successfully implement its plans. What this study attempts to do is to help build a better understanding on how capacity issues may be affecting the pace of service delivery in general and even slowing down progress in the provision of water.

1.2 The statement of the problem

The performance of many municipalities around the country has in the past reflected huge deficiencies as far as their ability to satisfy both their constitutional and legislative mandates is concerned (Koma, 2010). A report on the state of Local Government published in 2009 by the Department of Cooperative Governance and Traditional Affairs (CoGTA) notes that capacity, or the lack thereof, is one of the key factors that contribute to a municipality's performance and ability to deliver on its mandate. The lack of sufficient capacity within many municipalities to provide water and other services to their constituencies calls for serious attention. Koma (2010) notes that capacity development within municipalities is one of the key starting points to advancing the country's development goals. This study investigates the relationship between capacity and water provision and identifies the ways in which capacity affects the implementation of plans and strategies for water provision.

The need for such a study in a South African context arises in response to the fact that despite the major reform initiatives undertaken by the government to improve service delivery since 1994, there is still a serious water supply backlog facing municipalities (DWA, 2012). The need to enhance understanding around the issues of differentiated access to water is underpinned by the goal to eradicate poverty and improve the general quality of life for all citizens (the Black, Indian and Coloured majority in particular). The Human Development Approach (HDA) will add value to the study by helping to provide the theoretical foundation for the argument that the fundamental end result of any development should be to enhance people's freedoms and capabilities. This theory adds value to the

study by providing an analytical lens to guide the assessment of capacity on a results basis. An aim of this study is, therefore, to understand how capacity limitations affect people, limit their freedoms and constrain their capabilities.

1.3 Research aim and objectives

This study aims to assess the capacity of uMkhanyakude District Municipality to provide water within its jurisdiction. The specific objectives of this research are as follows:

1.3.1 To describe the arrangements for water governance and their impact on the municipality's capacity for water provision.

1.3.2 To review how the prevailing policies, programmes and strategies that form the governmentality conditions, shape access to and control over water provision in rural areas and specifically within the uMkhanyakude District Municipality.

1.3.3 To assess the outcomes of policy implementation and identify gaps and key limitations affecting the capacity for water provision in UKDM.

1.3.4 To interrogate the influence of power and politics on organizational performance in the provision of water in UKDM.

1.3.5. To recommend strategies to address lack of capacity to provide water within the uMkhanaykude District.

1.4 Research questions

1.4.1 Main question

The main research question in this study:

- How does organisational capacity impact water provision within uMkhanyakude District Municipality?

1.4.2 Subsidiary questions

The subsidiary questions in this study are as follows:

1.4.2.1. How has the governance arrangement for water impacted the municipality's capacity for water provision?

1.4.2.2. How do the prevailing policies, programmes and strategies that form the governmentality conditions within UKDM shape access to and control over the provision of water in rural areas?

1.4.2.3. What are the outcomes of the implementation of policies, and how has the implementation process created capacity limitations?

1.4.2.4. How have power and politics influenced the municipality's performance in water provision?

1.4.2.5. What strategies can be applied to address

1.5 Research motivation

This study is motivated by the apparent backlog in service provision of water and sanitation, electricity and housing affecting millions of South Africans daily. At the heart of this enquiry is the desire to establish a better understanding of the country's position regarding the capacity required to fully implement the ongoing programmes seeking to address this challenge. The study notes that one municipality's experience does not equate to a generic reality across the country. Instead the aim is to assess the relationship that exists between water provision and capacity in the region specifically. The underlying motive of this research is therefore to contribute to the existing body of knowledge in the field of planning and further a basic understanding of how (a lack of) capacity relates to the issue of water provision.

The case selected for this research was identified in part for its reputation as a challenged municipality concerning the provision of water to its constituency. The UKDM has been selected as the case study for this dissertation primarily for its poor reputation regarding water provision challenges and the apparent disparity between water access and supply. The case presents an interesting study because of the present challenges regarding water supply, recognizing that it is one of the most challenged municipalities in the province and a considerable portion of its inhabitants still rely heavily on water from alternative sources such as rivers, rain water and boreholes. As one of the Presidential Priority Nodes, uMkhanyakude District Municipality is one of the poorest and most poorly served parts of the country (Van Donk *et al*., 2008). It is reported that in these 21 Presidential Priority Nodes (13 rural and 8 urban) included in the Integrated Sustainable development Programme (ISRDP) and the Urban Renewal Program (URP) poverty was found to be much more prevalent in the rural areas and was seemingly being eradicated at a slower rate in comparison to the urban areas.

The state of service delivery in many of these rural municipalities is generally considered to be poor. One of the main challenges they face is the need to resolve the issue of major backlogs in services. The ability to provide services to these predominantly rural and impoverished communities varies from case to case depending on a number of factors including, among others: water resource availability; the adequacy of both bulk and reticulation infrastructure, access to sufficient funding, the ability to attract

and retain the right combination of managerial and technical skills, as well as a functioning institutional arrangement (Van Donk *et al*., 2008). All these factors have an impact on the degree to which a municipality is able to provide services to its constituency (Rahman, 1998). UKDM as the WSA of the uMkhanyakude area is directly accountable for the provision of water within its area of jurisdiction.

The UKDM as an organisation is therefore responsible for delivering on this mandate. This study has undertaken an assessment of the organisational capacity to deliver on this mandate. It was noted that the overall capacity for water provision is affected and influenced by several environmental (natural), economic (financial), social, technical and institutional factors (Rahman, 1998). The process or procedure regarding this assessment includes a situational assessment of the municipality's resources, infrastructure, finances and institutional and organisational capacity.

1.6 The structure of the dissertation

Chapter 1 provides an introduction and an overview of the study. The first part of this chapter includes a brief background to and statement of the problem, a discussion on the motivation for the study and its significance, as well as the research aim, objectives and questions.

Chapter 2 discusses the conceptual and theoretical frameworks and literature review. The chapter begins with a discussion on the main concepts used throughout the study, followed by a section that establishes the relevance of the theoretical perspective applied throughout the study. The third section of the chapter synthesises the literature review.

Chapter 3 presents the methodological roadmap of the study. The chapter discusses the research strategy and the empirical techniques applied in the study. The chapter also defines the scope and limitations of the research design and situates the research amongst existing research in the field of planning.

Chapter 4 provides an overview of the study area. The chapter provides a synopsis of the municipality sourced from secondary data materials. The chapter also provides a brief discussion on the municipality's provision of water to provide additional knowledge on the study area.

Chapter 5 presents the research findings of the study.

Chapter 6 discusses the findings and provides an interpretation of the study in line with the theoretical framework presented in chapter 2. The chapter also presents the research conclusions, gap analysis and recommendations for implementation and further research agenda.

1.7 Conclusion

This chapter provided an overview of the study. The chapter also presented the background to the study, and the objectives and motivation for the study. In addition, this chapter has also presented a summary of the content of each chapter. The next chapter focuses on the theoretical and conceptual frameworks of the study together with the literature review.

CHAPTER TWO: THEORETICAL FRAMEWORKS AND LITERATURE REVIEW

2.1 Introduction

The previous chapter presented an overview of the study. The purpose of this chapter is to provide a conceptual and theoretical framework as well as to review available literature on water institutions and organisational capacity. The aim is to establish a better understanding of the various concepts explored throughout the study that relate to water provision, from a global, regional and local perspective, before undertaking a deeper analysis at the case level. The chapter is essential for shaping and directing the study focus, which makes it one of the most important components of this study. To achieve this, the theoretical and conceptual frameworks used to guide this study are discussed and unpacked to maintain a high degree of contextual relevance in the study.

This chapter is divided into five main sections. The first section gives a brief introduction to and outline of the chapter. The second and third sections provide both the conceptual and theoretical frameworks respectively. The fourth section provides a discussion on some of the literature reviewed as part of the study. This section provides a critical review of existing literature on the problem being investigated, to help both author and reader to gain a more holistic understanding of the debate surrounding the issue. The next section engages different concepts used in this study.

2.2. Conceptual framework

This section is about the conceptual framework of the study. It discusses the various concepts used and defined by other writers and provides their interpretation of this study. The purpose of this section is two-fold: the first purpose is to establish a better understanding of the concepts and the debates surrounding each one of them, and the second is to define the concepts as they have been applied in this study. This exercise forms a crucial part of the study as it allows the reader to gain a reasonable amount of background knowledge on the concepts used, and it provides the study with an opportunity to provide clear definitions on the concepts as they have been applied and adapted. This affords the reader the benefit of contextual relevance and a much more defined scope of definition to avoid any misinterpretation and misunderstanding of the terminology used. The section discusses three concepts, which are water, capacity and institutions.

2.2.1 Water

There is diverse literature that defines water in both developed and developing countries. Water can mean different things to different people. On the one hand, water is conceived as a life sustaining resource, necessary in our everyday lives to carry out a list of daily activities ranging from cooking and bathing to cleaning as well as washing. On the other hand, water can be a symbol of social, cultural and religious significance (Barlow, 2007). The common consensus amongst different scholars and users is that water is an indispensable resource that plays a central role in sustaining life on earth, as we know it.

Understanding water as a concept in all its dimensions is crucial for this study. The concept of water as used in this study refers to all potable surface water (rivers, lakes and dams) as well as underground water sources that are currently being tapped into. The concept is not used to refer to sea water or other contaminated, inaccessible sources. Water provision refers to the act of supplying available water resources to the public by either government or a private organisation.

What water means to different people is clearly a matter of debate. On the one hand, some people define water as a public commodity and argue that it should be publicly owned in the interest of the public. On the other hand, others argue that water is a commodity like any other resource that can be privately owned and controlled by individuals or corporations with the interest to do so (Howard, 2005). More recently, the issue of water has been highly contested amongst different proponents. Proponents of the private ownership approach have generally embraced the notion of water rights, whereas proponents of the public ownership approach have embraced the idea of merging public regulation with private control to improve on efficiency (World Bank, 2004). The approach to conceptualizing water in this study is one that views water as a public commodity that all people have the right to use. The use of the concept in this study will focus on its role from a human development perspective. What this means is that, although water is crucial for the environmental, and has economic and social uses, this study will only consider its benefits to humanity and will focus particularly on water provision at household and community levels.

2.2.2 Capacity

The concept of capacity presents several challenges arising from the fact that the term, by its nature, is a relative concept based on the observers' opinion of what factors constitute good or poor capacity. Qualitative studies investigating capacity have often listed the vague nature of the concept as a considerable challenge due to different and often confusing interpretations of the term (UNDP, 2010). It

is important to establish a common understanding of the concept as applied throughout this study to minimise confusion and better understand it as it relates to the functions of a municipality as an institution. The diversity on how capacity is defined exists for several reasons and these include firstly, the fact that the various disciplines and bodies of knowledge making use of the concept all view it in different ways placing importance on different factors. Secondly, in addition to this, the different actors (practitioners, analysts and consultants) who make use of the concept all apply it differently which then creates diversity in the meaning of the concept (Morgan, 2006).

The debate around the concept has been about whether capacity should be considered as a means or an end to development. Although this debate has generated little interest among most practitioners and analysts, those who have concerned themselves with the debate have raised the argument that such considerations need to be taken seriously as approaching capacity from the two perspectives has different implications on the outputs of capacity development efforts (Morgan, 2006). This study adopts an approach in support of viewing capacity development as both an end and a means to achieving other development objectives. In practice what this means is that capacity is seen as more than just the assets and skills that are needed to implement development programmes. Instead, this study shares the perceptive of those who prefer to see it as an aspect of the collective organisational infrastructure that can house the collective skills, ingenuity and resolve that is required to solve development challenges (Otoo *et al.*, 2009).

The United Nations capacity measurement framework has provided the definition of capacity adopted in this study. It describes capacity as "the ability of individuals, institutions or organisations to perform functions, solve problems and set and achieve objectives in a sustainable manner" (UNDP, 2010: 46). According to this definition, a municipal capacity to provide water within the context of South Africa includes its ability as an organisation to perform the function of providing bulk water supply to local bodies, successfully implementing plans and strategies that advance the equitable distribution of water, and the ability to adapt reasonably to environmental challenges. This study has adopted a results-based approach to capacity assessment. This approach focuses on investigating the conversion of inputs (human, financial and physical assets) to outputs such as policies, compliance regulations and mechanisms, and knowledge products; which in turn contribute to achievement of outcomes such as increased service delivery for water provision (Romzek, 2009).

2.2.3 Institutions

The use of the term institutions in the field of social science dates back as far as 1725 where it was used by Giambattista Vico in his book *Scienza Nuova* in a similar reference to how the concept is used today (Hodgson, 2006). It has since been used widely in many other disciplines including philosophy, sociology, politics and social science. The concept's wide application in so many disciplines has resulted in a range of highly contested definitions. There is no one precise, comprehensive and commonly accepted definition of institutions, leading to a degree of conceptual confusion on how the concept has been interpreted and applied. The heterogeneity of definitions on the concept range from patterned behaviours and practices; social relations and interactions; cultural beliefs, norms and expectations; rules and procedures; ideology; social policies; organisations; legal systems and statuses; constraints, hierarchies and power, to name but a few (Martin, 2004). The definition used in the discipline of planning is borrowed mainly from the discipline of social sciences.

The definition of institutions used in the field of planning as well as social sciences describes them as instruments of social structuring through either overt or implicit rules acting as frameworks for structuring social interactions (Hodgson, 2006). He maintains that language, money, law, systems of weights and measures, table manners and firms (and other organisations) are thus all institutions. North (1990:3) defines institutions as the formal and informal rules and norms that organize social, political and economic relations. According to Leftwich (2010), formal institutions include the written constitution, laws, policies, rights and regulations enforced by official authorities; informal institutions on the other hand are (the usually unwritten) social norms, customs or traditions that shape thought and behaviour. Other scholars have also pointed out that institutions are not only the rules, laws and regulations and their enforcement, but also include agreements and procedures outside of what is stipulated formally (Franceys & Nickson, 2003). The likes of Foster (1981) have defined institutions as a specific type of social structure that involves potentially codified and normative rules of interpretation and behaviour. Hodgson (2006) criticises the "prescribed patterns of correlated behavior" definition by arguing that it may be misleading in the sense that one may presume that institutions no longer exist if their associated behaviours are interrupted. The issue with this definition is that it tends to be quite vague which may lead to further misinterpretation; the latter definition, however, offers a more detailed glimpse of the concepts.

The definition of institutions that this study has adopted combines aspects of the different definitions discussed above. Institutions are to be understood in this study as "the rules, policies, laws, processes, enforcement, and regulation mechanisms as well as both formal and informal systems that govern and order society" (Hall & Taylor, 1996: 6). This definition touches on two important aspects of institutions:

the first being rules, policies, laws, processes, enforcement and regulation mechanisms; and the second being formal and informal systems of governance and structure. The existence of institutions provides the government with a framework mechanism, employed in the context of water provision as a guiding structure and vehicle for the planning, support and/or implementation of programmes and practices. This makes institutions the key starting point for any assessment of the sector's performance, as it touches in some way or another on every aspect from the extraction of bulk water at the source to delivery at a household level. This study approaches the concept from a human development perspective, which seeks to understand the correlation between weak, missing or perverse institutions and poverty, inequality and resource degradation. The following section provides the theoretical framework of the study.

2.3 Theoretical framework

In this section, the various theories used to guide the research process are discussed to provide a detailed description of how they add value to the overall study. The theories discussed in this section include the basic needs approach, the human development theory and neo-institutionalism. The purpose of this section is to discuss and describe how the theories are used to construct the theoretical framework of the study and are useful in guiding this research. The theoretical framework is a crucial and fundamental part of this research as it provides a structure in the later stages of the research for interpreting and analysing the vast amounts of data collected through the literature review and other data collection methods. The framework provided in this section helps to define the various variables used throughout this study.

2.3.1 An overview of the basic needs approach

The basic needs approach is concerned with the inclusion of human needs in development considerations (ODI, 1978). The theory places an emphasis on actors, structures (particularly relating to patterns of production/consumption of any goods or service) and process (e.g. how the structure changes overtime). The main objective of this approach is to provide opportunities for the full physical, mental and social development of the individual. Proponents of the basic needs approach argue that it is much more robust than economic development theories, because it encompasses non-material needs such as the need for security, self-determination, participation in decision making and political freedom as well (Streenten, 1979 as cited in Klugman *et al.*, 2011).

Concerns about the conditions of the poor and expressions such as “basic needs” have been around for centuries. In the 1970s, there was a re-emphasis on the basic needs theory in development circles, and this was partially in response to the shift in macroeconomic policies following the Second World War around the latter half of the 1940s in efforts to stabilize the global economy. The International Labour Organisation (ILO) which referred to the basic needs approach in one of its reports at the time reintroduced the re-emergence of the theory in development circles. According to ILO, report strategies and national development plans and policies should include explicitly the promotion and satisfaction of the basic needs of each country’s population (ILO, 1976: 13). The primary concern with the economic centered approach to development and its dominance at the time was that it left very little consideration for the needs of the poor and focused largely on investments, as the solution to re-fire the engines of struggling economies (ODI, 1978). Unfortunately, the prospects and promises of the economic growth and industrialisation models were never fully realised. According to Bowler (1983), despite creating healthy economies in many developing countries, economic growth models of development have in the main failed to accomplish some of their fundamental objectives. The basic needs approach has therefore emerged as one of the responses to the failures and shortfalls of the economic growth models that stimulated industrialisation.

The basic needs approach is built on the idea that the overriding objective of all development policy on a national or international scale should be to ensure the satisfaction of all basic needs within a society. In the ILO Report (1976), two crucial elements of the theory emerge. The first element was that it included certain minimum requirements an average family would need to sustain themselves above the line of poverty. The second element it included was a list of essential services, such as safe drinking water and public transport, for instance that a community needs to be able to provide to its constituents (Galtung, 1980). The basic needs approach has been used to define the absolute minimum resources necessary to sustain long-term physical well-being in terms of the consumption of goods. Using this approach, the poverty line describes the amount required to satisfy one’s basic needs. Although the list of such needs is subject to debate in respect of the inclusion or exclusion of certain needs, the general list includes food, water, shelter and clothing. Today the list of needs has been expanded to include, in addition to those listed above, sanitation, education and health care.

The basic needs approach has two main themes (strains of approach), and each of these strains proposes that over a given amount of time satisfying the basic needs of a given society is an attainable goal. The first theme describes the technocratic approach, which is a top-down effort concerned with satisfying basic needs as quickly as possible. The second theme encompasses an approach invested in expanding available resources through intervention or by developing a sustainable project based on

the community so that it can continue to meet its basic needs over time (Barlow, 2007). Within the technocratic approach, there are two alternative strategies. The first of these proposes a trickle-down effect by growing the overall economy without the need for any explicitly redistributive policies. The second strategy proposes a deliberate shift in the proportional distribution of income and wealth between the rich and poor. This strategy would seek to achieve the satisfaction of a population's basic needs through the direct or indirect transfer of assets and wealth from the rich to the poor. This is achievable through taxation or by the redistribution of assets and other means of production such as land.

The second major theme within the basic needs approach (which has been preferred by most advocates of the approach and regarded as more proactive) focuses more on the individual or family unit and how their income is distributed across their expenses. Supporters of this theme advocate for government intervention in the form of subsidies, taxation relief, regulation and prohibition of commodities or services it wishes to either promote or constrain. This approach is favoured over the alternative theme by certain adherence of the basic needs approach. The redistribution of income and assets and identification of certain basic needs is enormously increasing the demand for those basic needs (Bowler, 1983). The assumption in this regard is that development through the basic needs approach should translate into policy concerned with making up the shortfalls that the poor experience with respect to their basic needs. In other words, the basic needs approach is concerned with the outcomes of development initiatives as opposed to development as an action isolated from its results i.e. the concern should be with how development changes people's lives beginning with changing their basic needs.

Planning processes, if defined as the formulation and implementation of policies, programmes and projects, need to consider the basic needs of the communities as they are implemented in order to make informed decisions tailored to the local environment and its needs. A basic needs approach has been used in this study to serve as a framework for identifying elements in the planning process that contribute to the success in meeting the basic needs of communities. The basic needs theory proves valuable to this study as it speaks to securing fundamental resources and services for the improvement of living conditions. The perspective of pursuing development as a means to an end provided by the basic needs approach (the end being the outcomes of development as opposed to its outputs) strengthens the potential impact planners can have on communities. The basic needs theory advocates for a much more robust planning practice and expands the study's width by probing the primary and fundamental concerns associated with a lack of water provision. The following section discusses the

human development theory, which is one of the theories used in the study to provide a framework of analysis for this research.

2.3.2 Human development theory

The human development approach is a paradigm based on the concept of wellbeing. The concept emerged in the late 1980s based on the conceptual foundation provided by authors like Amartya Sen and Mahbubul Haq. These authors' work has provided a strong conceptual foundation for the development of this theory, allowing it to formulate what has been recognised as a credible tool for the assessment of development policy and action (Alkiri & Deneulin, 2008). The origins of the theory are rooted in a search for an alternative economic growth and development theory to the neoliberal paradigm. It seeks to bring humans and in particular, the poor to the centre of development as the fundamental concern of all development initiatives (Samuels & Khosla, 2014).

Sen's capabilities approach has provided a strong starting point for the human development approach. From this perspective, the understanding of development is that it facilitates the expansion of one's choices, capabilities and functions as well as a removal of obstacles disallowing one to achieve their freedoms (Samuels & Khosla, 2014). The contribution of his works to the human development theory has shaped our common understanding of its fundamental arguments. A more recent advancement in the evolution of this theory has been its application by the United Nations Development Programs (UNDP) into the Human Development Report (1990), which has applied the concept to diverse themes, such as the environment, gender, poverty, globalization, cultural liberties and migration, to name just a few (Alkire, 2010). Sen's continued influence on the evolution of the human development approach has contributed towards refining and broadening the basic concepts and measurement tools of the theory as it tackled new areas of policy challenges from sustainable development to gender equality, poverty, human rights and democracy (Alkiri & Deneulin, 2008).

Some of the other notable proponents of the theory include ÜnerKirdar and Martha Nussbaum. Martha Nussbaum's publications in the early 1990s and 2000s played a crucial role in pushing more theorists to pay attention to the human element in the theory. A separate approach within the theory has grown in part from the needs theories in psychology advocated for by the likes of Abraham Maslow (1968). The theory also borrowed much of its thinking from the Human Scale Development approach developed by Manfred Max-Neef in the 1980s, which addressed human needs that remained more or less static across time and context. Many of these needs have been captured well in the basic needs

approach, which has also been useful in theoretically substantiating many of the fundamental arguments within the Human Development theory (Samuels & Khosla, 2014).

The dominant understanding of development globally focuses on economic development. This is apparent in the wide adoption of strategies, policies and plans that seek to achieve and sustain high rates of economic growth in most developed and (more recently) developing countries around the world (Samuels & Khosla, 2014). This thinking is rooted in the assumption that achieving economic growth will open opportunities for growth in other areas, stimulating and advancing other commonly used development indicators like nutrition, education and employment (Alkiri & Deneulin, 2008).

Economic development theories make the economy the main unit of analysis, and by so doing distance development from what should arguably take priority - the people. Observers argue that human development theory finds space to stress a shift towards a focus on the expansion of people's capabilities (the things people can do and be in their lives, now and in the future), rather than economic growth marked by growing GDPs (Clark, 2008). The human development theory provides a valuable alternative to using monetary gains as a development indicator and advances the view that a healthy economy is one which enables people to enjoy a long healthy life, a good education, a meaningful job, family life, democratic debate, and many other freedoms.

Economic growth from a human development perspective (like the basic needs theory) is viewed as a means rather than an end in itself. The ends in this case are the various freedoms provided by economic gains. Thus, in practice what is required for holistic development is to realize actual changes in the living conditions people are subjected to (Alkiri & Deneulin, 2008). The human development approach is invaluable to the planning practice and this study in particular as it calls on policy makers, development practitioners and planners alike to place the establishment of human capabilities as a priority in all development initiatives from the planning phase. What this means is that for development to be considered as good or useful its primary end should be the improvement of people's lives. The UNDP (2010) refers in this regard to how the introduction of the human development paradigm in the planning of local government has ensured the centrality of human development at a meaningful scale. The human development approach has also been recognised as extremely relevant today for policy planners to continue focusing on people who may be excluded from market-oriented growth. This is crucial in the context of this study as the focus is on people who are still suffering from the systematic exclusions due to apartheid policies that served to disconnect them from development in urban centers. The next section discusses another theory that is relevant in addressing the study objectives and research questions.

2.3.3 Neo-institutionalism

The role of institutions in the management of water has become widely recognised as a fundamental component in the creation of more sustainable systems in an environment of ever-growing demand and gradually shrinking resources (Hodgson, 2006). In fact, water management institutions have been recognised as one of the key components necessary to drive sustainable water sector globally. The emphasised role of institutions in the management of water globally calls on studies concerned with the broader limitations of organisations involved in the provision of water to consider assessing the institutions acting as a framework for such organisations to operate within. This study therefore invokes a neo-institutional theoretical perspective in an effort to establish a broader understanding of existing capacities within the current institutional arrangement. Included in this section is an overview of the neo-institutional approach and the various strands within it, followed by a discussion on the origins of the theory and debates raised by some of its proponents as well as a discussion on how each strand of the theory applied here is contextually relevant to this study.

The neo-institutional theory emerged in the 1980s as a highly proliferated body of thought with several significantly different approaches developing somewhat simultaneously in isolation from one another. Hall and Taylor (1996) in their work have identified three main branches, whereas Peter (1999) and Lowndes and Roberts (2013) later identified seven and nine distinguishable approaches respectively. Besides the numerous approaches that have emerged since Hall and Taylor (1996) first wrote about neo-institutionalism in the mid-1990s, the three approaches as first presented have maintained a considerable degree of dominance among both scholars and policy makers. These approaches are sociological (or normative) institutionalism (arising in part from organisational analysis in sociology), historical institutionalism and rational choice (institutionalism emerging within political science) and draw much of their thinking from new institutional economics, from which many concepts are borrowed.

The proliferated nature of neo-institutionalism has generated vigorous debates around some key issues central to the theory. Some of these include the definition of the concept and the relationship that exists between institutions and behavior, conceptions of structure/agency and power as well as theories of institutional change (Keizer, 2008). Although the definitions of neo-institutionalism vary widely, they all share a number of elements. For example, these approaches seem to agree on the definition that institutions are sets of formal and informal rules that are shaped by and shape behavior (North, 1990: 3). The main challenge for effectively incorporating an institutional approach to planning is that the various branches of institutional theory tend to contradict one another, combined with the lack of attention by mainstream neo-institutionalist theorists to issues specific to cities, space and planning in

general. The following sections look into each of the main strands within the theory and briefly discuss each theory's relevance and value to this study.

2.3.3.1 Rational choice institutionalism approach

The rational choice institutionalism approach describes a scenery of systems, rules, processes and regulations devised by individuals from within a given organisation with the intention of prescribing a set of options, paths and choices actors can choose from to control processes and their outcomes in the least costly way (Peters, 2001). In this view, institutions exist because they reduce insecurities, enhance the possibility to anticipate the behavior of other actors, and hence allow for strategic interaction (Peters, 2001). The rational choice institutionalism approach is beneficial to the study of institutions because it provides insight on the behavioral patterns of actors within them and more importantly how they interact with one another to create preferences. The rational choice approach also helps to establish the extent of institutional control over systems and how in some cases systems are controlled with certain ends in mind. How those ends tend to benefit different groups while costing others is then what this study seeks to establish. The rational choice institutionalism approach is then beneficial to this study as it helps provide a framework to enquire how systems, rules, processes and regulations devised by individuals within organisations prescribe options, paths and choices that control processes and outcomes. The basic argument of the rational choice approach is that utility maximisation can and will remain the primary motivation of individuals, but those individuals may realise that their goals can be met more effectively through institutional action and find that their behavior is shaped by institutions (Peters, 2001).

2.3.3.2 Historical institutionalism approach

The historical institutionalism approach is a strand of neo-institutionalism concerned with the evolution of institutions over time (Hall & Taylor, 1996). This approach places emphasis on the importance of understanding and studying the pattern of institutional decision making by tracking ideas as they evolve and change over time. The basic premise of the approach is that the policy choices made during the formation of an institution, or initiation of a policy, will have a continuing and largely determinant influence over the policy far into the future (Skocpol, 1992 cited in Peters, 2001). The influence could be extremely far-reaching, possibly acting as a constraint for major institutional reform, and in so doing limiting the reform capacity of that particular institution or policy choice. One way of describing this phenomenon is path dependency. Path dependency refers to the tendency for initial policy choices to persist within an organisation or programme for a lengthy period.

This approach plays a crucial role in this study by providing the theoretical tools necessary to undertake an analysis of policy on water within the South African context over the last few decades. The purpose of undertaking such an analysis would be to unravel any policy paths that may possibly still be acting as a constraint to the water sector in a post-apartheid South Africa. Considering the dramatic shift in policy necessitated by years of biased infrastructural planning, it is important to understand what possible constraints, if any, exist within existing institutions. Understanding the limits of path dependence on post-apartheid water institutions will allow South African planners to better evade such constraints and possibly take a more radical approach to resolving the problem of poor access to safe, sufficient and reliable supplies of water.

Although historical institutionalists pay immense attention to institutions and their role in shaping society and the outcomes of political life, they rarely insist that institutions are the only causal force in politics. What they try to do is to locate institutions within a series of other events that accommodate the role and impact of other factors, notably socio-economic development and the diffusion of ideas (Peters, 2001). In contrast to rational choice institutionalists who choose to see a world where individual actors behave in a calculated manner based on preferred choices, historical institutionalists instead see a much more complex world where institutions as well as other forces such as beliefs and ideas work in a complicated web to influence one another (Hall & Taylor, 1996). In relation to this study this implies that from a historical institutionalism perspective, institutions on their own only have a limited effect on creating the existing realities. Instead of gaining a whole, rounded understanding of the problems affecting the water sector in South Africa the study also needs to take into consideration other external factors such as the ideological base of the broader population and in particular those in government.

The analytic framework provided by the theory seems to premise on the enduring effects of institutional and policy choices made at the initiation of a structure. Thus, the approach seems to be better suited to explain the persistence of patterns rather than explaining how they may possibly change (Peters, 2001). One of advantages of adopting this approach in the study of policy in comparison to some of the other institutionalism approaches is that it provides an avenue for looking at policy over time while many of the other approaches are more bound in both time and in some cases even pace (North, 1990). The following section focuses on literature reviewed on water governance and institutions.

2.4 Literature review: Water governance and institutions

The literature review section discusses a range of literature on water provision, water institutions and organisational capacity. The purpose of this section is to provide a critical review of existing literature

on the problem being investigated, to help both the author and reader to gain a more holistic understanding of the debate surrounding the topic. This section of the chapter is broken down into two parts. The first part begins with a discussion on water scarcity and associated concepts evident at the global level. The discussion on water scarcity provides some background into the broader water issues under investigation in this research. What follows is a discussion on water sector institutions to provide the context in which water provision unfolds from a global perspective. This is an important component of the section as it sets up the discussion for water sector management and supply systems, which describe the way water has been managed globally and how supply systems have evolved over time.

The evolution of supply systems is discussed in the following section to set up the discussion on public vs private water supply. The evolution of water systems has been marked by a shifting debate over which systems of ownership present the most favourable conditions for water provision. The first part of the final section extends the concept of ownership to water governance. The section discusses water governance and institutional reform of the water sector over the last decades.

The second half of this literature review discusses water institutional capacity and water scarcity in South Africa before extending the discussion to the legislative framework for service delivery and water management in South Africa. The second part of the literature review contextualises some of the themes discussed elsewhere in the literature review within the South African context. The next section engages the concept of water scarcity.

2.4.1 Water scarcity, institutions and supply systems

According to Mehta (2014), most literature on water scarcity tends to focus too much on the finite nature of global water supplies and gives very little attention to the need to consider altering existing patters of consumption and increasing equity. Mehta (2014) identifies several problems with existing definitions of water scarcity that insist on viewing water based on its physical and finite supply as a point of departure. Instead, this author argues that the issue of scarcity is far more complex and is the result of socio-political conditions humans could reverse if not at least curb with enough commitment. Mehta (2014) dismisses the idea that scarcity is a biophysical condition that can be remedied through technological and infrastructural interventions. These views have gained a considerable amount of acceptance among those concerned with how power, politics and dominant discourse consequently shape water allocation regimes. This calls for a serious investigation into the forces influencing and defining water use and availability. Mehta (2014) notes that the issue with many conventional studies on the issue of scarcity is that they fail to ask how scarcity is constructed; instead they assume scarcity

is a natural and unavoidable part of nature, which is true to a certain extent. Failing to understand how and where human action amplifies such conditions is a major shortfall of reform initiatives.

The issue of water scarcity has presented some of the greatest threats to human civilization in recorded history in the 21st century. It has been realised that at the heart of most of our problems surrounding water provision lies our very own actions or lack thereof which, have forced policy makers, government officials and scholars alike to investigate possible solutions to this reality. Ensuring a sustainable supply of water across all regions and all continents has proven quite challenging to the countries and organisations involved in championing this mission. Considering the fact that water resources are a crucial and basic necessity for the nurturing of life in all its forms, it is no surprise that finding solutions to the challenges of supplying a larger portion of the world's population with sufficient water has been one of the issues at the top of the global agenda for the last decade. More than a decade after world leaders at the United Nations Millennium Summit in September 2000 adopted the Millennium Declaration, the number of people without access to safe and secure drinking water was reportedly reduced by 1.4 billion. There are, however, still millions of people who have not been reached by many of these efforts. UNICEF (2017) reports that in 2015 at least 844 million people still lacked a basic water service and among them almost 159 million people still collected drinking water directly from rivers, lakes and other surface water sources.

In October 2016, the New Urban Agenda was unanimously adopted at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III), serving as a new vision for cities and municipalities for the next 20 years (Kalapurakal, 2018). With the global population of urban residents expected to have doubled by the year 2050, the need to develop cities sustainably has become fundamentally entrenched in the fabric of urban policy planning (De Paula, 2016). In South Africa, where over 60% of the population already live in urban areas, the goal of Sustainable Development speaks to addressing the many ills affecting urban populations. Based on a shared vision of "cities for all", the New Urban Agenda (NUA), a global commitment to sustainable urban development at all levels (global, regional, national, subnational and local), provides the government with guidance for planning and managing cities in a way that results in sustainable urbanisation(Fabre, 2017). Having already developed a national urban policy – the Integrated Urban Development Framework (IUDF) – South Africa is now incorporating and aligning the NUA priorities with its existing urban policy and practice. The study assesses the progress made by UKDM with regards to application and alignment within the context of the municipals existing policy framework.

2.4.1.1 Water sector institutions and organisations

At a global level, the task of assuring access to water for social, economic, industrial and environmental needs is usually the responsibility of the national state. In most countries, the national government is usually the leading role player in managing water resources. This task takes place through institutions designed and mandated to oversee the overall management and use of water. The actual implementation of these policies is undertaken by organisations that emerge to serve the mandate of institutions within the laws and stipulated guidelines. Such organisations include formal bodies such as state departments or ministries and informal bodies like religious groups, civil society, NGOs and private companies (Harman & Wallington, 2010).

Water institutions have been defined and are to be understood in this study as the rules that govern the water sector, i.e. policies, laws and arrangements that guide and inform the actions of organisations concerned with water use and management. Organisations, on the other hand, refer to political, social, economic and educational bodies of individuals that are bound by a common objective towards a specific goal or interest, in this case the use or management of water (Romzek, 2009). Literature reviewed points to the limitation of existing institutions that has gained wide popularity within the water research community; and at the centre of such discussions is the need to reform water sector institutions to enhance the capacities of organisations to improve their performance (DWS, 2011).

There are various ways of assessing an organisational performance in the implementation of urban water utilities. There is a consensus on the technical criteria that should be used to measure performance broadly described as efficiency, effectiveness and equity (Nickson & Franceys, 2003). A struggle to determine which of these should be valued has preoccupied water service organisations, scholars and policy makers alike. The use of efficiency, equity and effectiveness indicators can, however, still be useful in assessing the performance of different utilities under different arrangements (Nickson & Franceys, 2003). Observers argue that it is important to note that intra-country and intercountry comparisons are treated with caution and consideration of unquantifiable performance factors resulting from varying hydrological and geographical constraints.

2.4.1.2 Water scarcity and international institutions

International institutions involved in the management of water have taken many different forms, shapes and sizes. They range from government to non-profit and business organisations. The primary purpose of these organisations is to raise awareness around water issues, and to help provide solutions to those most in need of water. The most notable of these organisations, owing to their size and the scale at which they operate, include organisations such as the United Nations (UN), World Bank (WB), World

Water Council (WWC) and the International Water Management Institute (IWMI). A local organisation in South Africa with a similar mission is the Water Research Commission (WRC). The WRC's functions primarily include funding research around water and providing such knowledge and information through technology-based products for the water sector (WRC, 2004). The organisations listed above are just a few of many international and local (South African) bodies advancing the struggle for universal access to water.

The UN, for instance, in recent years has created a plan for a 'Water for Life Decade', including an Integrated Water Resources Management (IWRM) plan. The IWRM is designed to promote "the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems" (UN-Water, 2014: 82). The WB, as a financial agency, has committed over $17 billion US "to address supply, sanitation, and irrigation issues" (UN-Water, 2014: 83). These investments help supply usable water to more than 748 million people around the world who have no access to a steady supply of clean drinking water. The WWC was established in 1996 and is tasked with "promoting awareness, building political commitment and triggering action on critical water issues in order to facilitate the efficient conservation, protection, development, planning, management and use of water" (UN-Water, 2014: 86). These organisations although adversely different in their approach have managed to advance the goal of improving water supply around the world quite considerably. Overall, many of their actions have also attracted wide criticism for their tendency to impose structural adjustment policies in the areas where they usher in reform.

Structural adjustment policies have drawn a lot of criticism for the way they have rolled out development programmes in the developing world (Abalu *et al*., 1996). A key element of their development strategy in many of the countries where such policies were imposed was to offer loans with a list of conditions depending in their interest in that region. These conditions are usually associated with ideas of neo-liberalism, open markets, as well as trade and financial liberalization (Abalu *et al*., 1996). Collectively, these conditions are imposed on the recipient country to create better conditions for economic growth ensuring that such countries can repay their debts. The effects of such policies have been written about widely from various perspectives including their impact on water, agriculture, health and poverty. The general experience for much of Africa has been a negative one, as many of the policies have been linked to increases in poverty and poor health (Abalu *et al*., 1996). Through intensified reforms in the agricultural sector, adjustment policies have created a greater demand for water in South Africa. The pressure such policies imposed on the water sector has stressed the countries' resources considerably, leaving the poorest with less to share.

2.4.1.3 Addressing the Sustainability question through the New Urban Agenda

In September 2015, after years of back and forth deliberation, the UN's Member States adopted 17 Sustainable Developments Goals (SDGs) that are to be achieved by 2030 and cover areas from poverty to education and cities (De Paula, 2016). With the 2030 Agenda for Sustainable Development, of which the SDGs are a part, governments have set out a roadmap to implement sustainable development in every country. Among the areas of relevance for the average citizen's quality of life in an urban setting, the SDGs aspire to overcome poverty, gender inequality, combat climate change and insecurity, and provide high quality public goods, including education, health care, water, energy, clean air, housing and the conservation of natural resources (Kalapurakal, 2018). While the SDGs are global, their implementation is local. The engagement in the development of the Urban Sustainable Development Goals and the New Urban Agenda (NUA) provides and extraordinary opportunity for UKDM and other local actors to reconfigure its existing efforts under definitive global agenda.

The New Urban Agenda Localisation Framework (NUA-LF) seeks to unify the global, continental and national directives into an actionable programme for local implementation. Informed by an all-of-society approach, the NUA-LF creates a framework with which all actors can align and associate themselves in the task to fulfil the 17 Sustainable Development Goals. The overarching framework provided by the SDG's and NUA have placed subtle implications for the responsibilities of local governments. To achieve this set of goals some have argued that localizing the SDG's (i.e. accounting for subnational contexts and as prioritizing a bottom-up approach to urban development) is the most practical and effective approach. In this way the SDG's and NUA provide a policy framework within which bottom-up action from local authorities can be implemented to enhance local capacity (Kalapurakal, 2018).

2.4.1.4 Water sector management and supply systems

The question Mehta (2014) poses about how scarcity is constructed may be quite controversial, especially from the perspective of those that understand scarcity as an inevitable shortage in supply. It is, however, fundamental to any inquiry into the issue of water scarcity; and allows for an in-depth exposure of the different factors that create the conditions of scarcity. The alternative explanation presented by Mehta to this question argues that the problem is rooted in how water is distributed. This calls for an inquiry into how and by whom water is distributed. To answer this question, the study looks to literature on the conservative approach to managing water supply systems in the last century. The municipal hydraulic paradigm has become a character of water management systems all around the world. The concept describes what Bakker *et al.* (2010), describes as the development of water systems that prioritised capital-intensive, large-scale infrastructure projects in more affluent

neighbourhoods. This approach to developing water systems was intentionally inclined towards wealthier neighbourhoods as the financing of these project by international organisations such as the World Bank was undertaken purely for the sake of financing i.e. in the interest of profit (implicitly excluding lower income neighbourhoods).

Predicated on an assumption of abundant water supplies, the municipal hydraulic paradigm was responsible for driving the advancement of hydraulic technologies to meet the demands of a modernizing world. A general commitment to pursuing social equity and universal provision necessitated significant government regulation, government ownership, and/or strict regulation of water resource development and supply provision. This was in line with the prevailing arguments presented by proponents of the government as the leading provider of public services. The dominance of the government as the leading role player and regulator of water management systems, seemed to be the logical direction at the time, based on the recognised advantages of government provision that emerged after a period of experimentation with both public and private provision (Barraque, 2008).

The positioning of the government as the leading role player in water supply came at a much later stage in the development of the modernised supply systems existing in most urban areas today. Initially, around the mid-19th century in many of the world's largest cities such as New York, Paris and London, the first water supply systems were built and operated by private companies (Barraque, 2008). Depending on the case in point the involvement of government was at an initial stage minimal as it was restricted to providing financial and institutional support (Barraque, 2008). The government's main distribution focus at the time centred on projects such as public fountains spread out across the city, supporting the traditional vision that people should at least have free access to water resources for their domestic needs. The supply of domestic water to the household was viewed at the time by authorities as a luxury; and it was felt it should be left to private companies. Conflicts grew at the end of the 19th century when municipalities became convinced that water supply was not a luxury, but a fundamental public health issue. In response to the catastrophic health-related issues that struck various towns across the modernised world more governments and municipal councils saw the need to take over the responsibility for developing water and sanitation services. This was the birth of municipal management, and it was ushered in with a complete shift in the role government played in the provision of water (Howard, 2005).

Another set of arguments in favor of the municipal hydraulic system was the trend of modernising economies that increasingly required water inputs in consistently growing quantities (Bakker, 2010). The need for water grew exponentially as cities continued to expand at a rapid pace. The need to

provide universal access and safeguard public health further motivated governments to create public utilities that developed the necessary infrastructure and, in many cases, provided services to consumers on a subsidised basis. The supposed failure of private companies in the 19th century to deal with the broader issue relating to water at the time, acted as a stimulus to the municipal hydraulic model of network water-supply provision, which emerged as the best response to this problem at the time. In economic terms, the high capital cost of water supply development projects and the monopolistic characteristic of water supply networks were used to justify governments' involvement. So, for much of the 20th century the business of water supply and provision in most developed countries was dominated by the government (McDonald & Ruiters, 2005).

Towards the end of the 20th century, the municipal hydraulic paradigm increasingly came under attack as the effects of hydrological developments (in particular large dams), which included the displacement of communities, cultural and environmental degradation as well as the disruption of ecological processes and annihilation of species began to outweigh some of the vague prospects promised by governments. As cities continued to grow so did the demand for water. The highly subsidised municipal hydraulic system inevitably outgrew its reach as more urban dwellers flocked into the cities. The reality of a looming crisis permeated by scarcity began to apply increasing pressure for reform, calling for a remodelling of urban water systems (Bakker, 2010). The realisation that technological solutions on their own could no longer sustain the plans of government to supply all persons with a reasonable access to water and sanitation services called for a need to reassess existing arrangements. This required a level of cooperation and partnership between the government (public) and private sectors as neither of these entities had the full capacity to operate sustainably on its own. The next section discusses this cooperation and partnership between government and private sector.

2.4.1.5. The public and private sectors in water provision

The management of water across the globe is shared generally between the public and private sectors. According to the World Bank (2004), the role of each sector has proven invaluable despite ongoing debates on which sector provides the most suitable mechanisms for ensuring that water is supplied equitably in the most sustainable manner. It is observed that the role each entity plays in the provision of water will differ in one area from another. In general, most countries have opted for a partnership of the two, where the government acts as a regulatory body whose role is to provide the institutional framework, funding and infrastructure necessary for the private sector to provide the services.

The government has historically been at the helm of water provision in most countries across the world (Howard, 2005). Its role has been to act as the principal financier and operator of infrastructure and for

service provision. The scale of infrastructure and investment required to supply water to the industrialised cities across the modern world has proven overwhelming for most governments to operate and maintain financially on their own without private sector support (Ndaw, 2016). The increasing role of public-private partnerships began to gain traction, ushering in a new era of cooperation and coordination. The role of the government has since shifted from its historical position towards a more regulatory role. In many countries, the role of the government has been reduced to that of an overseer (Howard, 2005). In general, the responsibilities of the government acting in this role include monitoring the operation of water service providers and providing the necessary institutional framework.

With changes in the role of the public sector came the opportunity for the private sector to redefine its role and contribute to the water sector in a new way. Previous studies have shown that the role of private companies in the water sector was seen as restricted to consultancy, construction and goods supply. Since the late 1990s, private sector participation has expanded to play a larger role in water supply management especially in industrialised countries such as the United Kingdom, United States of America and France (Howard, 2005). More recently, countries in the developing world have also opened their markets to the private sector to ensure that it plays a larger role in the water sector. The shift to private companies has increased their involvement in development and management of infrastructure as well as the provision of public services (Panayotou, 1998).

The following changes created by the new public and private partnership arrangements have created new roles for private companies in the water sector. The most common arrangement is where a private company is contracted to carrying out specific packages of work for a particular project or contracted for the management of all operations related to the provision of the service (Ndaw, 2016). An alternative role is established through the concession arrangement where the private company is responsible for financing the investment costs of the system including system expansion, operation and maintenance. Full divestiture refers to an arrangement where a private company, in addition to service delivery, is handed the ownership of public assets. The final role (arrangement) is that of a company acting as a private supplier where the water system is developed and operated completely by a private company entirely (Ndaw, 2016). These various arrangements created various roles for private sector companies to contribute more inclusively to the development of the water sector. There is still a lot of doubt surrounding the ability of private companies to equitably provide such a service to poor communities.

2.4.1.6 The public vs. private provision debate

The public vs. private provision debate is in essence an ideologically framed debate over which of the two, between the state (public) and markets (private) produces the most beneficial service to people, at the least cost to the environment (among other factors). The argument raised against private sector provision is its inability or reluctance to provide water equitably to all groups of people in society (Barraque, 2008). The argument follows that the poor are often the worst off, and that the consequences of failing to provide water raise hygiene and public health concerns that cannot be left to market forces to control, providing important justification for providing water as a quasi-public commodity (Bakker, 2010). The reason many have attributed the reluctance of private sector companies to invest more in rural areas is rooted in the principles of cost recovery that emphasise closed circle investments and prioritise efficiency over other considerations such as equity and justice (Barlow, 2007). Private companies have generally been characterised as profit-oriented entities, introducing such principles to public services has always been a highly contested issue. Consequently, the apparent inability of the private sector to finance universal provision provided sufficient motivation for government intervention. In areas where private companies continued to operate, such as France, England and Spain, strict regulations have been set to curb the overpricing of services. For example, in the UK the amount of money a utility makes in profits from providing services was capped, and the remainder was redirected for reinvestment (Bakker, 2010).

Proponents of privatisation, in particular those that share the views of classic economists, countered these arguments with the inability of public sector entities to sustain and maintain operating existing systems (Bakker & Cook, 2011). The basic premise of the argument is that governments are less productive, efficient and effective than markets. In the case of water, the argument is that governments have in the past managed resources poorly by failing to adequately service the poor with safe water supplies. The second bone of contention raised is about the consequences associated with development concepts pursued by governments in the race for modernisation and urbanisation and on the consequences for the environment and ecosystem (Bakker, 2010). This line of argument follows the neoliberal critique of governments as poorly incentivized entities without the penalties in place to curb excessive spending or environmental degradation on mega projects (Bakker & Cook, 2011). The failure of public entities in water provision has in some circles been due to the shortcomings of large-scale hierarchies and the associated decision making and incentive mechanism.

In addition, some argue that the neoliberal policy agenda provides a conflicting environment for addressing the provision of water for the poor and mitigating the effects of climate change (Pressend, 2011). This argument is based on the view that private companies or public-private partnerships are

more inclined to act in the interest of profit. This undermines many of the efforts set in place to help the poor as the interests of companies will often conflict those of the public. Despite acknowledgements that the free basic water policy has provided water for millions of people since 1994, alternative literature on the topic argues that policies like the free basic water policy that are informed by the doctrine of neoliberal globalisation, are inadequate for addressing the provision of water for the poor and mitigating the effects of climate change (Pressend, 2011).Such literature argues that in our globalised world, water is increasingly viewed as an economic resource, (and not a public good) to be managed via the market by private companies or public-private partnerships through the development of "water-pricing policies." As a result, polices adopted by South Africa after 1994 imply that items such as water, electricity and other social sectors, which were once the exclusive terrain of the public sector are now corporatized and operate based on making a profit (Pressend, 2011). This undermines many of the efforts set in place to help the poor as the interests of companies will often conflict those of the public.

2.4. 2 Water governance and institutions

Governance is understood and defined as a process of decision making that is structured by institutions (laws, rules, norms and customs) and shaped by ideological preferences (Eberhard *et al*, 2016). The concept describes the range of political, social, economic and administrative systems responsible for the development and management of water resources and ensuring the delivery of water at various levels of society (Romzek, 2009: 45). As a result, the governance of water therefore implies the capacity for coordinated action of laws, policies and institutions at all dimensions. Poor governance can therefore be understood as the deficiencies in such capacities, i.e. the inadequacies and poor implementation of policies, strategies and legislation relating to water resource management (Ackerman, 2004). Studies investigating the issue of poor water governance have found that the actual weakness of states showing low governance capacity, is the consequence of institutional failure. In support of this claim, Iza and Stein (2009) maintain that water governance should be approached as a means to an end. They argue that without clearly established legal structures, institutions face difficulties in knowing how to operate, and in the absence of effective institutions, compliance and enforcement capacities tend to be weak, making policy highly ineffective (Iza & Stein, 2009).

2.4.2.1 Institutional transformation, bureaucratic paradigm and transforming governance

It is observed that as governments all around the globe continue to hold a position of centrality in the governance of water, rethinking the approach to developing high quality government institutions

becomes imperative (Gera, 2008). The bureaucratic paradigm describes the traditional approach in which public sector organisations were managed (Tiroyamodimo, 2007). This approach to public sector governance was characterized by a complex, top-down, hierarchal, rule-based decision-making system that undermined the self-determination and identification of objectives by the people on the ground (Yamomoto, 2003 cited in Tiroyamodimo, 2007). This fundamental flaw within the system was identified and challenged during the upsurge of ideas promoting governance from the lowest tier of society, i.e. the community.

The main criticism of the bureaucratic paradigm was that it distorted procedural daily activities and more importantly, produced insufficiencies within water service delivery (Gera, 2008). The fact that governments at a national level had the power to intervene at local level and override decisions initiated at that level calls for concern on the basis that the national government's identification with the problems may in some instances be far too abstract and more importantly, lacked proper understanding and context (Lynn *et a*l., 2000).

2.4.2.2 Institutional reform

Water institutions are no different from other institutions in that they tend to be subjective, path dependent, hierarchically dependent and deeply vested both structurally and spatially, and embedded in the social, political, cultural and economic context (Backeberg, 2005). These features of water institutions considered together suggest several things. The first is that individuals within the institution and the perceptions they hold influence change within that institution internally, secondly, that change within institutions is a continuous and gradual process, and lastly the fact that contextual factors have a powerful impact on the process of institutional reform. What this implies is that institutional change can emerge from both endogenous and exogenous environments of institutions. The overall performance of water institutions, therefore, depends not only on the capabilities of their individual aspects, but also on the strength of structural and functional linkages between them (Saleth & Dinar, 2004).

It is important to note that the process of institutional reform should stress the need to initiate reform of the rules and processes that govern and guide institutions and should not be reduced to simply creating new kinds of institutional structures. International experiences on the process of reform have found that there are several key success factors associated with successful institutional reform processes. These include: (a) triggers of reform, i.e. the conditions and magnitude of crisis need to be unfavourable enough to warrant the pain and upheavals of taking up the reform process in order to ensure success; (b) a good understanding of the benefits; (c) political commitment and strong leadership; (d) clarity concerning mandates, roles and responsibilities and decision making; (e) clarity on preferred

institutional forms and outcomes; (f) respect for local democracy; and lastly (g) cooperative governance (DWAF, 2002).

It should be noted that in no way are these factors to be confused as some form of fixed conditions or prerequisites necessary for institutional reform, as all reform is rooted contextually. Studies interested in the process of institutions for water management seem to agree that there is no single best institutional model to satisfy all solutions. Institutional requirements for water management are subject to the environmental conditions where reform is initiated; and these are determined by the stage of development in the water sector. A cross-country study undertaken by the 'International Union for Conservation of Nature and Natural Resources' (IUCN, 2016) found that the key drivers of institutional evolution are often the water-related issues that the sector faces as the water resources are gradually developed and utilised.

2.4.3 Water and institutional capacity

The process of decentralisation[1] in many countries resulted in the transfer of responsibilities to local structures that often lacked the capacity to effectively deliver services to their constituencies. Capacity has been noted as a key determining factor in the viability of how municipalities perform (UNDP, 2010). A study assessing the adaptation of the capacity of institutions to deal with climate change and its impact on the health and water sectors in Cambodia, found that the challenges affecting the municipality were rooted in serious capacity development issues (Dany *et al*., 2015). A similar study based in Turkey and the West Balkans revealed the insufficiency of capacity within municipalities in providing reliable, quality services on an equitable basis to their constituencies in a responsible and sustainable manner as one of the main challenges for the provision of water (UNDP, 2010).

The study on capacity in Cambodia insists that understanding the level of existing capacity is the first step to increasing capacity, followed by a process of identifying priorities for the formulation of solutions (Dany *et al*., 2015). The study focused on assessing the capacity of organisations to implement climate change activities in Cambodia; and the researchers identified four specific elements of capacity for assessment: (1) financial resources, (2) cooperation and cooperation of stakeholders, (3) availability

[1] The type of decentralisation referred to in this section is political decentralization, which is to give citizens or their elected representatives more power in public decision-making at various levels of government. This form of decentralisation is based on the assumption that decisions made by local authorities with greater public participation at a local level will be much more representative and better informed than those made by national political authorities at a national level (Falleti, 2005).

and quality of information on vulnerability and adaptation to climate change, and (4) the level of understanding of climate change vulnerability and adaptation (Dany *et al*, 2015).

It is worth noting that the problems of institutional capacity are not unique to Cambodia. A study on water governance in India found that the implementation and the institutional capacity ineffectiveness are the largest challenge inhibiting water provision. This study has proposed a different methodological approach as an alternative to high-level legal and policy reforms. It proposed a more practical approach focusing on incremental improvements primarily within the existing institutional framework, and gradually building political support for gradual and realistic institutional improvements (Garduno *et al.,* 2011). Water service institutions have the responsibility to coordinate the various sectors with interests in or control over water. The lack of capacity to effectively coordinate these sectors effectively in many countries has led to inefficiencies in management practices. The lack of coordination leads to fragmented structures and ineffective planning; and this makes policies ineffective and creates the gap between policy and implementation. A similar experience was noted in Lesotho where issues of fragmented policies and planning included poor allocation of water to meet current and future demands; conflicts in management of resources; duplication of efforts and to some extent negligence leading to environmental degradation, poor allocation of public investment in water resources development and poor conservation of water resources. The country's solution to this challenge was to undertake a process of policy reform where water policy was centralised to dismantle the effects of fragmentation (Tiroyamodimo, 2007).

2.4.4 Water scarcity in South Africa

South Africa is similar to many other countries in the region as it has been characterised as a water scarce country. Evidence suggests that in the last 15 years the country has recorded some of the lowest levels of rainfall in relation to the global average. In fact, South Africa has been classified as one of the world's driest countries ranking 30th in the world (DWA, 2012). Although the government has made considerable efforts at reforming the regulatory framework and institutional arrangement of the water sector in order to improve service delivery to historically disadvantaged communities in the country, water scarcity still poses a serious threat to socioeconomic development. In recent years, the agricultural, tourism and mining sectors have been harshly affected by the restraints imposed by changing water use following the recent drought (Blignaut & Heerden, 2009).

Water scarcity also causes serious health and environmental issues that often demand costly intervention. Water scarcity issues have become an even greater concern as environmental instability

and climate extremes call for improved adaptation capacity in order to mitigate and reduce the effects and impact of drought conditions (Blignaut & Heerden, 2009). It must be noted that in South Africa water scarcity is experienced differently by different groups in society; in many cases the poorest groups are the worst off as they experience water scarcity on a daily basis (DWA, 2012). The reality around water scarcity in South Africa is that some areas are challenged to absorb fast-growing populations and increasing demands presented by the spatial disparities in relation to where people have been located historically in areas where water is found naturally. The study area selected in this research falls under one of such areas in KZN and the diagram below represents the gap between existing supply and projected demand.

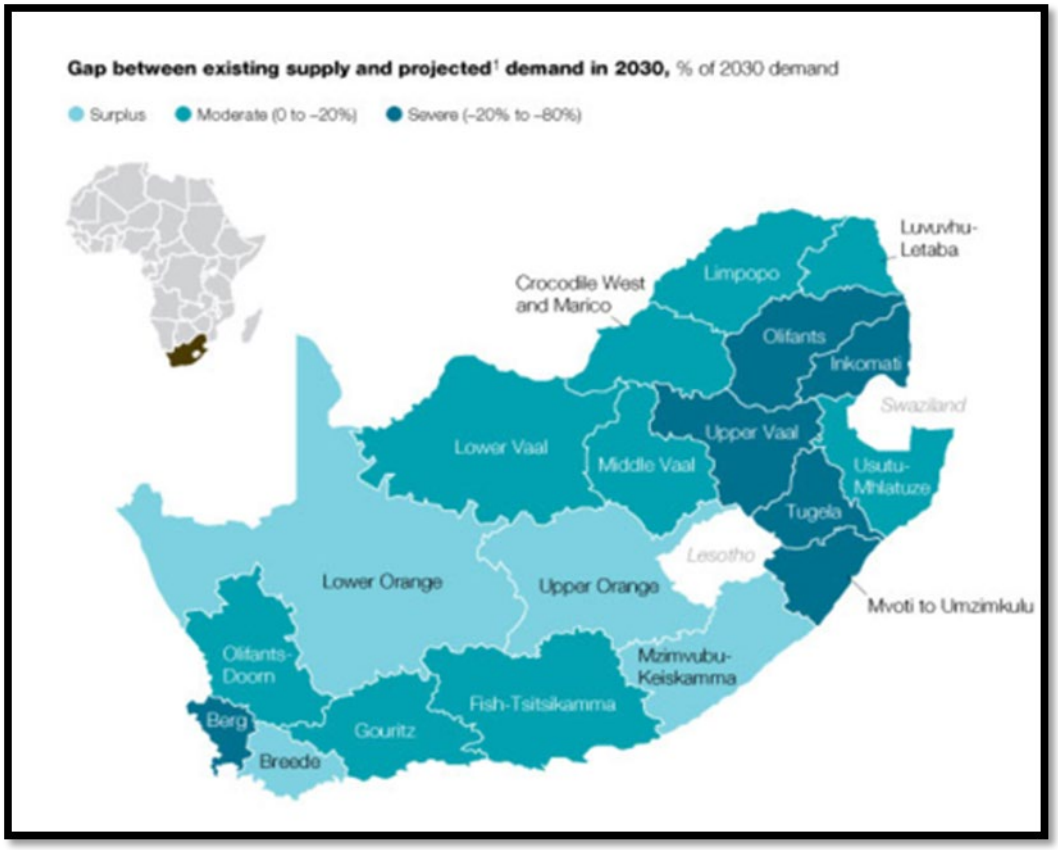

Figure 2.1: 2030 water demand in South Africa

Source: Water Research Commission; South African Department of Water Affairs and Forestry (DWAF); Statistics South Africa; 2030 Water Research Group

With the end of apartheid in 1994, the newly elected democratic government led by the African National Congress (ANC) initiated reform processes with the aim of redressing past imbalances in terms of access to water. The Department of Water and Sanitation (DWS) as guided by the National

Development Plan (NDP) [2] has placed water and sanitation provision at the center of the government's programmes. Water is recognised for its role and capabilities as a cross-cutting agent for change, that can be used to steer the country towards more radical socioeconomic transformation, to create jobs, reduce social inequality and challenge all forms of poverty. The broad vision of the NDP for water resources and services is that by 2030 all South Africans will have affordable access to sufficient, safe water and hygienic sanitation to live healthy and dignified lives. At the top of their priorities is the goal of ensuring that they increase the pace of service delivery and ensure the development of a more resilient infrastructure to help meet the needs of households, industries, commerce and the environment (Pietersen *et al.*, 2011).

The reality brought about by the historical burden inherited by the ANC led government in 1994, was that water resources needed to be strategically divided between addressing the huge service backlog facing mainly households in rural areas without access to water and ensuring that enough water is available to support and facilitate economic growth. Although the Department of Water and Sanitation (DWS) claims that it has achieved one of the Millennium Development Goals (MDGs) of halving the number of people without access to drinking water within the country by 2015, it acknowledges the remaining challenges of implementing water usage as a human right and overcoming the anomalies in water distribution, where people reside near water sources and still do not have access to it (DWAF, version 6). The lack of capacity at local government level has been recognised by government as one of the key challenges to achieving maximum service delivery efficiency. Government notes that the inefficiencies of the former Department of Water Affairs and Forestry (now known as the Department of Water and Sanitation) and poor management issues are the consequence of capacity insufficiencies. The need to strengthen institutional capacity at all levels is therefore a well-recognised priority for scholars and policy makers alike.

The complex challenge of water scarcity calls for improved systems of managing water to ensure a more sustainable and water secure future for everyone. For existing systems such as the municipal water supply system to remain effective, a considerable amount of reform needs to be undertaken to enhance their adaptability (Ivey *et al.,* 2004). The adaptability of a system is its ability to absorb a considerable degree of complexity and change with the least possible effect on its intended output (Ivey *et al.,* 2004). The solutions to creating a water secure future are in no way straightforward. Scholars like

[2] The NDP (National Development Plan) is a long-term strategic plan for development in South Africa. The plan aims to ensure that all South Africans attain a decent standard of living through the elimination of poverty and reduction of inequality. Some of the core elements of a decent standard of living identified in the Plan include: housing, water, electricity and sanitation, quality health care and employment (Zarenda, 2013).

Mehta (2014) argue that technological solutions on their own are insufficient. Several other authors writing on the topic have stressed that consideration around factors such as the competence and capabilities of the management institutions, prevailing socio-political conditions and supply management systems (Ivey *et al.,* 2004; Biswas, 2004) are without any doubt just as important. Biswas (2004) extends this list of considerations to include: the appropriateness and implementation status of the existing legal framework's funding availability, environmental and social conditions, modes of governance including issues such as political interference, transparency and corruption as well as the quality and relevance of research on water.

2.4.5 Legislative framework for service delivery

The phasing in of new government policies after 1994 brought about major changes to service delivery in the country, based on the need to redress past imbalances. The 1996 Constitution of the Republic of South Africa gave local governments the right to govern their local affairs on their own initiative. One of local government's core functions is to drive initiatives seeking to eliminate the consequences of apartheid policies and planning. The underlying mandate is that municipalities should ensure that basic services are provided to all South Africans within the resources available (SALGA, 2011 cited in Vanbaalen, 2014). According to the Department of Cooperative Governance and Traditional Affairs (CoGTA) the spatial representation of service delivery backlogs in the country seems to concur with that of historically disadvantaged areas such as the former Bantustans where service delivery was intentionally disrupted by limiting the capacity of municipalities (CoGTA, 2009).

The overall performance of municipalities in relation to service delivery in the country is not up to the standard required and expected to meet the developmental goals set out by the government of providing water and sanitation for all. The inadequate performance of local government municipalities seeks to undermine the rights of South Africans to a dignified life and access to eight basic services, which, besides the provision of water include refuse removal, sanitation, municipal roads, electricity provision, storm water management, municipal health care and fire response services (CoGTA, 2009). Studies investigating factors limiting the performance of municipalities have found that apart from the shortcomings of leadership and management and technical inefficiencies, municipalities are experiencing a lack of organisational capacity (CSIR, 2014). To date, most of the organisational capacity building initiatives undertaken in the country have tended to focus on a municipal engineering capacity and other technical aspects. Many of these efforts have failed to produce the intended

outcomes mainly due to inaccuracy in capacity gap identification and improper preparation of capacity building initiatives (CoGTA, 2009).

2.4.5.1 Water management and legislative framework in South Africa

The Constitution of 1996 makes provisions for the government to undertake the task of providing all persons (especially the poor) with access to water and other basic services to redress the imbalances of the past. The Water Services Act (1997) and the National Water Act (1998) went further by providing the legal framework for the protection, development and management of South African water resources as well as for the provision of a potable water supply respectably. The latter Act also made provision for the establishment of catchment agencies as well as the reservation of water for the ecosystem. This ushered in a new age of transformation for the water sector as the need to service all the people with at least a basic amount of water holds central to the vision of a new South Africa. The responsibility of ensuring that people are provided with water as a basic service was provided for in the 1997 Water Services Act. The Act, among other things, enables Water Service Authorities (local government i.e. District Municipalities and Metro's) to act as regulators within their areas of jurisdiction, and their primary mandate is to focus on basic water provision and the maintenance of existing systems (Schreiner, 2007).

2.4.5.2 Water sector challenges

The 1994 estimate at the time of the hand-over recorded an alarming 12-14 million people with no access to water across the country (Rogerson, 1996). Although the government has, according to many sources, fared quite well in terms of the progress made to reduce these numbers many challenges persist. The need to redress the racial imbalance in terms of access to water and services in general continues to provoke tensions amongst South African society. Existing water allocation programmes have been criticised for failing to bring about meaningful transformation. One of the main limitations many of these water allocation programmes face is linked to the issue of ageing and insufficient infrastructure. The lack of new major infrastructure (national and local) to match the growth of urban populations across the country has also limited the ability of existing programmes to provide sustainable solutions.

The nature of water requires a level of co-operation between countries sharing cross-border resources. South Africa's reliance on its neighboring states for water also presents a challenge in terms of being forced to operate within regional extraction agreements. This also needs to be in line with the country's water conservation policies, which are continuously stressed and placed under pressure by harsh climatic conditions. The challenges presented by climate change to the water sector are by far some of

the most adverse. The lack of predictability and the consistent fluctuation of temperature extremes present a major challenge to the sector as the demand for water continuously grows beyond the means of supply. In addition, the threat presented by depleting surface water and limited ground water sources forces the government to seek alternative solutions to either increasing supply or reducing water withdrawal (Schreiner, 2007).

2.4.6 Water sector institutions in South Africa

The enactment of the South African Constitution in 1996 transformed the face of government through the formation of three spheres of government that transferred the responsibility of service delivery to local government structures. Based on the need to cover previously disadvantaged areas that under apartheid had no formal local authority structures, municipal boundaries were restructured in the hope that rural areas surrounded by urban centres would benefit from the economic benefits trickling down. The Municipal Structures Act of 1998 and the Municipal Systems Act of 2000 provide municipalities with the constitutional basis and guidance towards establishing structured performance management practices (Vanbaalen, 2014). District municipalities play a pivotal role in this arrangement as WSAs. Their function requires that they account for the coordination and cooperation of the various stakeholders. Their responsibility at a local level is to ensure that the local municipalities within them are provided with sufficient bulk water to supply to their constituents. The diagram below is a visual representation of the South African water management structure and institutional arrangement.

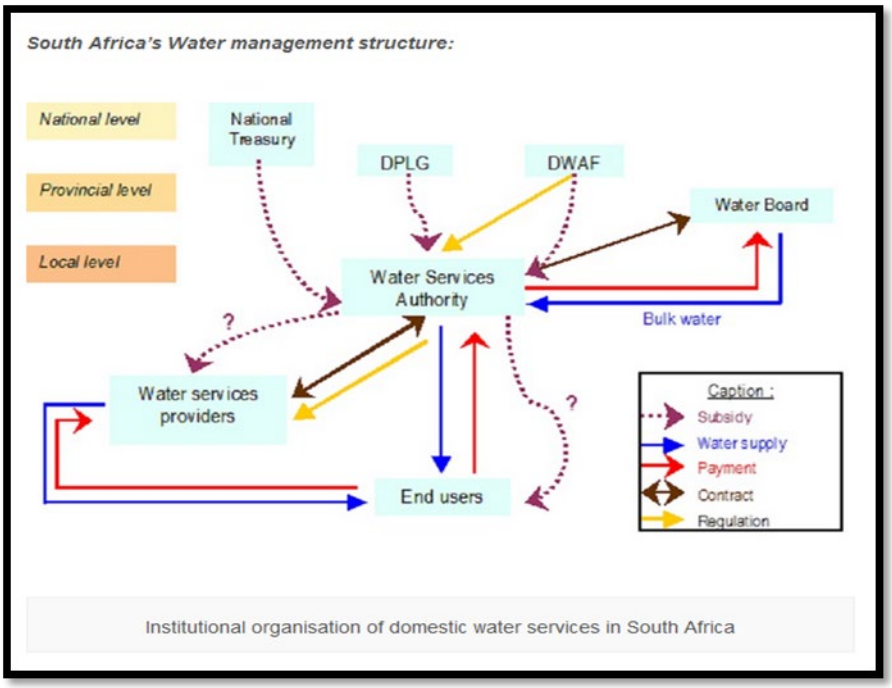

Figure 2.2: Diagram Showing the South African Water Management Structure

Source: Brown (2012)

Even though the South African Constitution of 1996 has put in place a range of statutory provisions, policy instruments and capacity improvement efforts, municipalities are still struggling to adequately attend to the backlog (Vanbaalen, 2014). The Municipal Systems Act mandates municipalities to conduct internal capacity assessment when drafting new or reviewing existing Integrated Development Plans (IDPs). It has been noted that several municipalities in the country have serious capacity deficiencies often resulting from the lack of sufficiently skilled personnel. This in turn affects the ability of municipalities to formulate important planning documents such as IDPs and WSDPs, leading them to outsource these tasks to private companies.

The water sector is guided by a series of laws, regulations and plans that outline the powers, duties and responsibilities of the various actors within the sector. The Water Services Act 108 of 1997 establishes the institutional arrangement for water service provision and sets out the responsibilities for each of the institutions (CoGTA, 2009). The three main actors the legislation makes provision for are Water Boards (WBs), Water Service Authorities (WSAs) and Water Service Providers (WSPs). The South African Constitution of 1996 outlines water provision as a function of a Water Service Authority (WSA), which in terms of the Municipal Structures Act, 1998, is a district municipality or metropolitan with the mandate to ensure access to water service (DWA, 2009a). The Municipal Structures Act also makes provision for Water Service Authorities to either carry out the function of a Water Service Provider on their own or enter into a Service Agreement (Contract) with a Water Service Provider. Water Service Authorities, as the state's agents play a vital role of overseeing the Water Sector and ensuring its performance. One of the key issues raised concerning the existing arrangement between WSAs and WSPs is the fact that private sector involvement is usually undermined by its tendency to be profit driven. The private sector's role in delivering public services is therefore questionable. It has been noted that the government's overall economic approach has tended to encourage market-oriented service provision and therefore undermines the constitutional right of people to water.

The municipality at district level, is one of the main actors in the water sector that tends to play the role of a mediator, linking the public with systems of governance and processes of planning, as well as balancing economic and environmental factors in a tightly woven structure of rules, regulations, policies, actors, norms and processes referred to as an institutional arrangement (Tiroyamodimo, 2007). Noting that the municipality's position within this arrangement makes it a relevant factor in any exploration into the challenges of water provision, this study has explored the relationship that exists

between the municipality as an institution and the institutional framework within which it operates. The purpose of this exercise is to develop a better understanding of the impact institutions have on an organisation's capacity to provide services such as, in this case, water provision.

2.4.7 Organisational capacity assessment

While the merits of capacity assessment are debatable, municipal assessment has increasingly become a strategic source of information on capacity at a local government level (Municipal Demarcation Board, 2014). The Demarcation Board's report (2012) is an all-inclusive document assessing capacity in municipalities across the country and the purpose of conducting this exercise was to identify trends in municipal capacity. This assessment relied heavily on existing information held on municipalities at a national level and data was also collected from different municipalities primarily through interviews. One of the report's most intriguing findings in relation to the capacity of local municipalities in rural areas, was that many of them often did not have the financial means (or other pull factors such as good schools, hospitals and access to services of all kinds) to fill all their vacancies because of organisational design and an inability to hold and attract highly skilled professionals. This can have a considerable impact on the competency of staff and the overall ability of the municipality to function effectively.

2.4.8 Conclusion

The first part of this chapter discussed the conceptual and theoretical frameworks. The concepts discussed in this chapter include water, institutions and capacity in order to give contextual alignment to this study. The second part of this chapter provided theories that will be used in this study for data interpretation. The third part of this chapter provided a critical review of literature on water scarcity, management, institutions, governance and capacity among other interrelated subtopics. The literature reviewed in this chapter presented a compelling argument for the perception that many of the water related challenges facing countless regions around the world are rooted to a large extent in poor governance more so than technical limitations. The final part of this chapter provided an account of South Africa's water history in recent years and the state of water provision within the country. The next chapter will focus on the research methodology.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

The preceding chapter provided a conceptual and theoretical framework for the study. It further provided a literature review of the study. This chapter presents the methodological roadmap of this study, and it also introduces the research strategy and the empirical techniques applied. The chapter also defines the scope and limitations of the research design and situates the research amongst existing research in the field of planning. The last segment of the chapter describes the process and approach adopted to analyse the data collected in this study.

3.2 Qualitative research approach

The study adopts a qualitative research approach as a methodology for data collection and analysis. The qualitative approach was crucial in this study as it facilitated conditions for a much deeper investigation of the phenomenon through the views, experience and perspective of individuals through descriptive accounts (Parkinson & Drislane, 2011). The benefit of using a qualitative approach to this study is that it requires the researcher to extract complex information that is not easily or meaningfully extractable through a quantitative approach (Brikci & Green, 2007). The challenge with understanding capacity dynamics, for instance, requires a full consideration of the various factors affecting or influencing capacity from different perspectives. De Langen (2009), adds that a qualitative approach is best suited for a study that seeks to understand the why, what, and how behind a certain phenomenon or problem allowing a deeper understanding of the topic under investigation. A qualitative research design is therefore best suited for this study as it allows the research to unravel and explore unforeseen complexities in the provision of water and investigate ways in which capacity factors within the UKDM water institution may be affecting the provision of water.

3.3 Case study approach

The strategy adopted for assessing capacity for water provision in municipalities within a rural context is the case study approach. According to Campbell (2003), the case study approach has been widely used in the field of planning and is well suited for research situations with specific characteristics. He emphasizes that owing to the nature of planning; the case study approach presents many comparative advantages over other methods. Campbell (2003) stresses that a majority of the most influential work in

planning has been based on case studies rather than large statistical analyses, and on exceptional rather than typical cases. The case study approach has, however, drawn wide criticism in the field of planning for the lack of analytical rigour and cumulative generalization of knowledge. As a counter to such challenges, the study has adopted the triangulation approach (used in many case studies) to ensure greater confidence in the findings by using different methods to draw analysis. Starman (2013) argues that by using the different methods that make up the triangulation approach (i.e. interviews, observations and documentary analysis) a study can draw on different sources of data to draw a pattern and or establish a relationship between various sources of data. The following section discusses the various strengths and limitations of adopting the case study approach to this research.

3.3.1 Strengths of case study approach at uMkhanyakude District Municipality

The rationale behind adopting the case study approach to assessing water provision in UKDM derives from the need to gain a deeper understanding of the nature of capacity dynamics and the way in which they influence and impact water provision within the municipality. One of the key strengths in adopting the case study approach to the study on water provision in UKDM is that the approach is compatible with the practice orientation of planning, which is consistently interested in comparative examples of best and worst practice (Garvin, 1993). Identifying and differentiating best and worst cases of practice allows the study to compare the various capacity aspects in a controlled manner, which allows for easier analysis of isolated indicators. This is beneficial to the study as capacity is a relative concept based on perception among other factors. Another strength identified in using the case study approach is that by using different instruments for collecting data the study draws from various sources of information, which strengthens the findings of the study.

3.3.2 Limitations of the case study approach at the uMkhanyakude District Municipality

The limitations of adopting the case study approach to the study on water provision capacity at a municipality level include the challenge of generalising findings (Zainal, 2007). This is often due to the relatively smaller number of subjects that take part in the study, as well as the inherent reliance on contextual variances in factors that affect the phenomenon under investigation (Yin, 1984: 21). Another limitation of the case study approach is the lack of rigour, due to allowing biased views and individual perceptions to influence the findings of the study (Yin, 1984: 21).

3.4 Negotiating entry, sampling strategy and methods

The initial point of contact in gaining access to the UKDM was established through emails to the Municipal Manager's (MM's) office. Through the Municipal Manager's Personal Assistant, the

researcher was able to acquire email addresses and contact details of the officials responsible for the departments of planning and water in the municipal district. Following the emails to the various officials within the municipality, telephone calls were made to secure interviews and arrange for further assistance with contacting additional interview participants. The first interpersonal contact with officials and practitioners from UKDM was established at the Department of Water and Sanitation in Durban following a meeting held at the Department's offices. Following this meeting the researcher was able to acquire additional participants from the UKDM; CoGTA and the Department of Water and Sanitation (Water and Planning divisions).

Based on the recommendations of one of the engineers in UKDM, more emails were sent to establish communication with officials from the uMhlathuze Water Board and officials from the Jozini Municipality. In the first instance, officials form uMhlathuze Water Board preferred to respond to the interview questions via email and telephone. In the latter case officials from Jozini Municipality were interviewed primarily over the phone. In one instance, a meeting was scheduled with an official from the Jozini Municipality. The interview also took place in Durban at the University of KwaZulu-Natal, as the official was familiar and comfortable with the environment. In the final phases of the data collection process the research was able to secure additional interviews with an official from CoGTA through the recommendation of an official from CoGTA's Water Infrastructure Division. Negotiating entry into the municipality and many of the other institutions that form part of this study was made easier by the fact that all the contacts acquired were acquired through snowball sampling. An email sent by an officer from CoGTA to planners and other colleagues in the local and Provincial departments also made it easier to gain the trust of most of the participants interviewed.

Due to the large number of potential participants for this study, the practical and economic feasibility of collecting data from all of them was highly unlikely. In general, the data collected for most research exercises is usually obtained from a sample of the participant population. The aim of all quantitative sampling approaches is to draw a representative sample from the population, so that the results of studying the sample can then be generalised back to the population (Marshall, 1996). The selection of an appropriate method therefore depends upon the aim of the study.

The two main sampling methods used in most studies are probability and non-probability sampling. The difference between these two methods is that for one, the probability sampling method, the probability that any element within the population will be included in the sample, can be calculated. The advantages of using a probability sampling method over a non-probability method include the fact that the researcher is able to estimate confidence intervals for the statistic. By adopting the non-probability

sampling, on the other hand, the researcher risks the likelihood that the population may not be an adequate representation of the study population. The rationale behind using the non-probability sampling method is that it allows the researcher to increase the accuracy and relevance of data being collected because it narrows down the likelihood of selecting participants with limited or no access to the relevant data, and instead selects participants on their degree of understanding and exposure to the topic (Marshall, 1996).

A core characteristic of non-probability sampling techniques is that samples are selected based on the subjective judgement of the researcher, rather than random selection (i.e. probabilistic methods), which is the cornerstone of probability sampling techniques. Whilst some researchers may view non-probability sampling techniques as inferior to probability sampling techniques, there are strong theoretical and practical reasons for using them. There are generally two main reasons researchers will choose to use non-probability, over probability sampling for qualitative studies (Doherty, 1994). The first motivating factor is a theoretical one. When following a qualitative research design, non-probability sampling techniques, such as purposive sampling, can provide researchers with strong theoretical reasons for their choice of units (or cases) to be included in their sample. Rather than using probabilistic methods such as random selection to generate a sample, non-probability sampling, on the other hand, requires researchers to use their subjective judgements, drawing on theory (i.e. the academic literature) and practice (i.e. the experience of the researcher and the evolutionary nature of the research process). The second motivating factor for the use of non-probability sampling is a practical one. Non-probability sampling is often used because the procedures used to select units for inclusion in a sample are much easier, quicker and cheaper when compared with probability sampling. Non-probability techniques include quota sampling, convenience sampling, purposive sampling and snowball sampling (Doherty, 1994). This study adopted to make use of non-probability sampling techniques for the following reasons. Firstly, they offer strong theoretical reasoning for choice selection of participants, and secondly, they offer practical reasoning for sample selection in terms of time and affordability.

3.5 Interview process and documentary analysis

The interview process was conducted over a period of eight months. An exploratory in-depth interview approach was adopted with the aim of allowing participants an opportunity to offer their perspective on the research topic in a free and flexible manner. The rationale behind using an in-depth interview was that it allowed the researcher to probe further in instances where interview participants possessed

richer knowledge, expertise and or information on a particular subject (Wilde *et al*., 2012). This allowed the various respondents to give detailed accounts of their understanding of the water situation in and around the uMkhanyakude District. Although all the interviews were conducted in English, many of the respondents would use a mixture of isiZulu, siSwati and English to elaborate or make examples. This allowed the researcher to draw a deeper understanding of the underlying sentiments on the topic.

The intention of the interview process was to gain a better understanding of how capacity has shaped water provision within UKDM. What the researcher planned to draw from this experience was a detailed account of the various limitation's capacity places on the municipality, and its ability to service the function of a water provider. The interviews with respondents each took place in different venues. The majority of the Interviews were held at the eThekwini Department of Water and Sanitation as a few of the respondents (including those living and working in UKDM and Jozini) either live in Durban or travel to the city regularly for work. This made it easy for the researcher to arrange interviews with the respondents as it eliminated the need to travel to different locations. The face-to-face interviews, each lasting around one hour, gave the researcher much insight into the nature of relationships that exist between the different institutions involved in water provision within UKDM.

In total of 15 participants (consisting of: municipal officials from UKDM and the Jozini Local Municipality (LM), government officials from the Departments of CoGTA and Water and Sanitation as well as practitioners from Mhlathuze Water) were interviewed as part of this study. The study adopted an elite interviewing strategy. According to Barbour (2014), elite interviewing allows the researcher to draw credible information from those regarded as experts or authorities in their field. This can have the benefit of adding more credibility to the research findings by allowing the researcher to triangulate among respondents to gain different perspectives on well-known and familiar subject matter to enhance the rigour of the research. Open-ended questions were identified as the appropriate method to obtain as much information as possible on the topic. The respondents were asked the same questions, but the researcher was able to adapt some of the questions to accommodate different perspectives and varying extents of involvement in each institution.

A key process in documenting the interviews was recording. All the interviews were recorded for the purpose and benefit of being able to replay the interview at a later stage. In addition, recording the interviews was also beneficial to the interview process by allowing the researcher an opportunity to conduct the interviews more freely without having to interrupt the respondent to capture what they were saying. The interviews were later transcribed using a set template of categories according to the different research questions and objectives each response fell under. Data collected from the interviews

was also supplemented by the analysis of municipal documents, maps and newspaper articles on water provision and governance within the municipality.

	INSTITUTIONS	DEPARTMENTS	PARTICIPANT BREAKDOWN	PERCENTAGE	TOTAL NUMBER OF PARTICIPANTS
NATIONAL & PROVINCIAL DEPARTMENTS	Water & Sanitation CoGTA	Development & Planning Technical Services Water Infrastructure	2 2 2	40%	6
DISTRICT MUNICIPALITY OFFICIALS / STAFF	uMkhanyakude	Project Management Unit Development & Planning Water & Sanitation	2 2 1	33%	5
LOCAL MUNICIPALITY OFFICIALS / STAFF	Jozini	Development & Planning	2	13%	2
PRIVATE SECTOR INSTITUTIONS	uMhlathuze Water Board	Project Management Maintenance	1 1	13%	2
TOTAL			15	100%	15

Table 3.1: Profile of interview participants

Source: Researcher

3.6 Reliability and validity

Qualitative research is frequently criticised for lacking scientific rigour due to poor justification of the methods adopted, lack of transparency in the analytical procedures and the findings being merely a collection of personal opinions subject to researcher bias. Although the tests and measures used to establish the validity and reliability of quantitative research cannot be applied to qualitative research, there are ongoing debates about whether terms such as validity, reliability and generalizability are appropriate to evaluate qualitative research (Stenbacka, 2001). The concept of validity refers to the integrity and application of the methods undertaken and how precisely the findings accurately reflect the data, whilst reliability describes consistency within the employed analytical procedure.

The validity, reliability and rigour of this study have been ensured by the very intense body of literature that underpins this research. The study's conceptual framework, literature review and the theoretical framework are at the core of this study's assumptions and overall conclusions. The literature and theoretical foundation provided in these sections of the research will be used to support the study's main findings as well as guide the study's enquiry within the limits of the analytical tools available. This study's main claims and points of procedure are founded on those of similar studies conducted within various disciplines, namely engineering, planning and social science studies. In some of these studies the relationship between institutional arrangement and organisational capacity has already been established which provides sufficient credibility for the assumptions made in this study. This research builds on the findings of existing studies while attempting to establish case specific linkages to illustrate its findings. The processes of data collection and analysis have been conducted carefully to ensure that researcher's bias does not influence the findings.

3.7 Ethical considerations

The researcher assured all respondents that their identity would remain confidential. This was to allow participants to respond freely to the interview questions without fear of exposure. Allmark et al. (2009) states that assuring confidentiality is an important part of conducting interviews on a sensitive topic. The nature of this study speaks to the potential incompetency of the institutions involved in water provision within the municipality. This could act as a barrier to truth and cause a conflict of interest if the participants are uncomfortable. Allmark *et al*. (2009) also emphasizes that facilitating trust between the researcher and participants is an important process in facilitating a comfortable environment for respondents. All respondents that took part in the interviews granted consent prior to the interviews taking place. A letter of ethical clearance from the University of KwaZulu natal allowing the researcher to undertake the enquiry was also made available to interview participates during the interview process to guarantee authorization of the study.

3.8 Data analysis

The data analysis process is one of the most crucial steps in arriving at a valid and logical conclusion in the research (Kalpesh, 2013). Without a specific and clearly mapped out methodology for data analysis, the researcher is unable to sort and digest the data collected into interpretable themes. Kumar (2011) describes data analysis as a process of organising, describing and providing structure to extracted data. An alternative definition describes data analysis as a process of obtaining usable and useful

information. The purpose of undergoing this exercise is to present the findings of the analysis in a summarised and organised manner. The different methodologies for analysing data depend on the nature of the data under analysis.

Bryman (2001) stresses the importance of understanding the strengths and limitations of using either of the methods of research i.e. qualitative or quantitative. The study adopts a qualitative approach to analyse the data collected. Associated with the qualitative approach is an analysis technique that involves organising and arranging the interview findings thematically. The various themes and subcategories formulated through the analysis process allowed the researcher to interact with the data in a much simpler and more effective manner. The various themes used to organise the data were derived from the research questions and objectives. Sorting the data into themes allowed the researcher to address specific objectives individually with the depth, detail and clarity a qualitative research requires (Bryman, 2001).

3.9 Conclusion

This chapter presented a road map and overview of the various approaches, methods and techniques adopted in the process of data collection and analysis. The chapter provided the rationale behind adopting a qualitative research approach to this study. It also discussed the relevance and logical considerations behind adopting a case study approach to assessing water provision in municipalities characterised by a predominantly rural context. The chapter described the data collection and analysis process in this study. It showed the reader some of the steps and tools applied by the researcher to collect data. The chapter also presented the logic in using interviews as the primary data collection tool for this research. The last part of the chapter discussed the data analysis process. The next chapter presents the findings of the study from primary data.

CHAPTER 4: WATER GOVERNANCE AND INSTITUTIONAL ARRANGEMENTS – UMKHANYAKUDE DISTRICT MUNICIPALITY

4.1 Introduction

The previous chapter presented the methodology, which provided a detailed account on how the data collection and analysis for this research was undertaken. This chapter provides an in-depth analysis of water governance and institutional arrangements within the uMkhanyakude District in order to gain a better understanding of the study area and the various contextual elements that underpin its performance in water provision. This chapter allows for the concepts of water provision and capacity to be explored contextually, by providing a situational analysis and overview of the municipality's financial, infrastructural, institutional and organizational capacities. The discussion begins with a look into the municipality's environmental and socioeconomic characteristics before looking into its current state of performance, capacities and institutional arrangement. This chapter is of value to the overall dissertation because it provides a basis for understanding and interpreting the analysis undertaken following the field work and data collection processes.

4.1.1 Location and municipal boundaries

According to the Constitution of the Republic of South Africa (1996) and the White Paper on Local Government (1998), the uMkhanyakude District Municipality (UKDM) is a category C municipality located in the far northern region of the KwaZulu-Natal province (32, 014489 - 27, 622242). The total area covered by the municipality is recorded as 13 855km², which makes it the second largest in the province, preceded by only the Zululand Municipality (UKDM, 2016).

The UKDM was established soon after the December 2000 local government elections as part of the municipal demarcation, which incorporates some of the poorest and most underdeveloped regions of KwaZulu-Natal (Rothaug, 2003). Initially, at the time of its establishment after the December 2000 local government elections, the District Municipality had a total of five local municipalities under its authority. More recently, following the 2016 local government elections, its boundaries have undergone another round of re-demarcation, where the Big Five False Bay and Hlabisa local municipalities were merged to form one local municipality - now known as the Big Five Hlabisa Local Municipality. UKDM now consists of the following four local municipalities: uMhlabuyalingana, Jozini, the Big Five Hlabisa and Mtubatuba

(See figure 4.2 page 59). Outside its boundaries the municipality is bordered by Mozambique to the north, the Indian Ocean to the East, uThungulu River to the South, Zululand to the west and the Kingdom of Swaziland to the north-west (uMkhanyakude District Municipality, 2015).

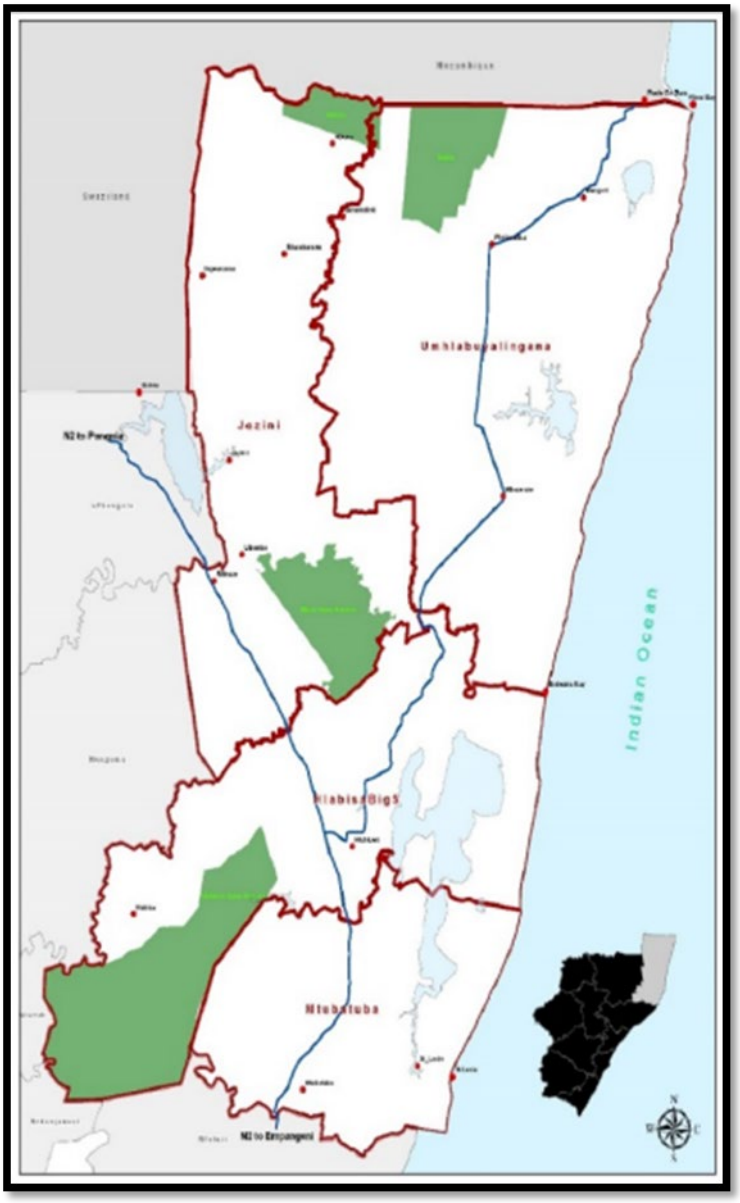

Figure 4.1: Map showing the study area boundaries

Source: UKDM IDP 2018/2019

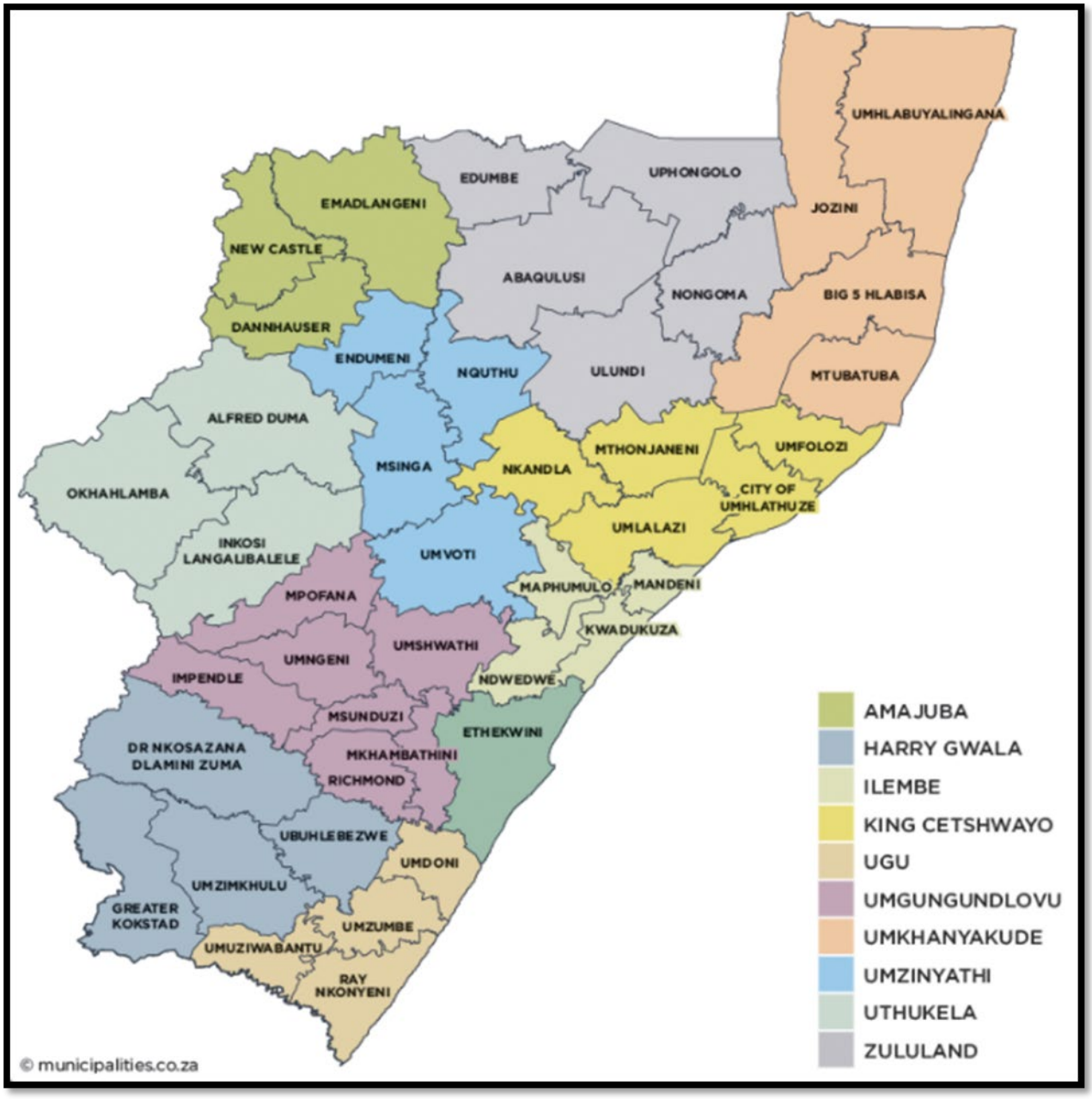

Figure 4.2: Kwa Zulu Natal Municipal boundaries map

Source: *https://municipalities.co.za/provinces/view/4/kwazulu-natal*

4.1.2 Background

4.1.2.1 Poverty and unemployment

UKDM is regarded as one of the most rural and impoverished district municipalities in the province. The area includes a few urban areas that have experienced a slight increase in population over the last few years. In general, the majority of the municipality's population is considered poor with at least 80% of the households in the area said to be surviving on less than R38 000 per annum (Bigen Africa, 2016). The vast majority of its 689,090 inhabitants live in the rural areas of the municipality rendering them generally dislocated from accessing services as the bulk of the municipality's infrastructure and services are located within and around its few urban areas (See figure 4.3 page 51 for urban areas). The municipality's few towns, Hlabisa, Hluhluwe, Ingwavuma, Jozini, Mbazwana, Mkuze, Mtubatuba and St Lucia are incapable of providing the economic stimuli the municipality requires to break the poverty cycle stifling its growth (UKDM, 2015). The poverty in the district is further exacerbated by the overwhelming lack of growth opportunity and high illiteracy challenging the district.

According to the STATSA 2011 census, at least 31% of the district's working-age population is unemployed. When broken down by age the statistics show that as many as 35% of the unemployed population is younger than 25 years of age with a further 34.9% being between the ages of 25 and 34 years (UKDM IDP, 2016). The general figures of unemployment are quite consistent across KZN. The UKDM 2016 IDP reports that at least 14% of the unemployed population have received no formal schooling and a further 17% have only primary level education. These findings pose an alarming threat to the municipality's economic growth potential as they imply stagnant growth in formal sector employment. The high level of unemployment in UKDM paints a bleak future for the municipality's plans to eradicate poverty as research has shown that a tendency to high unemployment contributes to furthering poverty (UKDM IDP, 2016).

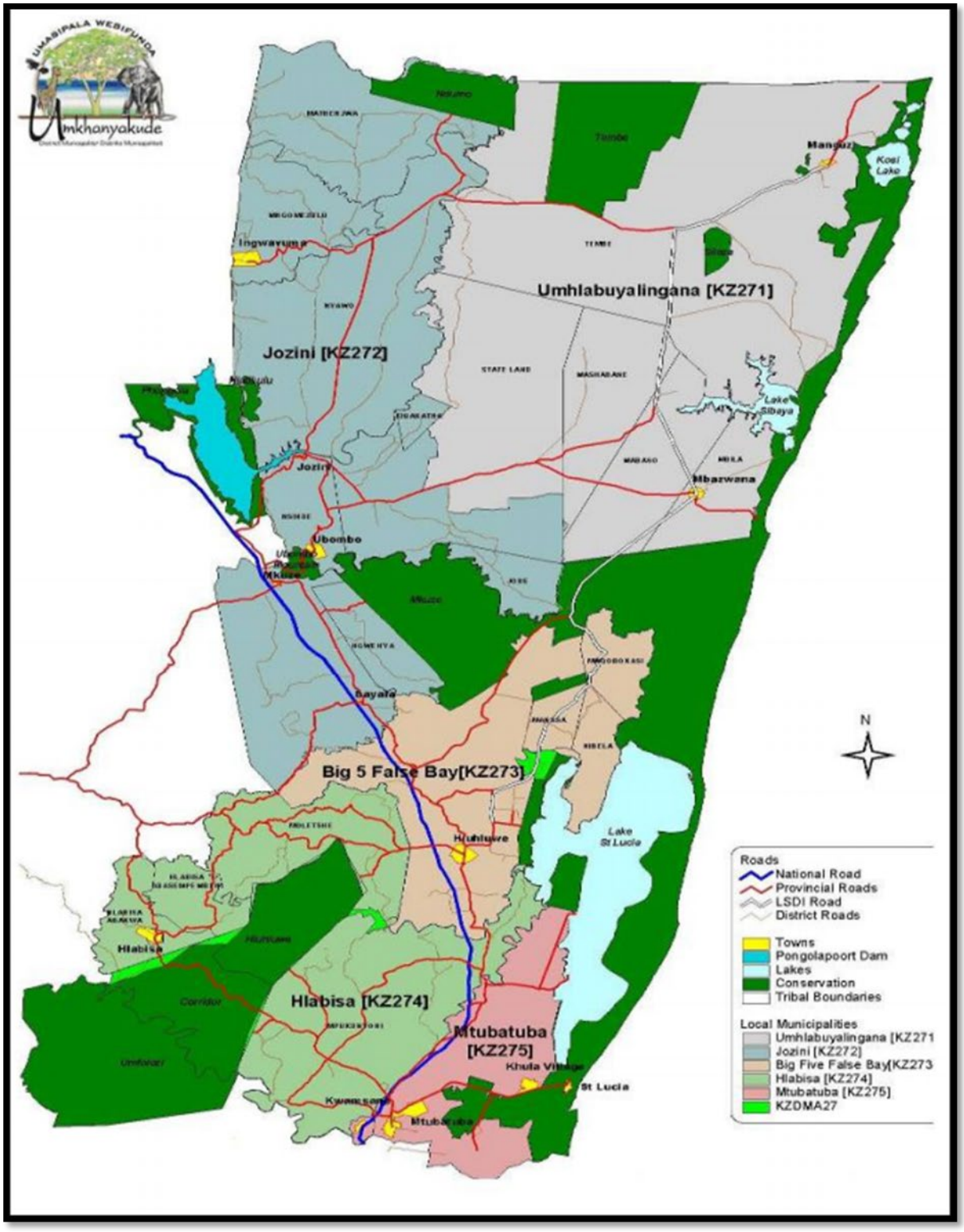

Figure 4.3: Map showing the location of towns and major networks within the municipality

Source: UKDM Integrated Development Plan 2016

4.1.2.2 Economic activity

The extent of poverty in the area has compelled many of its inhabitants to survive through subsistence agriculture, grants from the government and remittance from family members working outside the municipality as employment opportunities are low. The key economic sectors in the area are its agricultural, tourism and trade industries (UKDM, 2015). The agriculture and tourism industries are considered as the mainstay of the district's economy. At the heart of the municipality's economy is its natural environment. The combination of fertile land, water and a wide biodiversity of both fauna and flora make the municipality a preferred destination for both tourism and agriculture. The combination of the latter industries and the intersecting corridors creates a favourable opportunity for trade as the energy and vibrancy injected into the economy by these sectors (agriculture and tourism) provide the foundation and stability required for the establishment and sustainable growth of business nodes and corridors (UKDM, 2016). The area's natural parks and conservation areas, as well as its high labour intensive agricultural sector combined with the service and retail opportunities provided by its urban nodes, corridors and rural hinterland, create an interdependent economic landscape where all the sectors rely on one another for growth and provide suitable conditions for the expansion of other sectors.

The complete list of economic activities within the municipal area includes a range of other sectors, which are as follows: manufacturing; finance, insurance, real estate and business services; wholesale and retail trade, catering and accommodation; transport, storage and communication; general government; community, social and personal activities; agriculture; construction; electricity, gas and water; as well as mining and quarrying (Davis *et al.,* 2012). Figure 4.4 represents the various contributions each of these sectors makes to the provincial economy. While agriculture is a critical sector in terms of food security, the commercial component of agriculture in the district is very small. According to the strategic overview of water resources document by DWS (2015), agriculture consumes at least 60% of the water allocation per sector. The national split for the other sectors of the economy are as follows: municipal (27%), mining (3%), industry (3%), energy (2%) and afforestation (3%) (DWS, 2015). This relationship with water shows a very intricate dependency on water for continued growth in the economy. It is therefore crucial that there is a clearly monitored balance between economic, social and environmental priorities with regard to water to secure the municipal growth vision as highlighted in its IDP.

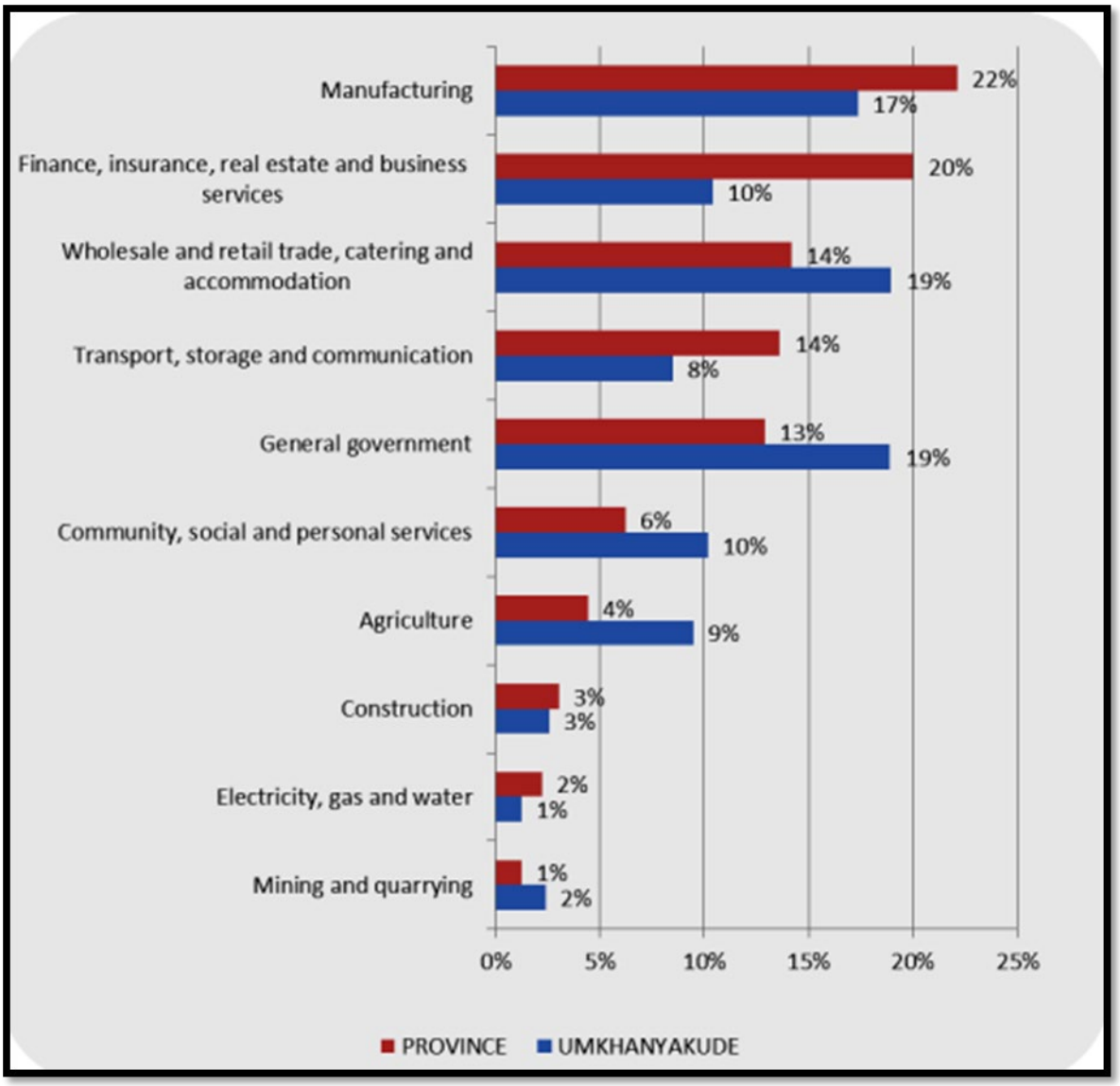

Figure 4.4: Diagram representing the economic contribution per sector in UKDM

Source: Bigen Africa (2016)

4.1.2.3 Land use and ownership

The UKDM has three main types of land use grouped as: (1) traditional or tribal authority areas; (2) commercial farms; (3) industries; and (4) towns (Bigen Africa, 2016). The full land cover of the municipal area is included in Table 4.1 below. What it shows is that at least 50% of the land cover is classified as bushland (thicket) with a further 11% under grassland and 4% under indigenous forest. Water bodies and wetlands comprise a further 15% of the surface area of the district. Land use under

some form of cultivation amounts to 17% whereas only 2% of the area is taken up by residential land use.

The land ownership breakdown in the district is summarised in table 4.2 below based on cadastral information provided by the Surveyor General (SG). As may be noted, in a large portion of the district, land ownership could not be established from the data provided by the SG. In the remaining area most of the land falls under the Ingonyama Trust (31%) and State ownership (9%). It also appears from the table that about 3% of the land is under private ownership, the majority of which is probably under commercial agriculture and/ or game farming. Table 4.2 shows that the municipality owns a relatively small proportion of land. The overall land allocation for settlement amounts to 123,187 Ha in the district of which the majority falls under rural settlement (127885ha) and the remaining 4700ha under formal urban development.

Landuse	Area(ha)	%
Bushland and Bushland Thicket	671 277.8906	50
Cultivated, Commercial, Dryland	21 266.18993	2
Cultivated, Commercial, Irrigated	21 205.98523	2
Cultivated, Subsistance	120 050.4387	9
Eroded/Degraded Areas	7 831.863677	1
Indigenous Forest	53 340.68842	4
Industrial/Mines/Quarries	285.9348447	0
Plantation	55 041.3596	4
Primary Grassland	151 654.5767	11
Residential/urban areas	30 768.59619	2
Secondary Grassland	3 539.988358	0
Unclassified	32.0675002	0
Waterbodies	105 608.9753	8
Wetlands	97 763.7855	7
Unclassified	361.4449968	0

Table 4.1: Table showing land use area and percentage in UKDM

Source: UKDM SDF 2016/2017

Cadastral Ownership	Area(ha)	%
Association	938.1951227	0
Board	20.2891444	0
Church	19.7569185	0
Closed Corp	16349.55906	2
Ingonyama (ITB)	275432.7752	31
LTD	10435.42158	1
Municipal	371.0676502	0
PTY LTD	67323.09428	8
Private	22335.68217	3
Roads	981.184391	0
School	76.0183126	0
State Land	77379.43016	9
Formal Urban	46.5638853	0
TransNet	34.9113572	0
Trust	19863.19192	2
Unknown	393903.7162	44

Table 4.2: Table showing land ownership in the municipality

Source: UKDM SDF 2016/2017

4. 2 Natural environment

The topography in UKDM is characterised by a diverse terrain morphology. The region's landscape is marked by a contrasting terrain, which combines flat, low-lying plains on either side of the Lebombo Mountains. Situated in-between the region's eastern and western plains, the steep Lebombo Mountains are classified as 'low mountains' with high relief. These mountains run all the way into Swaziland and Mozambique forming a border between the countries. To the east of the mountains are the low-lying Maputaland coastal plains, classified by low relief and drainage density. To the west are the 'slightly undulating plains' of the Lebombo mountains, and together the combination of mountains and low-lying plains creates a conducive environment endowed with ample water resources and nutrient rich soils that facilitate a wide range of fauna and flora (UKDM, 2016).

The land cover within the region can be summed up categorically as follows: the natural covered areas include thicket, grassland, wetlands and other water bodies, and the disturbed areas comprising of cultivated land and settlements. A significant portion of land within some of the local municipalities in

the district has also been subjected to severe degradation, the most affected of these include the uMhlabuyalingana, Jozini and Big Five False Bay municipalities (Bigen Africa, 2016).

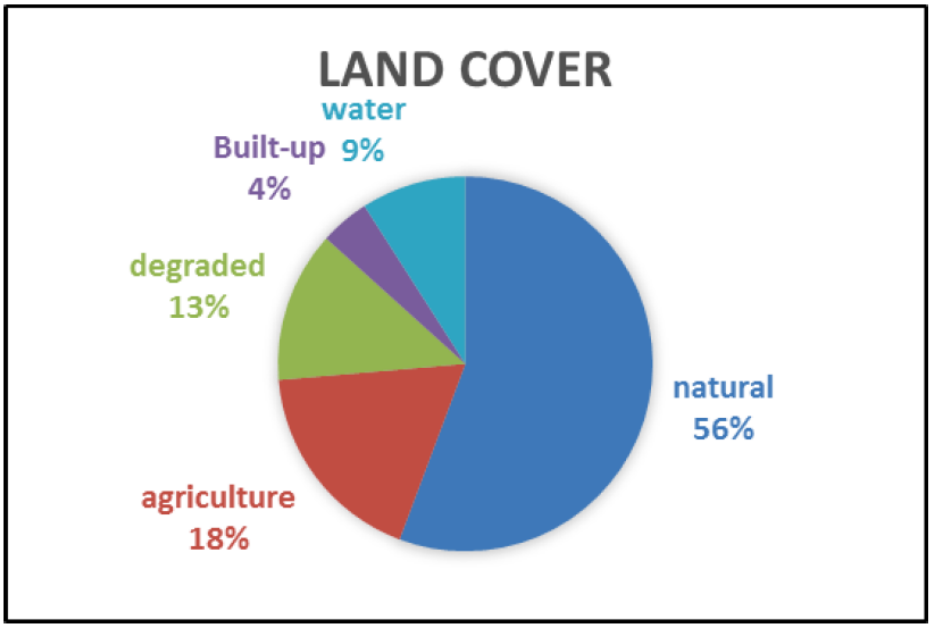

Figure 4.5: Diagram representing land cover in UKDM

Source: UKDM water master plan 2017

4.2.1 Water resources and cattachment characteristics

The UKDM falls within the Mfolozi/Pongolo primary catchment, one of the region's main catchments, shared between the UKDM district, southern Mpumalanga, other parts of KZN, Swaziland and Mozambique. Table 4.3 below show the Water balance figures for the Phongola, Mkhuze and Imfolozi river systems. The trans-boundary nature of the catchment makes it a fundamental water source in the region as it holds a high priority for all stakeholders both up and downstream. This means that the human and widely diverse aquatic and wetland inhabitants of the water system across all borders rely heavily on all stakeholders to sustainably manage the system's resources well (Bigen Africa, 2016). The catchment's topography is characterized by a combination of both high-lying mountains running along the west of the district and flat plains lying to the east. The combination of subtropical and temperate features, with a wide biodiversity of fauna and flora supported by the catchment, have made the area quite suited for tourism. The relatively stable supply of water ensured by the system has also made the area highly conducive to agricultural practice. The area has facilitated the plantation of sugar cane and forestry, which act as major job creators within the region.

Yield and Abstractions in m3/annum		River System		
		Pongola	Mkuze	iMfolozi
Available Water	Local yield	645	33	51
	Transfer in	0	33	0
	Total	645	66	51
Water requirements	Local requirements	255	78	80
	Transfer out	38	0	18
	Flood plain releases	250		
	Total	543	78	98
Balance		102	-12	-47

Table 4.3: Water balance figures for the Phongola, Mkhuze and Imfolozi river systems

Source: DWAF (2004)

4.2.2.1. Surface water resources potential (rivers and dams)

The UKDM combination of subtropical and temperate features, mountains and flat plains creates the perfect conditions for high surface water resource potential. The district is well known for its high agricultural potential, which stems in a large part from its high natural water resource capacity (UKDM, 2015). The various local municipalities within the district pose varying characteristics and qualities that facilitate high water resource potential.

The Jozini Local Municipality (LM), for instance, benefits from being strategically positioned along the Lebombo Mountains, a source of many small non-perennial rivers that drain into the Pongola. The municipality's western region is characterised by steep mountains and very few floodplain wetlands. Its topography flattens towards the west of the Jozini LM where the Ngwavuma and Pongola rivers originate. The two rivers, together with the great Usuthu River, are the only perennial rivers in the northern area of the Jozini LM. In the southern areas of the Jozini LM are the Mkhuze and Msuduzi rivers, which flow west into Lake St Lucia. The Jozini LM is also home to one of the largest dams in the province (the Pongolapoort Dam, also known as the Jozini Dam) which was established near the town of Jozini in 1973 as part of the Pongolapoort-Makhathini flats Government Water Scheme (GWS). The dam and broader scheme consisting of the dam and connected concrete canals were initially built for controlling flooding and storing water for the irrigation of sugar cane and agriculture in general (UKDM, 2016). Being one of the largest in the country the dam possesses huge potential for UKDM. Unfortunately, due to the historical development of the dam and private ownership rights, the dam has contributed little to the local population. Instead, the dam has historically serviced agriculture and game farms in the region (Gumede, 2017).

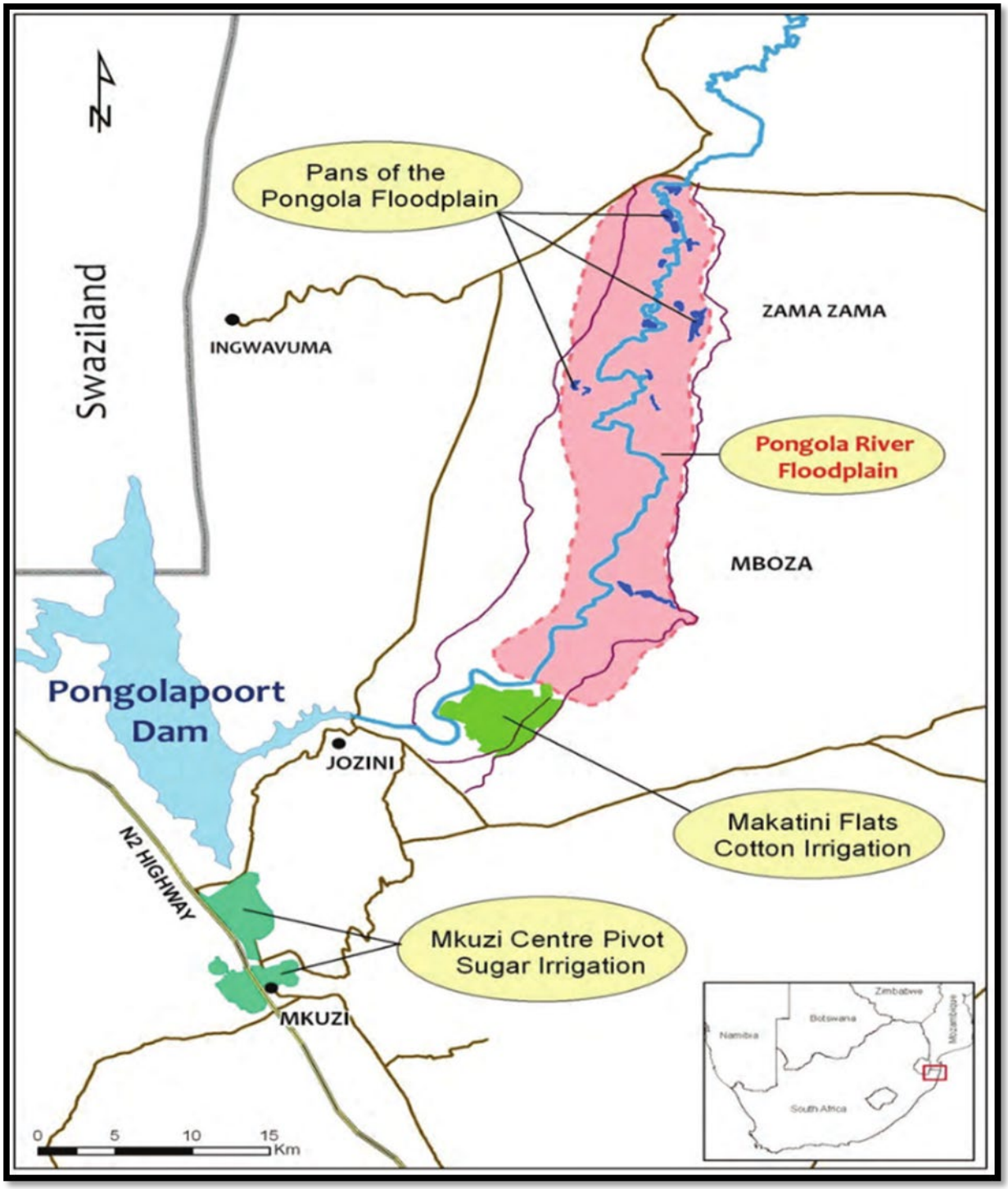

Figure 4.6: Diagram showing the Pongolapoort River floodplain and surrounds

Source: (Research Gate, 2018)

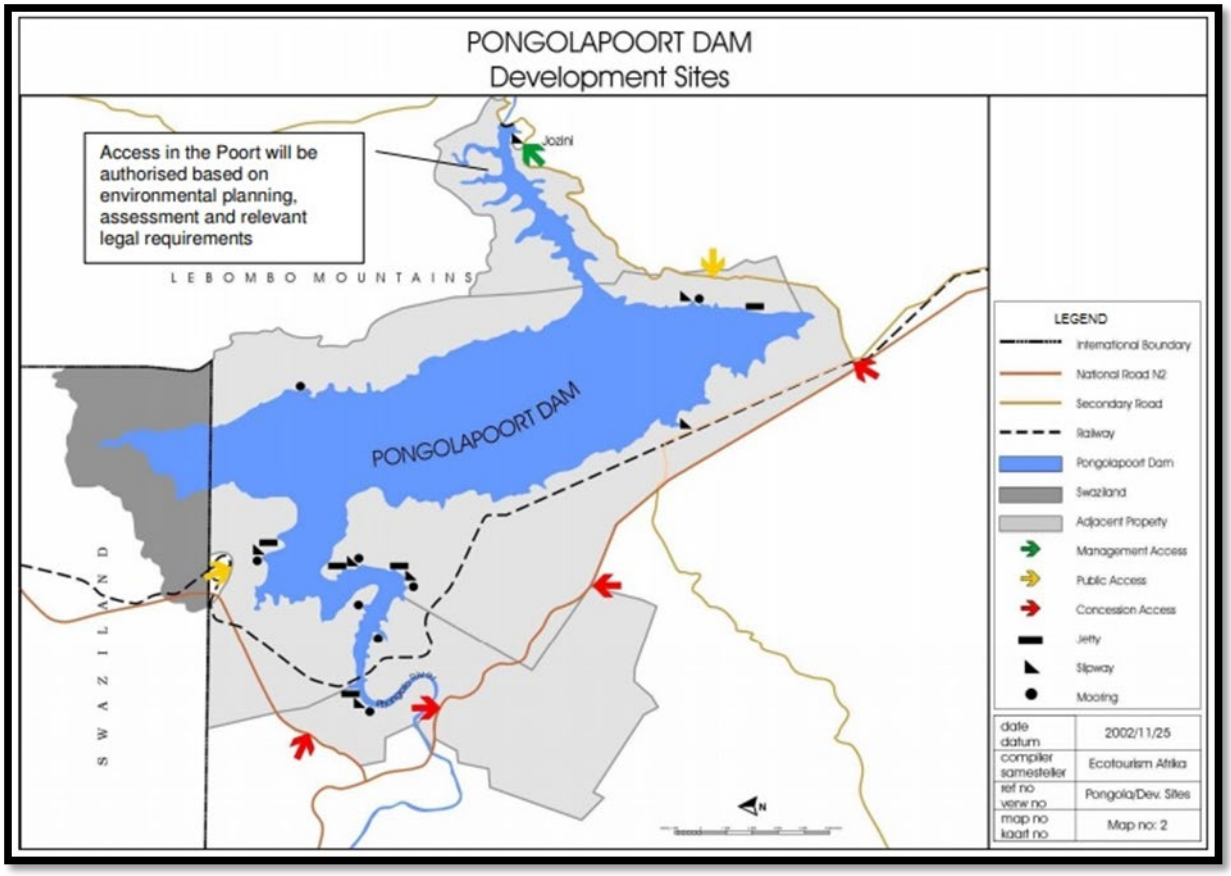

Figure 4.7: Diagram showing the Pongolapoort Dam

Source: (DWAF, 2006)

Unlike the Jozini Local Municipality, the uMhlabuyalingana municipality has a very flat terrain and therefore lacks the major river courses. Instead the municipality has large expanses of wetland area and coastal lakes. The most significant lake in the area, Lake Sibiya, is the only permanent water source in the area. It is surrounded by many smaller pans which occasionally dry up in dryer periods. The eastern parts of the municipality are lined with many smaller water bodies (quite common in the area) and several non-perennial rivers which feed into Lake Sibiya before flowing into the Indian Ocean.

The now combined Big Five False Bay and Hlabisa municipalities, formally known as the Hlabisa Big Five, municipality share a fairly flat terrain, which characterises the region's topography. The primary water course within the Big Five False Bay area is known as the Mzimeni River which flows into Lake St Lucia and passes all the way through to the Indian Ocean. The area also has several water-rich wetlands, both the floodplain and pan-type. Unfortunately, all these water sources are non-perennial. The Hlabisa Local Municipality on the other hand is considered a major fresh water source within the

region. The main water courses in the area are the Mfolozi and the Nyalazi Rivers, which are both significant rivers within the area as far as water volumes and extraction capacity are concerned. Unfortunately, in recent years the area has seen a substantial decline in water quality because of both sugar cane farming and the seepage of sulphate from the nearby mines. Similarly, the Mtubabtuba Local Municipality has also been known to struggle with water quality challenges. For instance, because of the Mfolozi River's limited yield during dry seasons, the river has been known for its high silt abstraction levels resulting from the low water flow levels. Other water courses in the area besides the Mfolozi include the Msunduzi and Nyalazi rivers.

4.2.2.2 Ground water resources potential

According to a study undertaken by the Council for Scientific and Industrial Research (CSIR) in 1995, groundwater potential in South Africa is divided into three categories. The first category includes major groundwater systems capable of supplying communities of at least 4890 people from a 30 l/c/day borehole with an average yield of 4.26l/s. The second category includes minor ground water systems capable of supplying communities of up to 1510 people from a 30l/c/day borehole at an average yield of 1.58 l/s. The third category includes poor ground water systems only capable of supplying communities of 1200 people from a 30 l/c/day borehole with an average yield of 1.25 l/s (UKDM, 2002). The uMkhanyakude District Municipality is situated above a major groundwater system to the east and a minor groundwater system to the west. Both these systems hold a very good to adequate capacity for groundwater supply, but unfortunately the potential for such systems is limited by drilling complications arising from the underlying soil types. A stark contradiction arises from the fact that the major groundwater systems within the municipality are found on a loose, unstable formation which makes drilling rather challenging, whereas the minor system is covered by a firm and stable formation which makes drilling much easier (UKDM, 2002).

The groundwater potential in the region is therefore closely linked to the diverse underlying rock types and their ability to hold groundwater and facilitate drilling. The municipal location combines the features of the Lebombo Mountains with the coastal plains to make a conducive environment for groundwater potential unlike any other within the province. The Northern Zululand Coastal Plain, which follows the coastal area from Mtunzini to Ndumo is the largest primary aquifer in southern Africa which emphasizes the municipality's potential to tap into this resource meaningfully. According to Ground Water Research Project (GRIP), the total number of known boreholes drilled within the municipality is 3154 and of these an overwhelming 53, 9% are said to fall within the uMhlabuyalingana area. Many of the other boreholes are located along the south-western and southern Lebombo escarpment, which rests on the 'weathered

and fractured' Lebombo Group rocks which yield a marginal to good supply of 3 l/s. The figure below indicates the distribution of boreholes within the district to give a visual representation of how they are distributed between the various local municipalities.

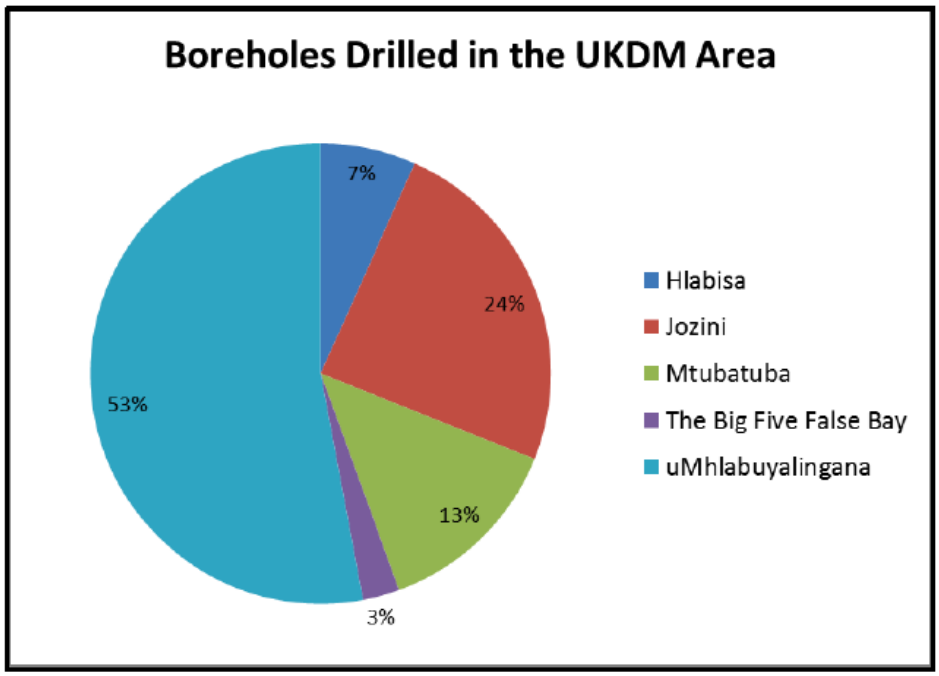

Figure 4.8: Diagram showing the distribution of boreholes across UKDM

Source: UKDM Water Master Plan (2017)

4.3.1. Water services background

The uMkhanyakude District Municipality has been characterised as a water scarce area as it is currently challenged by the ongoing drought affecting most people of the province. The municipality has been listed as one of the other 4 out of 14 water service authorities in KZN most adversely affected by the drought as a large portion of its inhabitants still rely on water from dams and rivers as their main source of water (Frankson, 2015). The case in uMkhanyakude has been compounded by the fact that the municipality has been identified as one of those challenged by the highest percentages of water loss resulting from leaks, illegal connections, vandalism and a lack of operations maintenance. In recent history, many of the dams within the municipality have reached record lows, applying even more pressure on authorities to find viable solutions (Frankson, 2015).

As a category C municipality, the uMkhanyakude District Municipality holds the status of a water services authority. As outlined in the relevant legislation this means that the municipality is responsible for the provision of water and sanitation services within its area of jurisdiction. This responsibility

includes providing both bulk and reticulation infrastructure to service the populous region and ensuring that water is supplied to the population according to the national standards. Historically, the area has been characterised by small stand-alone schemes utilising local water resources and supplying a basic level of service in rural areas, and a higher level of service in urban areas (Bigen Africa, 2016). The sheer number of schemes and the accessibility to these has created many management and maintenance challenges. The absence of relevant planning documentation has resulted in a failure by the municipality to sufficiently deal with the various challenges they are faced with. Such documentation may include the water master plan and integrated development plan, both of which are necessary to achieve the integration required for cross-boundary coordination (a key component to sustainable water management within the region).

The municipality falls within the Usuthu-Mhlathuze Water Management Area (WMA). Through the establishment of the Usuthu-Mhlathuze Catchment Management Agency (CMA), UKDM in partnership with Mhlathuze water, (who has been providing a supportive management role to the DWA since 1980) has been struggling with the issue of water provision within the district (Moisa, 2004). Although the agency has played a major and crucial role in aiding the DWA to implement a number of progressive steps in the provision of water, such as setting up new schemes within the area that have in the last ten years increased the proportion of the population with access to Reconstruction and Development Programme (RDP) standards of water considerably. With the CMA's core focus being the more urban areas of Richard's Bay/Port Shepstone and not the more rural areas of northern KZN, the backlog within the rural areas continues to exacerbate poverty and stunt growth (Moisa, 2004).

The current state of backlog within the municipality is difficult to ascertain from one source as they often contain contrasting, overlapping and incomplete data. The latest statistics on the water services backlog within the district have been compiled using a combination of Census 2011, the UKDM asset register and verified data from consultants to produce a combined Geographic Information System (GIS) infrastructure database that shows a backlog of 30% of the population (access below National Standard). Although these findings indicate a considerable improvement from the 2011 Census backlog of 53%, much more coordination is required to help the municipality meet the growing demand for water. The table below indicates the current state of the backlog within the individual local municipalities and the district.

Local Municipality	Population	Percentage of the population with access BELOW National standard level of water service			
		Census 2011 Level of Water Services	Asset Register Infrastructure Data	Verified Consultants Infrastructure Data	Combined Infrastructure Data
Umhlabuyalingana	155140	52.7%	50.6%	60.2%	28.5%
Jozini	185790	62.4%	67.4%	47.1%	42.3%
The Big 5 False Bay	35195	37.0%	28.2%	32.5%	20.7%
Hlabisa	71902	60.8%	48.7%	37.9%	36.4%
Mtubatuba	175359	44.0%	50.3%	28.9%	17.6%
uMkhanyakude	623387	53.2%	54.1%	43.3%	30.0%

Table 4.4: Table showing the backlog in water services within UKDM

Source: Bigen Africa (2016)

4.3.2 Institutional arrangement

The UKDM as a category C municipality has the primary responsibility to undertake and oversee planning at a district level based on the various plans undertaken at a local municipality level, to drive and promote economic development, and to ensure the delivery of basic water and sanitation within its jurisdiction (Bigen Africa, 2016). As per the division of powers and functions outlined in the MSA of 1998, the district as a WSA has the responsibility to provide its entire population with water and sanitation services. As far as these responsibilities are concerned, the institutional arrangement facilitates that the district acting as the primary authority appoints or outsources the services of a WSP to undertake the operations and maintenance of water service infrastructure and for the supply of services to individual customers. The process of outsourcing the WSP services is undertaken following an internal assessment by the WSA to determine its own capacity and overall efficiency to undertake the responsibilities on its own and whether this undertaking would be feasible.

The current institutional arrangement in UKDM positions the municipality as both WSA and WSP. The municipality has, however, entered into agreement with Mhlathuze Water; Water and Sanitation Services South Africa (WSSA) who were contracted from 2010 under a bulk WSP agreement to assume responsibility for the abstraction of raw water, water quality monitoring and testing, treatment,

storage, bulk metering and bulk distribution. It is understood that the current arrangement extends the WSSA's function up to the command reservoir, beyond which UKDM assumes the WSP function. The municipality therefore still retains the role of retail WSP and is responsible for storage, reticulation distribution, in-line quality testing, metering, consumer billing, cost recovery (revenue collection) and consumer complaints services.

4.4 Capacity overview

As one of the most impoverished regions within the province, the UKDM does not fair very well in terms of the availability and accessibility of infrastructure and basic services. As a generalisation the areas under traditional authority are the most in need when it comes to the availability of both bulk and reticulation infrastructure. These areas together with pockets of settlements falling within the commercial farms are characterised by limited employment opportunities, inadequate services and poor agricultural potential (Bigen Africa, 2016). One of the main infrastructural challenges within the district is finding sustainable means to provide infrastructure in the remote rural areas, due to the generally sporadic settlement patterns. The costs related to renewing, replacing, operating and maintaining existing infrastructure are also a major impediment to the municipal progress. The challenge of dealing with leaks and vandalism of ageing infrastructure have also considerably limited the municipality's resource capacity.

Undertaking the exercise of assessing infrastructural or scheme capacity has proved to be a challenge. Many anomalies have been found in the DWS Water Reconciliation Strategy footprints and the current distribution infrastructure. In addition, the level of detail found in various infrastructure reports obtained from previous Precinct Structure Plans (PSPs) differed and was subsequently difficult to compare (Bigen Africa, 2016). Combining data collected on the six water supply areas (Shemula, Jozini, Hluhluwe, Mpukonyoni, Mtubatuba and Hlabisa), an assessment of the existing infrastructural capacities within various subzones inside the supply areas has been undertaken for the specific purpose of reviewing bulk distribution main capacities, where the existing parameters were known and could be assessed. The findings can be summarised in the following table:

Supply area & sub areas	Last recorded backlog (from Census 2011)	Current capacity	Household growth	Upgrades required
1.1. Shemula WMP Supply Area (Eastern Sub-Supply Area)	9076 stands	Current WTW capacity is 6.8Mℓ/day. This is sufficient for the current demand of 3.5Mℓ/day.	11015 to 15069 households (2015 - 2035)	Demand shortage can be addressed by utilizing the Shemula Western and Central water Sub-Supply Area source
1.2. Shemula WMP Supply Area (Shemula West and Central Sub-Supply Area)	14325 stands	Current WTW capacity of 7.5Mℓ/day is not sufficient for the current demand of 11Mℓ/day.	27057 to 31882 households (2015 - 2035)	The water treatment works is currently being upgraded to 27.5Mℓ/day.
2.1. **Jozini WMP Supply Area** (Jozini Eastern Sub-Supply Area)	12 611 stands	No data	28 167 to 32 173 households (2015 - 2035)	No data
2.2. Jozini WMP Supply Area (Jozini Eastern Sub-Supply Area)	3 010 stands	Capacity of the treatment works of 2.98 Ml/day is insufficient for the current demand of 7.77 Ml/day for 2015.	10 191 to 13 944 households (2015 - 2035)	No data
3.Hlabisa Water Master Plan Supply Area	6433 stands	Current WTW capacity is sufficient, upgrades will be required to meet future demand.	12075 to 15230 Households (2015 - 2035)	i. An additional 8Mℓ WTW capacity would need to be provided for the 2035 demand ii. An additional 6Mℓ storage is required.
4.1. Hluhluwe Water Master Plan Supply Area (Hluhluwe 1 WTW schemes)	3225 stands	Current WTW capacity is Insufficient, upgrades will be required to meet future demand.	15295 to 22353 households (from 2015-2045)	i. An additional 17Ml/day WTW capacity would need to be provided. ii.30Ml additional storage is required iii. Bulk distribution upgrades required.

5.Mtubatuba Water Supply Scheme	2689 stands	The WTW and storage available is adequate for the ultimate demands at 2035.	12171 to 20628 households (from 2015-2045)	i. The abstraction licence needs to be increased to cater for the additional future demands. ii. Bulk distribution upgrades required.
6.Mpukonyoni Water Supply Scheme	5832 stands	The WTW and storage available is adequate for the ultimate demands at 2035	12171 to 20628 (from 2015-2045)	i. The abstraction licence needs to be increased to cater for the additional future demands. ii. Bulk distribution upgrades required.

Table 4.5: Displaying the UKDM's current and future water infrastructure capacity demands

Source: Bigen (2016)

4.4.1 Financial capacities

The UKDM has been characterised as a financially unsustainable municipality based on its inability to generate sufficient revenue through its service provision resulting in a growing deficit. For an organisation to thrive, it needs to attain a reasonable degree of self-sustainability which requires that its revenue generation exceeds its expenditure. The situation in the UKDM indicates that its current financial management system has a number of fundamental weaknesses that it will need to address before the municipality is able to grow holistically to restore its solvency (UKDM Financial Report, 2015).

One of the key issues affecting the municipality's financial capacity (i.e. its ability to operate sustainably and generate sufficient revenue to expand its services and grow the organisation as a whole) is the lack of revenue management systems to accurately measure use, bill customers, collect revenue and measure debt accumulated for services provision (Bigen Africa, 2016). A big part of revenue generation is accurate data collection which the municipality lacks due to a combination of various factors, which include among others a poor metering and billing system and high water losses. A brief analysis of the DM metering reports (Aug 2014/2015) indicates a high degree of inconsistency, errors and a lack of meter readings. In addition to an unsustainable financial management system, one other factor constraining the municipality's financial capacity is the issue of irregular expenditure (in hundreds of millions) and increased capital expenditure without any significant increases in human resource capacity or capital budget (Bigen Africa, 2016).

Based on the 2012/2013 and 2014/2015 financial reports for the UKDM, the district has been running at a deficit for a number of years, which seems to be growing annually due to the municipality's inability to

adequately collect debt. The district's debt collection rate is currently at an alarming 3% (a shocking comparison in relation to the required 95%) and continues to worsen as the debt grows annually by more than 20%. Even more alarming is the lack of progress in terms of finding solutions to this apparent crisis, which is causing excessive amounts of stress since it is exacerbating the municipality's reliance on grant funding. According to a report from the National Treasury's office on the State of Local Government Finances and Financial Management published on the 30th of June 2014, the following list of indicators has been used to gauge the state of Financial Management Performance within the District's water sector (refer to table 4.6 below). Following this assessment, a number of key considerations have been identified to strengthen the municipality's financial capabilities; these include: developing an integrated register, installing meters, fully implementing credit controls and improving their data collection and cleansing processes.

MEASURE	PURPOSE	UKDM PERFORMANCE
Cash as a percentage of operating expenditure	Tracks the ratio between municipalities reported monthly cash balances to budgeted monthly operating expenditure. This measure is used to determine cost coverage – does the municipality have adequate cash available to meet its operating expenditure requirements?	At the time of assessment, the municipality had less than one month in cash to cover operational expenditure.
Persistence of negative cash balances	Identifies whether cash shortages / bank overdrafts pose a "chronic" problem for the municipality.	Less than one month
Reliance on national government grants	Measure of % of total revenue of a municipality comes from national government sources, and tests the self-sustainability of municipalities.	90%
Over spending of original operating budgets	Tests the effectiveness of municipal spending - are municipalities spending in accordance with resources available to them, what is the credibility of the budget and are municipalities able to adjust expenditure should planned revenues not materialise?	Overspending of less than 10%
Under spending of original capital budgets	Tests the effectiveness of municipal spending – but also provides an indication of whether municipalities are compromising on capital programmes to resolve cash flow challenges, are there planning deficiencies which are impacting on service delivery, etc.?	Underspending of between 10% and 30%
Debtors as a percentage of own revenue	Examines the revenue management capabilities of municipalities	Debtors less than 15% of total own revenue
Year of year growth in debtors	Is the municipality exercising fiscal effort in collecting outstanding debt? To what extent is financial distress the result of poor debtor management?	Growth in debtors of >20%
Creditors as a percentage of cash and investments	Is the municipality able to meet its monthly commitments – does it have sufficient cash to pay its creditors in line with the requirements of the MFMA (cost coverage)	Creditors less than 25%

Table 4.6: UKDM financial performance synopsis

Source: Bigen (2016)

4.4.3.1 UKDM institutional arrangement and functionality review (WSA governance and planning)

The functions of water service authority in the UKDM are undertaken by the municipality itself. Although the existing staff complement of the WSA is currently unknown, the municipality is in general considered to be understaffed and short of the required technical skills. This is a serious concern for the municipality as many of the positions that are currently unoccupied require a considerable degree of technical knowledge, skills and experience, which, when lacking, undermine the municipality's ability to perform its function and compromises its overall capacity. According to the 2015/16 proposed organogram, the only position filled at the time the research for data collection was compiled was that of the planning design engineer. This implies that at the time, the municipality had gaps in a number of key positions such as that of Sector Manager, rendering its functional capabilities extremely compromised. This WSA post requires someone who has experience broader than engineering, including an ability to oversee planning, contract management, monitoring and evaluation, by-laws and policy drafting and enforcement, and management of DWS regulation programmes (Bigen Africa, 2016).

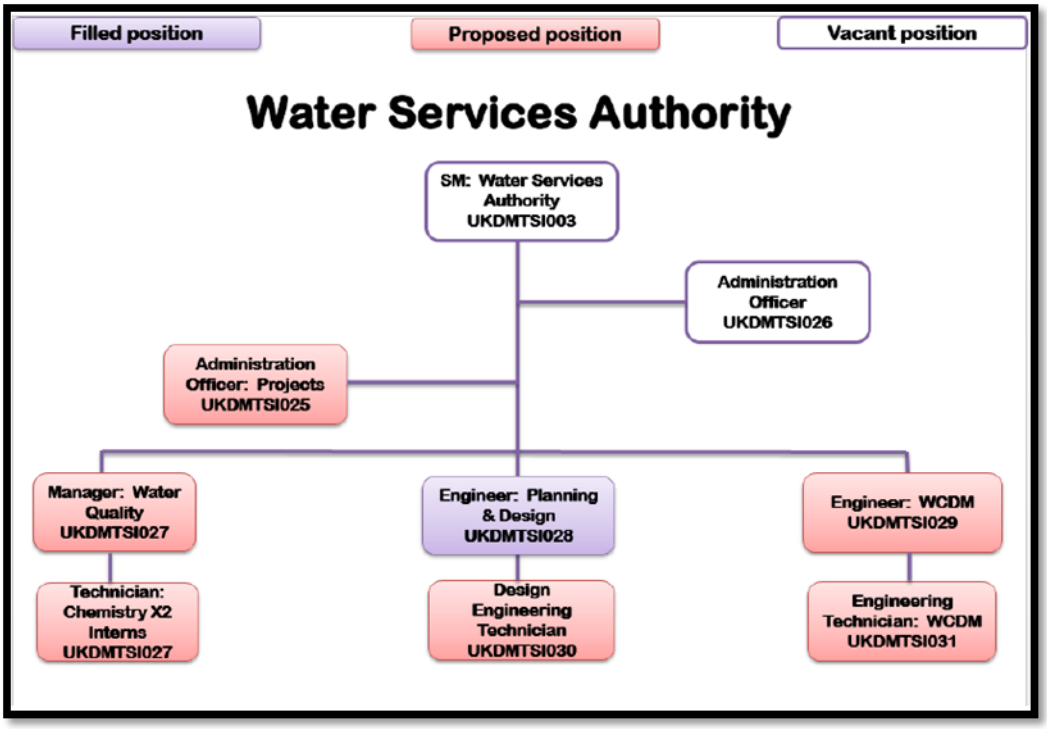

Figure 4.9: Proposed water services organogram for the UKDM

Source: UKDM (2015)

4.4.3.2 Water services provision oversight

The function of Water Service Provision in the UKDM has been shared between the UKDM and WSSA who are responsible for the operation and maintenance of reticulation and bulk infrastructure respectively. The management of WSP oversight role has been split into north and south regions, each with its own scheme manager and technical staff. In addition to the regional managers and technicians the planned organogram has included proposed positions to provide additional support, increased management and staff at boreholes. Considering the large area serviced by the DM, such additions will more than likely be welcomed as it is evident that filling these apparent gaps will help the municipality improve on its Water Service Provision capacity. However, a clear outline of the job descriptions will be required to justify this significant head office management team, and this will also help improve service quality and improve the sector's functionality as assessing job deliverables will be made much easier. Also, it will avoid over duplicating skills and bloating staff unnecessarily; for instance, instead of having fixed pump attendants at head office the district municipality can employ roving technical teams checking and servicing the hundreds of boreholes across the UKDM.

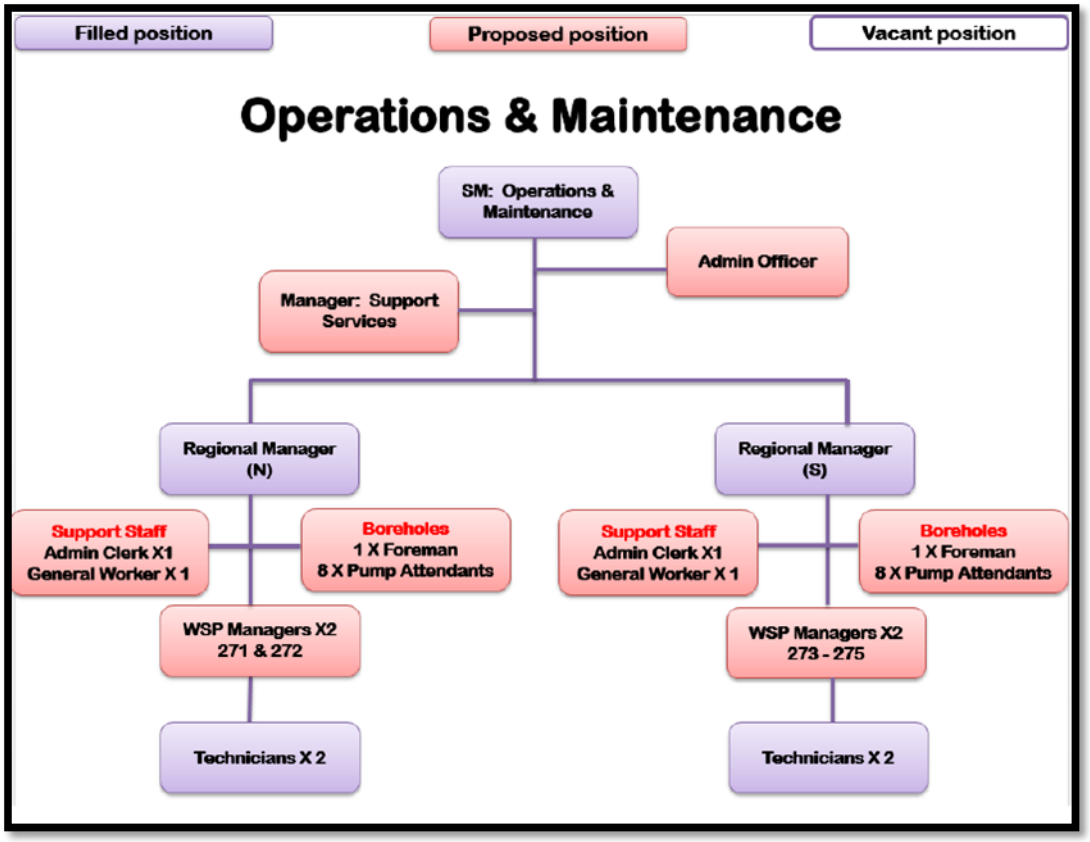

Figure 4.10: Proposed operations and maintenance organogram for the UKDM

Source: UKDM (2015)

4.4.3.3 Management of bulk infrastructure

As mentioned in the above subsection, owing to the lack of competency and poor staffing within the UKDM, the management of bulk infrastructure is currently outsourced to WSSA. The outsourcing of this specific function to WSSA is regarded as highly unsuitable in the context of UKDM due to the shortage of key technical skills that are required. The district municipality has by its own admission stated that it is gravely challenged in attracting and retaining candidates with the required technical proficiency to undertake many of the tasks required by a WSP managing bulk infrastructure (Bigen Africa, 2016). According to senior personnel within the municipality, outsourcing the management of the treatment works and associated bulk infrastructure at this point in time is fundamental to maximise the continuity and quality of service delivery offered to their constituency. The current staff complement at the WTW consists of WSSA and UKDM staff seconded to WSSA. Although the packaged treatment plants are classified primarily as Class D works, in most cases there is no need for 24-hour personnel. This needs to be taken into consideration as the process of looking into staff requirements is undertaken, in order to establish the most suitable arrangement within available financial means. Table 4.7 illustrates some of the mismatches between required and current staff within some of the DM's Water Treatment Works:

LM	WTW	Works Classification	Required Staff	Current staff
uMhlabuyalingana	Mseleni	D	3 x Class II operators 1 x part time Class V supervisor	4 x plant operators 2 x pump station operators
uMhlabuyalingana	Mbazwana	D	3 x Class II operators 1 x part time Class V supervisor	1 x supervisor 4 x operators 3 x pump station operators 2 x GA
uMhlabuyalingana	Enkhanyezini	D	3 x Class II operators 1 x part time Class V supervisor	4 x plant operators
uMhlabuyalingana	Shemula (old)	E (OLD PLANT)	3 x Class I operators 1 x part time Class V supervisor	4 x plant operators
uMhlabuyalingana	Shemula (new)			
uMhlabuyalingana	Manguzi	D	3 x Class II operators 1 x part time Class V supervisor	4x operators
Mtubatuba	Matubatuba	A	3 x Class IV operators 1 x Class V supervisor	4 x operators 4 x shift GA 10 x GA
Hluhluwe	Hluhluwe Phase1 (Dam)	B	3 x Class IV operators 1 x Class V supervisor	4 x operators 4 x GA

Table 4.7: Water treatment works staff analysis

Source: Researcher

4.4.4.4 Management of reticulation infrastructure

In 2007/2008 a very detailed institutional review of the UKDM undertaken by J&G consultants found that the most suitable management approach for the largely expansive reticulation infrastructure in the UKDM is to divide the district municipality into scheme management zones (UKDM, 2015). The concept of management at the scheme level will have proven beneficial to the district as one of their main challenges is compiling an expansive database of their reticulation network. Managing the reticulation infrastructure in zones helps to improve the accuracy of their database, as each manager is accountable for a much smaller jurisdiction and this also helps the municipality to better manage leaks and illegal connections.

Following their review in 2007/2008, J&G, acting as a private consultant, made recommendations on appropriate staffing per scheme using the following criteria. Stand-alone rural diesel/electric engine scheme with communal standpipes requires one locally based rural operator per scheme working on a full- or part-time basis to operate and maintain the engine, check lines, fix taps, take meter readings and report problems to the area manager. Small/medium schemes with house connections will also require the municipality to hire one locally based operator to operate and maintain the engine, check lines, fix taps, take meter readings and report problems to the area manager. In the event of any significant issues, a team of roving plumbers can be called in to resolve the problem. Also, depending on the number of house connections and the income potential from the stream, the services of an administrator/customer care person can be sought on a part-time basis. Large schemes: the larger schemes can be divided into management zones, with a zone manager in charge, an operations and maintenance officer, and an administration clerk. A senior scheme manager and senior administration clerk are then appointed to oversee one of the central zones, as well as provide support and leadership to the other zone teams.

Making use of the same generic model that applies to the asset base to assist in estimating the current and future staffing demands in an organization, it was concluded that an estimated total of 216 technicians would be sufficient at the present time to manage, operate and maintain UKDM's six regional WMP scheme areas. It was found that in developing the most accurate estimate of the human resource capacity required for planning, implementation management, WSP management and operation and maintenance at a municipal level, a sub-scheme analysis of the technology and topography in the area would have to be undertaken to better align such capacities correctly with the extent and nature of infrastructure involved. This allows the municipality to adjust accordingly as the amount of infrastructure and level of skills required shifts to accommodate growth. Table 4.8 below

illustrates the human resource capacity required for the planning, implementation, management, WSP management and operation and maintenance of the UKDM asset base:

Sequence of effort of work	Product Type	Unit	Benchmark Quantity used by UKDM	Area Supervisor	Senior Foreman	Team Leader	Artisan Electrician General	Artisan Electrician Pumps	Electrician Assistants	Artisan Plumbers	Process Plant Operators (Water)	Pump Attendants	General Worker
7	Bulk Pipeline	Km	1396	0.291	1.163	1.163	0	0	0	2.908	0	0	5.817
3	Borehole	No	226	0.151	0.879	0.879	0.251	0.628	1.758	1.256	0	2.511	3.641
8	Canal	Km	41	0.014	0.028	0.028	0	0	0	0	0	0	0
4	Elevated Reservoir	No	49	0.147	0.343	0.343	0	0	0	0.123	0	0	0.245
2	Pump station	No	82	0.615	0.342	0.342	3.417	3.417	13.667	3.417	0	82	17.083
5	Reservoir (without pumps)	No	86	0.376	0.538	0.538	0	0	0	0.269	0	0	0.538
6	Reticulation Line	Km	3.210	0.963	2.14	2.14	0	0	0	16.05	0	0	32.1
1	Water Treatment Plant	No	20	0.25	0.45	0.45	125	125	5	125	20	20	6.25
	Number of Skills			**3**	**6**	**6**	**5**	**5**	**20**	**25**	**20**	**105**	**66**

Table 4.8: UKDM human resource capacity requirements

Source: UKDM (2015)

4.5 Conclusion

The main purpose of this chapter was to provide a discussion and background information on UKDM as the case study selected for this research. The chapter also explored the research topic and related themes within the context of the study area so as to provide practical reference to the phenomenon under observation. The chapter included three broad sections. The first section provided an introduction and background to the municipality and region in general. The second section provided an overview of the district's natural environment with a focus on elements of the environment that relate to water provision in the area. The final section discussed the district's water service context, and it also discussed the gap between existing and future capacity needs of the municipality in relation to water provision. The following chapter presents the findings collected from interviews with officials from different institutions.

CHAPTER 5: FINDINGS ON THE INSTITUTIONAL ARRANGEMENT AND ORGANISATIONAL CAPACITY OF THE UMKHANYAKUDE DISTRICT MUNICPALITY

5.1 Introduction

The previous chapter presented a brief background and introduction to the study area and case under investigation. The chapter provided a detailed account of the municipality's present and future capacity demands to illustrate present municipal capacities. It further described the municipality's governance, organisational and institutional aspects as they relate to capacity in the context of the district.

This chapter presents a discussion on the main findings of the study uncovered in the research process. The discussion is structured and organised into various sections and subsections that respond to the various objectives of the study. The chapter begins by discussing the general state of governance within the municipality in order to provide a contextual understanding of the governance conditions within the municipal area. The second section explores governmentality in the UKDM and discusses the implementation of the free basic water policy and its implications within the context of the UKDM and similar areas. The third section builds further on the policy discussion and considers some of the outcomes of policy implementation within the municipality from the perspective of the different government officials. The fourth section discusses the role of power and politics on municipal capacity, and this section stresses the overall impact of poor governance conditions and weak institutions. The fifth and final section of this chapter presents a summary of the study's main findings and concludes the various discussions covered in the chapter.

5.2 Contextualising water governance in the UKDM

This section discusses the context of water governance in UKDM. The discussion presents findings on the general state of governance within UKDM. In line with the first objective of the study, this section undertakes an assessment of the governance conditions and the resultant impact on the municipality's capacity to provide water. To respond to this objective, the section presents findings on the perceived nature and conditions of governance from the perspective of officials within the arrangement. Governance is considered an important capacity aspect as it influences the overall functional capacity of the institution. Given the consensus both in literature and policy circles that the "water crisis is essentially a crisis of governance" (Global Water Partnership, 2000: 16), there is, therefore, a serious

need to understand the impact governance arrangements has on overall performance of governmental organisations functioning within a particular arrangement. On the one hand the water governance arrangements there is public ownership and operations carried out by a government agency that is part of a ministry. On the other hand, there is private control over the operations of water entities that provide a regulated service to users. Between these two opposites a range of public-private arrangements exist (Bailey, 2005). These include service contracts, management contracts, lease contracts and concession agreements.

5.2.1 The governance arrangement for water in the UKDM

The governance arrangement for UKDM exists within the broader institutional arrangement for water in the country as provided for by the National Water Act 36 of 1998 (Berkowitz *et el.,* 2009). Since the promulgation of the NWA of 1998, the nature, or character, of the government's water arrangement has shifted to a more decentralized system of Catchment Management Agencies and Water User Associations (Berkowitz *et el.,* 2009). Accompanying this shift in governance has been a need to progressively transfer power and build capacity among the various water institutions.

According to the Head of Water Regulation at DWS, the nature of the existing arrangement in UKDM is characterised by the public-private relationship that exists between the municipality, WSSA and the uMhlathuze Water Board. The Head of Water Regulation at DWS argued that, as with other municipalities in the country, the relationship between the UKDM and its private sector counterparts is based on a service agreement for support for certain aspects of water provision while the municipality retains the overall responsibility for water governance. The broader arrangement for water governance in the UKDM includes the following role players: national and provincial government through the Department of Water and Sanitation, the UKDM as a WSA, and the uMhlathuze Water Board and WSSA as the contracted WSPs (UKDM, 2016).

According to an official from the UKDM Project Management Unit, the district carries out the functions of both Water Service Authority (WSA) and Water Service Provider (WSP). Under this arrangement, the district is responsible for water abstraction, water processing, bulk distribution and waste water collection, treatment and discharge. The WSSA and the uMhlathuze Water Board have also been brought on board to support the municipality in its function as a water service provider and therefore share the responsibility. According to section 152 of the South African Constitution of 1996, the primary role and function of local government is to promote social and economic development and give priority to the basic needs of the community. In servicing these functions, the water arrangement provides that

local government works in coordination with the other stakeholders in the arrangement (Constitution of South Africa, 1996).

5.2.2 Governance conditions in UKDM

Governance is understood and defined in this study as the various processes by which public policy decisions are made and implemented. For some authors governance is the outcome of interactions, relationships and networks between the different sectors (which include government, the private sector and civil society) and involves the making of decisions, negotiations and different power relations between stakeholders to determine how, when and to whom resources are distributed (Wilde *et al.*, 2009). South Africa's water governance arrangement has seen a considerable amount of reform over time, primarily due to political change. Some of the changes include a major shift from centralised power to diffused power, hierarchical control to horizontally shared control, and a shift from state enforced rules and regulations to inter-organisational relations and coordination (DWS, 2016). Given the economic, social and environmental costs associated with ineffective governance there is a serious need to assess and evaluate the effectiveness of existing governance arrangements in the water sector. While undertaking the assessment of the municipal governance arrangement, the research considered the following themes: (1) the institutional environment; and (2) the level and quality of coordination among role players. These themes emerged in the process of data analysis.

The character of a municipality's political landscape, the presence or absence of well-designed regulations, and a performing judiciary usually determines the effectiveness of a municipal institutional environment (DWS, 2016). What the researcher found is that, according to an article by Singh (News24, 2017*),* the uMkhanyakude District Municipality is one of several municipal areas in the province characterised by poor performance in the exercise of its functions and responsibilities. This was based in part on the excessive number of service-related protests the municipality has experienced in recent years. According to an official from the Jozini municipality planning department, many of the recent protests in uMkhanyakude have been related to water shortages. This official confirmed that the community had resorted to protesting, particularly around the 2016 elections, to express their grievances with the municipality because of poor service delivery including water provision.

The governance challenges experienced by the municipality have attracted the attention of various government departments, in so far as some of the officials criticised the council for its inability to resolve many of its problems despite the massive support provided by provincial and national government structures (CoGTA, 2016). Realising these apparent failures, the KZN Member of the

Executive Council (MEC) for CoGTA and Provincial Treasury decided to intervene by deploying a support team comprising of financial, technical and governance experts to the municipality in line with section 154 of the Constitution. The reasons for invoking this measure included: poor performance from the Council and Executive Committees with regard to implementation of monitoring (oversight) and consequence management; a failure to exercise political oversight over management; the absence of an Audit Committee; a bloated organogram; the lack of an operational budget and a capital budget deficit; weak internal controls; and an inability to strictly supervise consultants responsible for service delivery (CoGTA, 2016). The MEC of CoGTA, Ms Nomusa Dube, concluded that the Council and Executive Committee were incapable of resolving the overall governance issues challenging the municipality on their own and therefore opted to intervene in terms of section 139 (1) (b) of the Constitution, which provides that in the event a local governance structure is deemed unfit, the provincial government should assume the full functions and responsibilities of that structure. One of the respondents from the UKDM planning department commented that the intervention by government in the UKDM was highly necessary as the state of governance in the municipality had deteriorated to an intolerable degree.

According to an article by Maliti (2017) in City Press the council was lambasted regarding a series of complaints and allegations over corruption and political intimidation. It was also reported in the same article that the council had been accused by the opposition Inkatha Freedom Party (IFP) of intimidating opposition candidates in the running for the position of Municipal Manager. Although no evidence of how the intimidation occurred was presented, a member of the IFP stressed that it was highly suspicious that four of the five candidates pulled out days before the process was finalised (Maliti, 2017). This called for intervention from the MEC of CoGTA who took over the selection and interviewing process in March 2017. The MEC stated that the process of hiring a Municipal Manager was restarted in 2016 due to 'technicalities' and eventually finalised in 2017, with the support of CoGTA. Additional allegations included corruption in a case of mismanagement of funds which amounted to a value of about R7,9 million, and this was money supposed to be used to purchase water tanks that do not exist according to an IFP spokesperson (Singh, 2017). These accounts gave an overview of the political dynamics and complexity in and around the district. These claims were supported by many of the officials interviewed. Although none of the participants claimed to have concrete information as to how the process may have been flawed and corrupt, they all seemed to share consensus that there were usually a lot of disputes over local government elections and this had the tendency to considerably destabilise progress in the municipal functions.

The administrative branch in the municipality falls under the leadership of the Municipal Manager, who is accountable for the implementation of policy programmes and projects (Ndudula, 2013). One of the officials from the UKDM confirmed that the political battles within the municipality made it nearly impossible to appoint a new Municipal Manager. The consequence was that the administrative branch of the municipality was forced to operate without a 'driver' for almost two years. In 0ctober 2015 the Municipal Manager Mr Musa Mzimela was suspended over allegations surrounding maladministration and irregular expenditure. According to an official from the Municipal Infrastructure Department at the KZN CoGTA, even though an acting Municipal Manager was appointed, there was very little impactful change that could be brought about by this individual as the challenges facing the municipality required serious intervention and a complete turnaround strategy to assist the new political structure which took over after the local government elections in August 2016. Some of the interviewed respondents pointed out that there was a lack of accountability in the municipality, and this was one of the contributing factors to the institutional weakness of the municipality. These respondents were of the view that to address the problem of water provision in the district the following should be addressed: management of funds, planning and demand management, technical skill capacity in senior positions, and the monitoring of internal systems.

5.2.3 Stakeholder interaction

According to water legislation, the provision of water at a local level requires that the WSA establishes functional relationships with the different stakeholders involved in the water sector. The primary importance of establishing good stakeholder relations is to harness the collective resources available to enhance capacity for advancing the common agenda (Redman, 2011). The quality of the relationship between a WSA and all other stakeholders therefore has a considerable effect on its ability to perform its functions effectively.

Most of the respondents pointed out that the municipality's relationship and interaction with other stakeholders was adequate but not satisfactory. One of the respondents from DWS pointed out that the relationship a district had with its various stakeholders would differ for each one of them. The respondent elaborated that, although the institutional relationship between different stakeholders would more than likely be well established (. i.e. clear lines of communication had been put in place), the functional relationship from one official to another could vary considerably. The respondent further emphasised that their relationship with counterparts from the UKDM, CoGTA and other organisations in

the water sector was very good, but that the same might not be true for other departments within the very same organisations.

One of the respondents from the uMhlathuze Water Board seemed to have a different perception of the municipality with regard to stakeholder coordination. The respondent stressed that although the municipality had a formal relationship with all its stakeholders, the level and quality of coordination and collaboration had not been satisfactory. This respondent argued that there was a lack of education about the various institutions, "As they end up competing to solve problems instead of working together" (Official from DWS**)**. This respondent added that the municipality held various forums for different stakeholders to meet and discuss issues, but very little could be achieved if the various governance structures did not have [the correct] people at the helm. The municipality's challenge with appointing and retaining permanent staff had had a negative effect on its ability to coordinate and collaborate with different institutions.

Respondents from the planning department in the UKDM argued that the quality of the coordination that existed between the municipality and the various institutions that formed part of the water governance arrangement seemed to differ from one institution to the other. In their opinion, the municipality's relationship with many of its stakeholders was seriously constrained by its inability to pay some of its contractors, such as the WSSA and uMhlathuze. One of them also added that the municipality had not been clear on how they had been spending their budget, which had created doubt among other stakeholders such as CoGTA and the Department of Treasury, for instance, who no longer felt that the municipality would be able to utilise its budget appropriately, unless subjected to intense scrutiny and intervention. What seemed abundantly clear was that the level of coordination between stakeholders could be better than it was. The Head of Water Regulation at the DWS felt that the state of conditions within the municipality would only get worse if they (the municipality) were not able to urgently fix their governance issues.

The starting point for good stakeholder relations would be the establishment of communication networks that allowed all parties involved an equal opportunity to present their views and make contributions to matters that affected them (Kanyane, 2011). The concept of representative government is founded on the principle that officials are placed in positions of power to act on behalf of their constituencies and represent their views. It is therefore crucial (one would argue it is the first priority), especially at local level, that government is able to establish good relationships with their communities. Although the mandate to provide water at a local level falls on the district municipality, as the WSA the actual interaction with their constituency unfolds at the community level through forums and meetings

where officials engage with communities on all matters pertaining to their affairs. In the case of the UKDM and other rural municipalities in the country, where power is shared between elected and traditional representatives, the dynamics of power are a little more complicated. Both respondents from the Jozini LM and the UKDM argued that their relationship with the various communities was strained. An official from the Project Management Unit in uMhlathuze captured the general sentiment of these respondents well by stating that more work needed to be done to improve these relations because at that point, the absence of effective communication, transparency and awareness of the municipality's efforts (plans) and challenges with regard to water provision was creating deep animosity within communities, hence the numerous service protests annually'. The general sentiment across all respondents was that the service-related protests within the municipality could be resolved through improved community engagement and more accountable governance.

5.3 Exploring governmentality in the UKDM

Governmentality as defined in this study referred to the thinking that shaped and informed the nature and approach to governance. The study argued that governmentality conditions in South Africa were shaped to a large extent by neoliberal policy thinking, which in turn influenced the general policy approach to water and other services. The overarching governmentality conditions at a national level have greatly influenced the character of water institutions around the country. This implies that although water policy in South Africa was revised in the late 1990s to bring about transformation in the way water was used, protected, developed, managed, conserved and controlled, the fundamental thinking in water policy has not changed considerably. According to Weston (2001), national policy transformation in the context of water needed to take into account meeting the basic human needs of the present and future generations, promoting equitable access to water, redressing past discrimination, and facilitating social and economic development, as well as protecting aquatic and associated ecosystems. The National Water Act (Act 36 of 1998) and the Water Services Act (Act 108 of 1997) are the primary documents that provide for and enable a two-tier approach for the development of strategies to facilitate the management of water resources. Although acknowledging the pivotal role and contribution of the related national ministry, this study focused primarily on the policy environment of the management institutions at a regional and local level, particularly the Water Services Authority and related stakeholders.

The sentiment among some of the officials from DWS and CoGTA around the issue of water related policy was that both the National Water Act (1998) and the Water Services Act (1997) were not properly

aligned to the challenges facing some of the poorer municipalities. Officials from the DWS and CoGTA suggested that both Acts needed to be reviewed and revised in consultation with the WSA and other stakeholders to allow for more flexibility to deal with the challenges experienced at a local level. One of the officials from CoGTA's infrastructure department stressed that certain aspects of the two acts were often too vague, which opened up room for misinterpretation. The respondent further stated that an inherent weakness in both the National Water Act, 1998 and the Water Services Act, 1997 was that they did not contribute much to policy enforcement and needed to be a lot more accommodating in terms of the issues challenging poorer municipalities. When referring to such issues this respondent made an example of the challenges municipalities in rural areas faced with enforcing revenue collection, as water cuts to poor communities as a means of operating a sustainable system were in direct conflict with and inconsistent with the broader policy approach to water adopted at a national level. Respondents from uMhlathuze, the UKDM and the Jozini LM felt that one of the fundamental challenges to revenue collection was the municipality's inability to enforce measures of compliance with regard to payment. The suggested solution from these respondents was that the municipality should review by-laws and put in place more strategies for revenue collection from users.

5.3.1 Free basic water policy

The policy environment is one the main attributes that shapes, restricts and advances the municipality's capacity for water provision by creating the governmentality conditions, standards and norms municipalities operate within. The political conditions within the UKDM have made it challenging for the municipality to operate with stability. This has had a serious effect on the municipality's governance capacity. The state of governance within the municipality has been found to have a negative effect on the municipality's capacity and was the root of many of the issues challenging the municipality's viability. The broader challenge was in finding a way to align the municipality's needs with the right policy to enable a more suitable institutional arrangement for water provision.

The free basic water policy is one of the government's key intervention strategies to closing the huge gap that exists in access to water affecting the country's most impoverished communities (CoGTA, 2009). The policy prescribes the provision of about six kiloliters of water per month for a single household. Regardless of being embraced widely at all levels of government, the implementation of the policy has proved quite challenging. The first issue raised by all the respondents was that the prescribed volume of water was considered insufficient to service the functions water performed on a daily basis. The second most prominent issue raised around the free basic water policy in the UKDM (and other rural areas within the province) was that the provision of free basic water for all within

existing conditions was unsustainable and made little business sense for the municipality considering recent performance in revenue collection and maintenance of existing infrastructure.

The policy in its intent seeks to provide free water as a priority to those without access to any safe and reliable water sources. It was found that the challenge with this was that the municipality did not have a proper database of its indigent users. The implementation of the policy was then rendered ineffective as the municipality did not have the mechanism to identify deserving users from those that could afford to pay. One of the officials from the DWS (who happened to live in the UKDM) made an example of the fact that, although able to pay for water, was not required to as it was provided without charge in uMkhanyakude. The respondent emphasised that this was a major challenge to the implementation of this policy as resources were being wasted on users that could afford to pay for some level of services instead of on those that could not afford to pay. The respondent further added that the problem was that people believed they were entitled to water at no cost. This created challenges for the municipality as there was a lack of understanding among their constituents.

5.3.2 Water provision challenges, strategies and existing programmes

One of the respondents from CoGTA claimed that the provision of water at a municipal level was a process generally riddled with many challenges. According to the respondent, the UKDM was "no exception to this reality''. Like other predominantly rural municipalities, UKDM is characterised by a historically underdeveloped water service (UKDM, 2016). The lack of sufficient bulk and reticulation infrastructure to store and transfer water in rural areas presents a major challenge to the municipalities' ability to provide water in these areas (UKDM, 2016). The respondent from the Project Management Unit in the UKDM (who happened to be an engineer) argued that overcoming the financial implications of the spatial disparities between water (storage) and where the bulk of the people were located in rural areas was one of the biggest challenges the municipality faced in allocating water equitably to its constituency. This respondent also seemed to agree with the counter-view held by a few of the respondents from the UKDM, the Jozini LM and CoGTA. Their collective view was that more could have been done after 1994 to drastically close the gap between rural and urban water provision, despite the historical imbalance between urban and rural infrastructure investment. The respondent partly attributed the underdevelopment of both bulk and reticulation infrastructure to the lack of proper project planning and implementation. The director of water sector support at DWS argued that the real challenge was the lack of sufficient capacity and skills to undertake feasibility studies that would inform planning processes and contribute to project selection and implementation. Some of the additional challenges noted by the respondents included financial limitations, political dynamics and how they influenced governance within the municipality, the operation of and maintenance of (ageing) existing

infrastructure, as well as the poor alignment between planning, project selection, resources availability and funding.

The municipality has put in place several strategies and programmes to address many of these challenges and improve its service delivery performance. For instance, one of the respondents from CoGTA referred to the fact that the municipality has managed to source substantial amounts of funding through various grants such as the Municipal Infrastructural Grant (MIG) from CoGTA, and the Regional Bulk Infrastructural Grant from DWS. Respondents from both CoGTA and DWS argued that such initiatives had not always been effective due to the mismanagement of funds, which were either wasted on fruitless projects, used for other expenditure or simply unaccounted for. In some cases, where projects had been completed, it was reported by respondents of the uMhlathuze Water Board that many of these deteriorated over time due to a lack of proper maintenance and vandalism which had caused the collapse of many new and existing schemes within the municipality. Respondents from the UKDM shed light on how the municipality had quite recently begun to design schemes at a higher capacity than was required to accommodate any illegal connections made to the scheme as a strategy to address the issue of vandalism. One of the planners from the UKDM added that the strategy had proven quite effective, but the downfall was that it affected the cost of the project which reduced the amount of funding available for other projects. The Project Management Official from UKDM mentioned that the municipality has begun the process of redoing their WSDP in order to start afresh and correct many of the previous plans' omissions. The process, which was still underway at the time of conducting the interview, was said to also include the acquisition of additional skills for the planning and implementation of projects to ensure a higher degree of effectiveness.

Although such strategies had been fraught with many challenges, the general consensus among most of the respondents at the UKDM was that their implementation had been relatively successful as the level of services in the municipality had improved considerably over time. A respondent stressed that such strategies would be more effective if they were being implemented holistically and in parallel with other strategies. In some instances, the effectiveness of strategies had been hampered by the lack of coordination and collaboration between programmes. The respondents also mentioned that one of the programmes, focused on conservation and demand management, had been able to achieve a water loss drop of 52,2% in comparison to the 89,9% recorded the previous year. Although these figures represented a considerable drop in water losses, the actual volume was quite small in comparison to larger municipalities like eThekwini, according to a respondent.

5.4 Assessing the outcomes of free basic water policy implementation and planning practices in the UKDM

According to de Coning and Sherwill (2004), policy can be defined as a statement of intent. This implies that policy articulates an intention to attain a set of specific goals. In the context of water, South African policy draws its foundation from expressions made in the Freedom Charter of 1955, the Constitution of the Republic (1996) and a number of subsequent pieces of legislation formulated in the last 24 years. Section 27 (1) (b) of the Constitution states that "Everyone has the right to have access to sufficient water". This expression, though highly admirable, has proven very challenging for the South African government to implement (de Coning & Sherwill, 2004). The free basic water policy was introduced in 2001 as one of the policy vehicles for attaining this goal. the goal posted has shifted considerably since then as the influence of global goals penetrates through to the local level. In addition to assessing free basic water implementation in UKDM, this section also discusses the implementation of the New Urban Agenda (NUA) in the pursuit of Suitable Development Goals (SDG's).

5.4.1. Findings on the free basic water policy in UKDM

The free basic water policy has drawn criticism from the onset for its controversial approach to managing what is increasingly being considered as a scarce resource. The central concern around the policy has been that the cost of supplying water on a free basis would prove uneconomical for many municipalities in the country. In retrospect, literature on the topic has shown that the implementation of the policy has provided for wide applicability, although the policy has been criticised for defects of both inclusion and exclusion (Muller, 2008). Capacity building has always been a central part of implementing the policy successfully, as the programme relied heavily on the ability of local government structures to not only sustain but ensure effective and ongoing operation and maintenance of the new water infrastructure. This called for the establishment of financial systems to support the physical and operational planning of the water services, one element of which was the development of tariff and subsidy policies that would support the long-term financial sustainability of local governments.

Some of the officials at CoGTA and DWS cautioned against the tendency to approach water policy in isolation to parallel development policies implemented by the government. They argued that the outcomes of water policy need to be considered within the broader policy framework. In their opinion, South Africa's water policy has not been able to achieve the intended outcomes of promoting social and economic development among the poorest of the population because of the conflicting interests of different water users. They argued that in areas like the UKDM, the democratic government has been unable to enforce policy that overrides the historical hold of private interest on water access and control

within the region. Officials from the UKDM supported this view by adding that the municipality had only recently (in 2017) begun breaking ground on acquiring licensing rights that allow them to use water from the Jozini Dam for direct human consumption. According to one of the officials from the planning department, the outcomes of existing water policy which the government wished to realise (such as improving health and stimulating economic growth) were far out of reach; arguing that the embedded historical bondage of ownership restricted the government's full potential to utilise existing resources.

In response to the question on water policy and its outcomes, the dominant view held by most of the respondents was that the promise of a better future with regards to water had not yet been realised by all living in the country. One of the officials from DWS summarised this view well by arguing that the general progress made in South African water policy in the last twenty years has made accessing water a closer reality for most South Africans. This respondent further argued that policies such as the free basic water policy had improved access to water in the country considerably. This respondent added, however, that although the advances made in water policy were generally acknowledged across the country, there were still a large number of communities that were not benefiting from the policy.

As part of their responsibilities, the UKDM in its capacity as a WSA is required to prepare Water Services Development Plans (WSDP) which set out their master plan for the provision of water services to all those living in their area of jurisdiction on a regular basis (UKDM, 2015). Unfortunately, as the Project Management Official from UKDM put it, "uMkhanyakude has not been able to produce a concrete WSDP for a number of years". According to many of the respondents the municipality has fared poorly with regard to their planning functions. Respondents from the DWS and the uMhkathuze Water Board seemed to agree that the lack of proper community engagement, political unrest and an overall reluctancy on the part of council to root out rampant corruption and establish functional governance in UKDM impacted the municpality harshly.One of the respondents from CoGTA argued that the majority of the politicians in the area were mostly concerned about winning elections and staying in power. This respondent argued that due to corruption, planning had continuously been undermined by elected representatives who were never held accountable for the countless developments that had been undertaken without proper plans in place. Many of the respondents supported the view that one of the biggest set-backs to the development of water services in the UKDM was the absence of proper planning processes to guide development.

The costs of building new infrastructure (both bulk and reticulation) while simultaneously operating and maintaining existing infrastructure were a massive obstacle for a municipality such as the UKDM with very little economic activity. The UKDM's reliance on external funding for most of its operational budget

has limited its capacity to advance water provision more timeously, as funding for projects has often been one of the main constraints to capacity development. The fundamental and underlying challenge was that the Municipality did not have the means to generate sufficient revenue to cover the full costs of developing, operating and maintaining its infrastructure. According to respondents from the UKDM water use authorisation and regulation in UKDM had also been a major challenge to the municipality. They stressed that the municipality was facing a challenge of illegal water connections that had been undermining the entire water system. They further added that although water was a human right, the municipality, as the custodian, had the responsibility to regulate its use. Failure to properly regulate the use of water placed the entire system at risk. One of the respondents from the planning department in the Jozini Municipality felt that the UKDM had done almost everything they could to better regulate the illegal abstraction of water and stressed that their efforts (counter-strategies such as increasing the system's capacity to accommodate illegal connections) had so far failed to present lasting solutions. In general, most of the respondents were of the view that the absence of proper planning practices had largely contributed to creating the outcome of dilapidated and misaligned infrastructure in the municipality.

5.4.2. Implementing the New Urban Agenda to achieve the Sustainable Development Goals

In order to effectively realign policy at a local level, the government needs to approach the localization of SDG's as both a political and a technical process. In analysing the political aspects of the municipality with regards to attaining the SDGs in the context of the NUA, the study finds that the current political conditions in UKDM may not be fully suitable for cultivating the type of intuitional change required. According to Wallace et al. (2015), the lack of institutional capacity is one the central factor to explain the poor performance of water governance in many countries. The study finds that UKDM is no exception as the municipality is also greatly impaired in its efforts by several institutional and governance issues, such as conflicting policy interpretation and corruption respectively. The SDG implementation process must thus support the building of institutional capacity to achieve its goals. Water governance should be participatory, accountable, transparent, responsive, consensus orientated, effective and efficient, equitable and inclusive, and should respectful of the law (Wallace *et al*., 2015). Based on these requisites UKDM will have to improve on a number of governance related shortcomings, which will require a more stable political environment, to allow for more effective planning through a bottom up policy approach. The absence of such political stability denies the process the cohesiveness required to achieve such goals.

The second aspect to implementing the NUA and attaining the SDG's requires a process of technical reform. Despite the varied efforts by, science, business and industry, policy makers, non-governmental agencies and all other relevant actors, it is beyond any doubt that sustainable development requires accelerated technological, social, and institutional innovation (Fabre, 2017). Advancing such change at a local level will require serious commitment from all the different actors. In the case of UKDM, addressing the technical limitations challenging the municipality will require a thorough analysis of existing capacities. Following this process, the municipality would most likely be in a better place to identify gaps and by so doing applying the framework of social development within a locally rooted context. To achieve the goal of clean water and sanitation UKDM will need to establish a contextually relevant set of indicators and methodology for monitoring progress, setting targets and deciding on approaches.

From a policy perspective, based on secondary data exploration, UKDM has made very little if any stated efforts toward the application of the NUA in advancing the SDG. This does not however imply that the municipality does not have existing policy in place with similar objectives as those stated in the SDG's. the goal to provide free water for example possesses similar objectives as those stated in goal number 6 of the SDG's which is to provide clean water and sanitation. As part of recent municipal plans for instance, the issue of water and poor sanitation have been listed as a key challenge in need of address. A central part of implementing the NUA agenda requires a process of participatory policy formation that mainstreams sustainable urban and territorial development as part of integrated development strategies and plans, supported by institutional and regulatory frameworks linked to transparent and accountable finance mechanisms (Fabre, 2017). Unfortunately, according to several respondents, in the past UKDM has fared poorly in establishing robust and effective community engagement processes. This undermines a fundamental aspect of implementing the NUA and needs to be addressed as discussed in subsequent sections of this chapter.

5.5 Interrogating power and politics in UKDM

The political climate within the UKDM was marked by contestation over power and allegations of rampant corruption. The study found that as a result of the ongoing power struggles in the UKDM the process of appointing a new Municipality Manger was delayed by 18 months after the 2016 elections. This had a direct impact on the municipal governance capacity as the administrative wing of the government had been limited in its capacity to take decisive action. Although an acting Municipal Manager was appointed in the interim, the municipality was still unable to undertake long-term strategic

planning required to turn the municipality around, improve internal systems and audits, and carry out the implementation of municipal by-laws and legislation, as well as the management of service delivery to local communities to achieve customer satisfaction.

Issues relating to the management and allocation of resources are an integral part of politics. The South African government's apparent inability to resolve the country's water challenges has aggravated the conditions of scarcity experienced in many municipalities around the country (CoGTA, 2009). As drought conditions continued to ravage the region, political unrest around water services has escalated across many municipalities in the country. The residents of the UKDM, for instance, are notorious for the many (water) service-related protests that have resulted in the burning of tyres and blocking of roads. Many of the respondents feel that the community has resorted to these protests as they are the only means to express their grievances to the government. Most respondents interviewed argued that these protests are due to a lack of political accountability within the UKDM as the residents have often expressed that they are tired of government (politicians) making empty promises and have resorted to protesting as a means of fast-tracking development.

At a national level the government has made considerable strides in advancing a policy and legislative environment conducive to the development of water services (CoGTA, 2009). Most respondents agreed that the biggest challenge to the legislative processes to deal with issues of water management was presented by the lack of capacity to implement such legislation. Respondents from CoGTA, DWS and the UKDM all seemed to agree that one of the biggest threats to the country's development of water infrastructure was the rife corruption and political bias crippling many municipalities in the country. They claim to have observed that local government politics had derailed the broader mission of advancing development within municipalities across the province. They further added that the political deployment of unskilled or poorly qualified individuals into positions that required specialised skills needed to be addressed as it undermined the prospect of making considerable advances in the water sector and portrayed serious misuse of power. One of the respondents from the Jozini Local Municipality, and another from the UKDM both emphasised the point that the municipality (UKDM) was challenged by a serious lack of skills at the time and therefore lacked the capacity to provide lasting solutions in the water sector, and by placing unskilled individuals in crucial positions, any prospects of growth were considerably undermined. The Official from the UKDM stressed that due to the lack of political oversight individuals often found it easy to abuse power.

Without the guidance of the appropriate planning documentation the selection of projects within the municipality had been reliant primarily on political factors and the influence of powerful actors. The

majority of the interviewed respondents seemed to share the sentiment that the municipality had been more reactive than proactive in the selection of projects. The study found that the main determining factor influencing project selection in the UKDM, as in other municipalities throughout the province, had been political pressure such as protests and attempts to garner political support by implementing projects around elections. This implied that projects had been selected based on the varying abilities of politically elected representatives to motivate for and secure funding for the projects. This often resulted in wasteful expenditure as most projects were often found not to be linked to the required bulk infrastructure or collapsed after a number of years due to the absence of proper feasibility assessments.

The study has also found that the municipality allegedly selected projects in response to external pressures such as illegal connections, vandalism and leaks that posed a threat to existing schemes. One of the respondents interviewed argued that the municipality preferred to address these kinds of issues because they were often considered by councillors to be quick-fixes to score points. Another respondent confirmed that the main challenge affecting the process of project selection was the lack of proper planning, a lack of accountable governance, ageing infrastructure (which had not been upgraded) and tender processes (that often influenced the selection of larger scale projects for more funding). The role of power and politics in influencing project selection within the UKDM has clearly derailed progress within the municipality. Officials from the DWS stressed that in the absence of clear governance stability, politics could be a serious obstacle to development at a local level.

5.6 Conclusion

The chapter began with a discussion on the state of governance within UKDM. The first section of the chapter confirmed the validity of concerns around the state and quality of governance within the municipality. What the research uncovered is that a significant proportion of the study's respondents shared the sentiment that the general deterioration in accountability and transparency within the municipality were a major impediment to smooth functioning within the municipality. This particular finding has important implications for developments in water provision, as the study is of the view that the character of a municipality's political landscape, the presence or absence of well-designed regulations, and a functioning judiciary usually determines the effectiveness of a municipal institutional environment. This in turn implies that the current state of governance within the UKDM undermines the overall capacity of the municipality.

The second section of the chapter explored the governmentality of the UKDM and discussed the implementation of the free basic water policy and its implications within the context of UKDM and similar areas. The study found that the sentiment among officials from the municipality was that some of the government's policies lacked flexibility for implementation in the context of poorer municipalities which called for a review of policy. The respondents added to this point by arguing that the supply of water provided by the free basic water policy was insufficient to meet the basic needs of a family unit. The section was important to the study as it shed light on some of the ways policy thinking has shaped the reality of water provision in the UKDM and suggested potential limitations this could impose on the capacity of the municipality to advance the provision of water in an equitable manner across class lines.

The third section of the chapter extended the discussion of policy and considered some of the outcomes of policy implementation within the municipality from the perspective of various government officials. A key finding in the section was that according to a majority of the respondents in the study, the underdevelopment of both bulk and reticulation infrastructure could be attributed to the lack of proper project planning and implementation. This was a central finding to the study as it highlighted a key capacity weakness within the municipality. It also emphasised the role of planning as a discipline in the development of water provision services. The chapter also noted the finding that planning in water development was one of the main areas of capacity flagged by the respondents as a weakness or in need of improvement within the UKDM.

The fourth section presented a discussion on the role of power and politics on the municipality's capacity; this section stressed the overall impact of poor governance conditions and weak institutions. The study noted that political influence in project selection, for instance, among other aspects of governance and planning had been a major impediment to development within the municipality. The study found that due the poor state of governance in the municipality, political power had gone somewhat unchecked, allowing for the misappropriation of funds and other resources. The argument put forward was that political power and influence had played a major role in undercutting the municipality's functional capacity. This was based on the number of politically influenced developments that had been implemented within the municipality. Although these promised a certain degree of growth in the respective communities, the respondents were of the view that the long-term effects of such developments effectively undermined all other efforts by the municipality to override proper planning processes.

CHAPTER 6: RESEARCH CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This study set out to assess the capacity for water provision in the uMkhanyakude District Municipality. As part of this task the study investigated the conditions of governance in UKDM in order to elicit opinions on the impact such conditions have had on functions of the municipality as a water provider. To broaden understanding of some of the factors that structure governance conditions in the region, the study assessed the conditions of governmentality that exist within the institutional arrangement. The purpose of this exercise was to identify potential limitations in governmentality that could affect capacity for water provision. In line with the main research question the study has identified various scenarios, conditions and factors that may be exerting a negative impact on the capacity of UKDM to effectively provide water in the area. The various objectives of the study have been used in combination with other relevant themes of analysis uncovered in the literature review process to structure the findings of the study as presented in the previous chapter. The purpose of this chapter is to summarise the main discussions of the study and draw conclusions on the findings, as well as make recommendations for practical implementation and future research.

The premise of the study stems from the challenges related to providing water to communities in an equitable, effective and sustainable manner. The study has contributed to policy-related debates concerned with finding the most suitable plan and strategy to challenging the backlog in water services currently facing municipalities like UKDM. Based on some of the literature reviewed on water resource management, growing opinion in academic and policy circles is of the view that the water supply challenges affecting many parts of the world are more than just issues of physical resource insufficiencies. Instead they argue that poor resource management at a global, national and regional level has contributed largely to the harsh reality of water scarcity facing many communities around the world. To expand on this argument the study set out to explore the municipality's capacity from a governance perspective focused on the wider institutional environment and various aspects of organizational character and quality that influence capacity.

The dissertation adopted UKDM as the case study for this research because of the stark contrast that exists between water availability and water supply within the municipal area. As a generalisation the study found that a significant portion of the rural communities in UKDM have been challenged by poor

accessibility to water as well as its poor quality. This has resulted in the mayor and other members of council drawing harsh criticism for the lack of a sustainable initiative to address these challenges. The study has engaged literature on water service provision in different countries to draw a wider perspective on the underlying causes affecting the capacity of the different water service providers to fulfill their functions. A key consideration in this assessment has been the different forms of institutional arrangements various governments have chosen to implement the management of water.

This dissertation is made up of two main parts. The first includes an introduction to the topic and a review of existing literature around the topic of water provision, governance and management as well as a background to the study area UKDM. The second part of the dissertation provides the empirical processes undertaken in completing the study and presents findings from the research process. Chapter 1 introduces the topic and provides a contextual background to the study and research problem. Included in Chapter 1 is an outline of the research aim and objectives as well as a breakdown of the entire study by chapter. The main purpose of the first chapter is to provide an overview of the study and present a clear statement of the research problem and a motivation for the study.

Chapter 2 of the study has been divided into two main sections, namely the theoretical framework and a literature review. The chapter begins by introducing the main theories used in the study to establish the theoretical framework used in analysing and interpreting the data collected as part of the research process. The theoretical framework applied in this research consists of three main theories; these are the neo-institutional theory, the human development theory, and the basic needs theory. Each of these theories has contributed instrumentally to addressing specific aspects of the study's research questions. The human development and basic needs theories have added immense value to the study by providing a theoretical lens to discuss and analyse development as an outcome of governance within the broader water management institutional environment. The neo-institutional theory on the other hand provided the theoretical basis and approach to studying institutions. Combining all three of these theories provided the study with the relevant tools to unpack the various themes for discussion throughout the study. This has been useful to the research as the various arguments presented in each of the theories provided a theoretically substantiated perspective to approaching the research questions. The second part of chapter 2 discusses a wide range of literature that has been reviewed as part of the research process. The literature review section is a key part of the entire study as it expands the discussion on the topic to a much larger scale, by considering the work of other authors within the respective field of water governance, management and planning.

The second part of the dissertation consisted of the research design and methodology, case study presentation, and a discussion on the research findings. Chapter 3 of this dissertation lays out the methodological process of the study and provides a roadmap that is inclusive of how the study has been undertaken, what considerations have been made to best respond to the questions and what steps have been taken to complete the research process. Chapter 4 of the dissertation presents the case study in more detail and discusses various aspects of the municipal entity to provide a broader understanding of the contextual character of governance and water management in UKDM. The case study chapter forms a crucial part of the study because it presents an overview of general and specific capacity aspects of UKDM (as a water provider) which lays a foundation for the analysis undertaken in chapter 5. Chapter 5 of the study presents and discusses the main findings of the study. The discussion in this chapter follows a structure framed by the main objectives of the study. The chapter begins with a discussion on water governance in UKDM and follows up with an analysis of policy implementation. The last section of the chapter discusses the role of power in shaping certain realities relating to water management and provision. The dissertation concludes with the 6th chapter, which summarises the main discussions of the study, undertakes a gap analysis and makes recommendation for practice and future research.

6.2 Understanding water scarcity in the context of UKDM

The study discusses how in recent years as much of Southern Africa faces worsening drought conditions, the need to ensure water security to vulnerable communities has increasingly become more apparent. The challenge of addressing the water backlog particularly in rural areas calls for immediate action as primarily relying on rivers, boreholes, rain water and other alternative sources has often exacerbated vulnerability and poverty in these communities. The study has explored the assertion that water scarcity is the result of socio-political conditions by assessing the case of UKDM as a means to expand the debate on the topic. In the literature review chapter the study discusses how poor water governance is often the consequence and reflection of a poor institutional environment. The study found that in the case of UKDM this assertion holds considerable truth as according to many of the respondents, the governance issues challenging the municipality have contributed substantially to retarding progress and development in the water sector.

Based on secondary data, UKDM possesses a significant natural and stored water capacity sufficient under normal conditions to meet the present and future demands of the population. This then begs the question as to why the municipality is regarded as one of the most challenged municipal areas within the province with regard to supplying water equitably to its population. What the study found is that one

of the main challenges the municipality faces with regard to water provision is in regard to equitably appropriating the available physical resources through existing means i.e. within the confines and limitations of existing infrastructure and systems. The issues relating to this challenge are that the existing infrastructure is concentrated in urban areas far from the rural outskirts where the backlog is most prominent; the municipality lacks the resources (both human and financial) to identify and repair leaks to its ageing infrastructure resulting in high water losses; and lastly, the costs related to providing infrastructure in some of the rural areas makes little business sense for the municipality as its recovery methods are currently ineffective.

Based on the literature reviewed the study makes the argument that physical capacity limitations alone often only present part of the picture. The study is of the view that, although the municipality is challenged by a number of natural and structural constraints and limitations relating to resource availability and infrastructure, a significant proportion of its water provisioning challenges is governance related. The many governance related issues listed in the findings are rooted primarily in poor management. In line with the basic need's theory, the study focuses on the actors and structures responsible for governance within the municipality. The municipality's leadership (Mayor and Municipal council) have been challenged by issues of political instability within the district which has made smooth governance challenging. According to the findings of the study the ongoing political struggles over power in both the region and the district have derailed the municipality's progress in service delivery and have considerably exacerbated water scarcity conditions.

6.3 The effects of governance on municipal capacity in the UKDM

Water governance by definition implies the capacity for coordinated implementation of policies, strategies and legislations at all government levels in the water sector. Poor governance can therefore be understood as a deficiency of such a capacity, i.e. the inadequate implementation of policies, strategies and legislation relating to water resource management. In assessing the existing water arrangement in UKDM, the study began by acknowledging that although its primary focus has been placed on understanding and describe the arrangement for water governance and its impact on the municipality's capacity, there are factors outside of governance that play a role on influencing capacity and performance. Some of these include: (1) the physical and technical conditions inherent in that particular institution or organisation; (2) organisational factors such as the existence and level of expertise in local or regional authorities, the availability of adequate financial resources, and the attractiveness of local markets for private sector participation; as well as (3) institutional factors which

include, policy making, political processes and the existence of more or less efficient dispute resolution mechanisms.

According to the findings, although formalised arrangements within the water institution exist and function to a moderately satisfying degree, there are a number of governance related issues undermining the overall productive output and performance the related institutions can offer. In order to undertake the exercise of assessing the existing arrangements for governance the study undertook an inquiry into the general conditions of governance (i.e. in an institutional environment) within the municipality, as well as the level of coordination and effectiveness of the relationship that exists between different stakeholders.

In line with the basic needs approach this study framed this discussion around the key actors and structures within the arrangement that are responsible for governance, and how they (as officials and politicians) have managed to perform with regard to municipal functions. The basic needs theory considers actors and structures to be an important factor in governance as they are the ones making decisions, influencing development and providing direction. Although the arrangement for water governance at a local level requires the coordination and collaboration of different institutions, the research chose to focus primarily on the municipality (acting in its capacity as the WSA) based on the understanding that within the existing arrangement, it is the main institution responsible for providing water in its area of jurisdiction.

The study has found that UKDM has been challenged by a number of factors that undermine the integrity of the institution and the viability of the municipality, which supports the view that the actual weakness of states, showing low governance capacity, is the consequence of institutional failure. The administrative branch of government accountable for the implementation of the municipal development plans, policies and strategies relies on the political wing to provide oversight and direction which has not always been the case here. Unfortunately, as found in the previous chapter, UKDM has had serious challenges with regard to establishing proper internal systems to monitor and track irregularities in expenditure, and the municipality has done very little to improve its bylaws to enhance the municipality's ability to enforce revenue collection on users (UKDM, 2015). The excessive amounts of money wasted in the form of misappropriated funds have limited the amount of resources available to provide improved water services across the municipality.

Although the government has made considerable efforts to reform the regulatory framework and institutional arrangement of the water sector in order to improve service delivery to historically disadvantaged communities in the country, water scarcity still poses a serious threat to socioeconomic

development. The study found that the absence of sound strategic planning processes has opened up gaps for the misappropriation of funds and creates grey areas in accountability as projects are not well aligned to the budget and usually lack proper feasibility assessments. This in turn limits the opportunity for coordination and collaboration among the various stakeholders, which is a key component for establishing better governance.

6.4 Water policy in South Africa: shaping water provision

International institutions involved in the management of water have taken many different forms, shapes and sizes. They range from government, to non-profit and business organisations. The investigation of policies, programmes and strategies that have shaped water provision in UKDM has shown that water policy intended to redress the backlog such as the free basic water policy, may potentially be furthering existing anomalies in respect of access to and control over services. The study has made use of the historical institutionalism approach as a framework to investigate ways in which access to and control over water has been framed by the conditions of governmentality within the institution. The prevailing policies and strategies government has employed to frame and conceptualise water provision. The theory suggested that the options in respect of present and future courses of action an institution adopts are determined and framed to a varying and considerable degree by past decisions and/ or paths of action. This thinking is based on the concept of path dependency which postulates that "outcomes at a critical juncture trigger feedback mechanism that reinforce the recurrence of a particular pattern into the future" (Hall & Taylor, 1996). This implies that (policy) decisions that changed the course of policy in the past will have an impact on shaping future policy decisions. Applying this theory as a tool of analysis in this research has been helpful in creating understanding around the way in which institutional thinking, which underpins the governmentality conditions, has had an impact on shaping access to and control over water in rural municipalities.

In the context of water policy in South Africa, the study views the new democratic government's transition into power as a clear and critical junction which ushered in, along with democracy, a period of broad policy reform (Davids, 2006). The economic position and direction assumed by the government at this point established the setting for all future policy decisions. In adopting a neoliberal economic policy approach, the government structured all future policy decisions within the framework of their broader economic policies. The study found that, according to some of the respondents, the National Water Act (1998) and the Water Services Act (1997) were poorly aligned with some of the developmental challenges specific to rural poor municipalities.

From the argument raised it follows that on the one hand the government's free basic policy approach shapes an idea of water as a right all people should have access to while, on the other hand, policies of cost recovery have shaped an idea of water as a resource and commodity that needs to be priced for efficiency, equity and sustainability. This obvious contrast in policy has been mediated by alternative strategies such as that of equitable sharing which seeks to redistribute wealth and resources more equitably to assist poorer municipalities gain the much-needed financial resources to tackle the massive backlog in services. Unfortunately, in the case of UKDM and other poor municipalities, the overarching policy direction initiated in the earlier stages of policy formation in the country have proved challenging to implement locally.

In assessing the strategies implemented by government to address some of the challenges they face in providing water within the UKDM, the study found that the municipality has used a range of strategies to deal with specific challenges. In general, these strategies include securing grants for large-scale infrastructural projects and other needs beyond the municipality's financial means. Although this has assisted the municipality to access funding, they have used to implement a number of meaningful projects, the primary concern is that the municipality is still challenged by a lack of accountability. This raises concerns about the effectiveness of such finding as there are questions as to whether such funds are being appropriated as intended. Another strategy to deal with their infrastructural challenges has been to increase the capacity of their schemes in order to accommodate illegal connections that were previously undermining many old sand new schemes in the area. Although this strategy seems to be working, there are concerns around the cost implications of building schemes that are more ambitious than they need to be.

Considering that the study agrees with the view that technical solutions on their own will not completely address the challenges in water provision facing UKDM, the research argues that the prospect of accessing water from the Jozini Dam on its own, without wider institutional effort will not address the challenges of the backlog. Although the benefits of such a decision are obvious, the researcher's view is that the municipality is still in a compromised position as it does not have full access and control over the use of all its water sources, and the argument here is that the government needs to relook water legislation in the country to prioritize human needs. Although the municipality seems to be taking an initiative in addressing its challenges in the water sector, there are still a number of fundamental policy positions that are undermining and restricting its efforts.

6.5 The cost of free water in the UKDM

The basic needs approach is built on the idea that the overriding objective of all development policy on either a national or international scale should be to assure the satisfaction of all basic needs within a society. The study found that although many of the respondents were satisfied to varying degrees with the means and end the policy attempted to advance, a majority of the respondents shared concerns that the quantities prescribed by the policy were insufficient to meet the daily needs of an average family unit, and therefore are unlikely to bring about a significant change in the socioeconomic quality and standard of living for many families. The study found that although the respondents seem to acknowledge the positive impact free basic water has had on rural and outlying communities, they also feel more can be done to provide secure access to more people. The main argument against the policy is that the various capabilities and functionalities water can give one access to (such as farming, or other water intensive businesses) are considerably restricted. These restrictions have the effect of denying users the full benefits and flexibilities wealthier users are used to. An implication of this policy is the possibility that it is arguably also contributing to creating and growing the class divide between users.

The research has argued that the issue of illegal connections and vandalism that are clearly a challenge to the municipality is a consequential outcome of slow progress and a lack of proper community engagement. Considering the reality that the livelihoods of many small business owners in rural areas rely heavily on water to thrive and develop sustainably, their desperate attempts to make illegal connections to give them more flexibility seems to be a natural consequence. The basic needs theory approaches the assessment of development initiatives from the perspective of the number or range of capabilities and functionalities development makes possible. Based on this perspective one would argue that the existing means of providing free basic water at the present quantity level are insufficient to service the holistic development of families in the area. By its very nature the free basic water policy was intended to cater for those who do not have the means to afford access to water. Unfortunately, in the UKDM, owing to a number of reasons including the lack of data on the needs different users have, the municipality is incapable of effectively distinguishing users who cannot afford services from those who can. This has had a limiting effect on the municipality's efforts to address the backlog as non-eligible users have benefited from the programme too. Making matters worse, by failing to effectively manage and operate an accurate metering system, the municipality has compromised the viability of the entire system as they are unable to accurately charge users. This implies, according to the findings, that users who can afford to pay, such as government and businesses, are often not

compelled to pay any costs as there are no clear records available. These challenges depict a poorly managed system with many gaps for exploitation.

6.6 Water planning in UKDM

According to South African legislation all municipalities at a local level are required to produce a dossier of planning documents that detail each municipal area's needs and development plans over a given period of about four to five years. UKDM falls within the bracket of municipalities that have been struggling to produce some of the required plans. According to the study's findings the municipality has not been able to produce an approved Water Master Plan and Water Services Development Plan, which implies that the municipality's capacity to undertake the development of water infrastructure, both bulk and reticulation, in both the long and short term is considerably compromised. The impact this has on the municipality's functional capacity is significant as the planning processes require the municipality to acquire a considerable amount of information on the needs of its constituency. Without such information the municipality's capacity to address the many issues that challenge the various communities within its jurisdiction is significantly limited.

Undertaking feasibility studies is a key component of the planning processes. In the absence of such studies the municipality is exposed to the risk of wasting resources on projects that lack the required alignment for maximum potential benefit to the community. The outcomes of poor performance in planning is the large amount of wasteful expenditure on poorly aligned projects. The absence of proper planning also implies that the municipality's budgets are allocated without proper oversight as to how the funds will be allocated. This either leads to underspending or overspending on projects which undermines accountability substantially.

The study found that as a consequence of poor planning in UKDM, the municipality has been challenged by a lack of coordination among the various organisations involved as there is no clear action plan for relevant role players and stakeholders to rally behind. The lack of coordination among role-players has contributed to a significant increase in wasteful expenditure and failed projects. The strained relationship between the municipality and its various stakeholder groups has had a considerably limiting effect on the organisation's functional capacity. In a sector as cost-intensive as water, the coordination and collaboration of stakeholders is vital for any effective change within the sector. Understanding that the municipality functions and operates within a spectrum of different water users locally and within the broader region requires a high degree of communication at various levels for any effective management to be possible. The costs related to providing water equitably throughout

the municipal area are noted in the study as one of the biggest physical challenges. Failure to absorb some of these costs through intra-organisational coordination and collaboration in projects creates financial limitations for all parties involved. This has a direct impact on the municipality's capacity and reduces the extent, scope and scale of its efforts. Without seriously implementing steps to strengthen the municipality's planning processes, the municipality's capacity to undertake water provision equitably is extremely compromised.

6.7 Identifying potential capacity limitations

The study found that some of the main challenges facing the UKDM with regard to infrastructure are: the spatial disparities between people and the infrastructure, poor maintenance and operation of existing infrastructure, and vandalism of already ageing and leaking infrastructure. The challenge, according to the findings, is that the majority of the population within the district is located further inland in the rural areas, far from the urban areas where infrastructure is located making it extremely difficult to provide water to these people. The location of bulk infrastructure in relation to where people are located, for instance, presents a number of challenges with regard to access and control. The first set of challenges concerns the fact that a huge portion of the bulk infrastructure, and dams in particular, are privately owned implying restricted access. The historic priority for many of the dams in the district has always been agriculture and tourism. The agricultural sector in fact is one of the main water users within the region and nationally. The possibility of licensing water from the Jozini dam could promise a better future for the municipality as there is little likelihood of further dam construction.

The second set of challenges relates to reticulation infrastructure. The main issue with reticulation infrastructure is that there is nowhere near enough infrastructure to service all the people. Historically the development of infrastructure was more prominent in urban areas due to added support from government at the time. Closing the gap now will require that the municipality devises new strategies to service people located in areas outside feasible parameters. The lack of maintenance and vandalism of the existing infrastructure that is continuing to deteriorate albeit gradually, has also been listed as a major challenge to the municipality. Such issues limit the municipality's capacity by reversing the gains made by current developments. The costs reinvested into repairing and replacing infrastructure are difficult to collect from users as the municipality has serious challenges with the collection of revenue. Another major issue with reticulation infrastructure relates to the municipality's inability to retain a conclusive set of data on existing infrastructure. This presents challenges for planning and makes it difficult for the municipality to maintain the infrastructure.

The municipality's financial viability has been brought into question for a number of reasons including: non-compliance with legislation, weak internal systems, budget overspending and a sense of absent accountability. The auditor general declared in the latest UKDM Audit report (2015) that the municipality has been operating in an unsustainable manner and called for serious intervention. The absence of political oversight to ensure adherence to legislation and the lack of sufficiently experienced individuals overseeing the municipality's financial division pose a critical threat to the municipality's financial viability. The study found that the poor management of funds and the absence of accountability weakens the municipality's capacity to undertake other development projects and use funds to its full potential.

This is a major capacity limitation to the municipality as it has to date been unable to develop improved systems to collect the revenue it requires to establish a financially viable system. The lack of proper internal control is another factor listed in the findings as a major threat to the municipality's financial viability. Without the appropriate measures in place to restrict the misuse of funds and curb budget overspending the municipality will more than likely be unable to operate in a more sustainable manner. The AG's inability to reach a conclusion on the municipality's financial viability is a sign that the management of finances within the municipality is not yet satisfactory and poses a serious threat to the organisation's capacity.

6.8 The influence of power and politics in the UKDM

Based on the definition of power as the ability to shape and secure particular outcomes, the study interrogated the role of politics and the influence of power on the organisational performance. The objective of this exercise was to gain a better understanding of how politics may be affecting capacity for water provision in the UKDM. What the study concludes from the findings is a sense of political dysfunction within the UKDM. The municipality in recent years, according to many of the respondents, has been challenged by a series of governance-rooted issues that have undermined the municipality's ability to fulfil its functions. The previous chapter shed light on the nature and character of the political terrain in UKDM. What seems apparent is that the ongoing disputes and contestations over power between the ANC, IFP and NFP have acted as a distraction to the municipality. This has had a direct impact on the municipality's functioning as certain operations could not be fulfilled in the midst of the ongoing disputes. One respondent makes an example of how the contestation over the appointment of a MM placed the municipality in a stagnant position, as there was a lack of clear vision and direction in the period while the position was only filled in an acting capacity.

The role of politics in driving development at a local level is hard to overlook when taking into consideration the effects the associated power may have on capacity. The study found that the political dynamics in the UKDM have been clouded by allegations about corruption and abuse of power. The previous chapter makes examples of how power may have been used to influence decision making on projects that have not followed proper development processes before approval. This has impacted the municipality harshly as many of these projects were abandoned and left incomplete or poorly maintained after completion. The clear effects this has had on capacity is that the municipality's resources have been depleted wastefully requiring that funds be redirected from other areas to compensate. The obvious impact this has on a municipality's capacity to fulfil its overall objectives include a lack of coordination among stakeholders as there are no clear plans guiding development. This results in a massive waste of both human and capital resources.

The process for selecting projects for implementation should in theory be based on factors such as the need for that particular project in that particular area compared to other areas; the amount of money available to implement that particular project; and the impact that project will have on the population in comparison to a similar or alternative project elsewhere. All these factors combined should be weighed against one another to determine the most suitable projects for implementation in each financial year. This process should be outlined and guided by the municipal plans beginning with its IDP and including its WSDP, Water Master Plan, Bulk and Reticulation Infrastructure Plans, etc. (Davids, 2006). Existing evidence suggests that in the UKDM this has not been the case, primarily because the municipality has not had any such plans for a number of years and those that have been published have either not been accepted or considered seriously by individuals within the municipality due to a lack of credibility.

The following conclusions can be drawn from the study's findings on governance and politics in the UKDM. The effects of politics on municipal governance have, according to the respondents, contributed to the organisation's state of dysfunctionality. In order for the municipality to start correcting its governance issues they will have to establish a higher degree of political stability. The relationship between politics and governance is complicated by the closely intertwined web of dynamics each aspect has on the other. In order for the municipality to enhance its governance capacity, a lot of work needs to be done politically to bring about more stability within the district.

6.9 Gap analysis

In management literature, gap analysis involves the comparison of actual performance with potential or desired performance (Rouse, 2014). The gap analysis method has been used in this study to compare the current state of performance within the municipal with the desired state and goals set in various

plans. The study found that in line with the SDG's and other global, national and regional goals, uMkhanyakude District Municipality has set the ambitious goal of providing clean drinking water to all its residents within a set number of years. A critical factor in attaining this goal is the capacity to implement, monitor and sustain all programmes, policy and infrastructure set in place.

As stated in the findings chapter UKDM has been challenged by several fundamental issues that undermined its capacity to perform optimally under current conditions. Among some of the capacity elements the municipality seeks to improve are issues such as better financial management, governance oversight and accountability, community engagement and planning, as well as infrastructural development.

At the time of investigation, the study found that the municipality was in an extremely poor financial condition as it was rife with allegation of mismanagement due to budget overspending that could not be accounted for. The state of governance within the municipality has been highlighted as a central area of concern throughout the study, some of the main issues include a lack of accountability and a weak sense of oversight due to a lack of firm leadership over lengthy periods of time, in part due to political conflict resulting in the stalling of certain processes. Another central theme of concern in the study was the lack of proper community engagement and planning. Although the study emphasises that the infrastructural capacity constrains are by no means the largest limitation it faces with regards to providing water, the study found that the poor state of infrastructure and the lack shared information has made conditions far more server for residents.

With these challenges noted, the municipality has put in place a wide set of goals that outlined its desired state. With regards to financial management the municipality desired goals include a higher sense of accountability of funds which can be improved through better governance oversight and planning. The entities stated goals with regards to improving its governance related shortfalls include improving community engagement and establishing a more stable political environment. Lastly as far as infrastructure is concerned the study alludes to how the municipality intends to establish a more conclusive data set of the needs in various communities with regards to both bulk and reticulation infrastructure. This will in turn help the municipality cut costs by streamlining implementation in a more efficient manner as well as being able to repair and maintain infrastructure more effectively.

What's seems apparent is that there is currently a significant gap between the municipal's present state and the future the envision. The key aspects as discussed above and in previous chapter include: the absence of sound financial management and regulatory processes to check and curb mismanagement;

a lack of oversight to enforce some of the regulatory measures in place; and a lack of skills and political will to undertake and implement planning processes and manage infrastructure.

6.10 Recommendations

Enhancing capacity within municipalities to provide water is a fundamental requirement to solving the water backlog affecting the country. Identifying the various aspects of a municipality's capacity that affects its ability to perform optimally in the provision of water is the starting point for the reform processes required to enhance efficiency and effectiveness within municipalities. Planning has been identified as the key tool for implementing the municipality's long and short-term development agenda. Considering the various issues discussed in this chapter, the researcher wishes to make the following recommendations to be put into practice and for further research:

6.10.1 General recommendations

- The municipality will need to undertake a capacity self-assessment to gauge the level of capacity they currently possess and identify areas of critical concern within the organisation. Staff will also need to be educated on the concept of capacity for their contributions to the assessment to be more valuable. Undertaking a capacity assessment will allow the municipality to identify key areas of weakness with regards to their overall institutional capacity. Studies investigating factors limiting the performance of municipalities have found that apart from the shortcomings of leadership and management and technical inefficiencies, municipalities are experiencing a lack of organisational capacity (CSIR, 2014). To date, most of the organisational capacity building initiatives undertaken in the country have tended to focus on a municipal engineering capacity and other technical aspects. Many of these efforts have failed to produce the intended outcomes mainly due to inaccuracy in capacity gap identification and improper preparation of capacity building initiatives (CoGTA, 2009).

- To establish long term viability, the municipality will firstly need to identify the different classes of water users within the DM and their needs. The second step is to establish a conclusive database of all users and infrastructure. This will allow the municipality to make more informed planning decisions. Also, it will help to inform the municipality on its revenue capacity and infrastructure needs. In addition, some argue that the neoliberal policy agenda provides a conflicting environment for addressing the provision of water for the poor and mitigating the effects of climate

change (Pressend, 2011). This argument is based on the view that private companies or public-private partnerships are more inclined to act in the interest of profit. This undermines many of the efforts set in place to help the poor as the interests of companies will often conflict those of the public.

6.10.2 Specific recommendations and areas of further research

- The study is of the view that the neoliberal policy framework informing policy conflicts with the government's social development agenda. The government will need to review the outcomes of water policy in the last 20 years to assess the impact the broader policy framework has had on advancing water provision more equitably.

- To help the municipality address some of the gaps identified, future research into the topic can work on expanding knowledge on the technical indicators that measure capacity in a more analytically manner. The researcher recommends that any future study on water provision capacity would have to further develop the concept as it relates to WSA more scientifically. This means that the research would have to cement this argument with more numerical linkages showing a direct correlation between capacity and water provision performance. Such values could show the correlation between financial, human, infrastructural and other resources with the rate of infrastructural development and volume of water provided in comparison to demand.

- Expanding the concept of governmentality could add immense value to the field of planning by improving our understanding on how the policies that inform government thinking shape how practice unfolds. The municipality will have to seriously review its planning processes in order to develop a clear plan going forward, which includes the participation of all relevant stakeholders.

REFERENCE LIST

Abalu, G., Mucavele, F., Ngongola, D., Van Rooyen, J., Kirsten, J., Van Zyl, J. & Vink, N. (1996). *Comparative analysis of structural adjustment programmes in Southern Africa with emphasis on agriculture and trade*. Nairobi: Office of Sustainable Development Bureau for Africa, pp. 31-36.

Ackerman, S. (2004). *Global Crises, Global Solutions: The challenge of poor governance and corruption.* Cambridge: Cambridge University Press.

Alkire, S. (2010). *Human Development: Definitions, Critiques, and Related Concepts*. United Nations Development Programme.

Alkire, S & Deneulin, S. (2008). *Human Development and Capability Approach: An Introduction to Human Development and Capability Approach.* Oxford Poverty & Human Development Initiative.

Allmark, P., Boote, J., Chambers, E., Clarke, A., Mcdonnell, A., Thompson, A., & Tod, A. (2009). Ethical issues in the use of in-depth interviews: literature review and discussion. *Research ethics review*, 5 (2), 48-54.

Annual Report 2012/2013 (Book 1) / Statistics South Africa. Pretoria: Statistics South Africa, 2013204 pp.

Annual Report 2005/2006. National Treasury. Pretoria: National Treasury

Bailey, R. (2005). Water is a human right: How privatisation gets water to the poor. *Reason Magazine, 92 (3)*, pp. 3-22.

Backeberg, G. (2005). Water Policy: Water institutional reforms in South Africa. *Official journal of the World Water Council, 7* (1): 107-123.

Bakker. C. & Cook. K. (2011). Water security: Debating an emerging paradigm. *Global Environmental Change*, 27 (1), pp. 94-102.

Barlow, M. (2007). The global water crisis and the coming battle for the right to water. *Blue Convant*, 16(2): 18-26.

Barraque´. B.J. (2008). The development of water services and their interaction with water resources in European and Brazilian cities. *Hydrology and Earth System Sciences*, pp. 1153–1164.

Bekink, B. (2006). *The powers and functions of municipal governments.* Pretoria: University of Pretoria.

Berkowitz, P., Dugard, J., Smith, L. & Tissington, K. (2009) South Africa is rethinking its decentralized water services, International Research Council (IRC), [Online] Available: http://www.irc.nl/page/50400

Bigas, H., Morris,T., Sanford, B., & Adeel, Z. (2012). *The Global Water Crisis: Addressing an Urgent Security Issue*. Papers for the Interaction Council. Hamilton, Canada: UNU-INWEH.

Bigen Africa. (2016). *uMkhanyakude Water Services Master Plan.* Richards Bay: Mhlathuze Water.

Blignaut, J., & Heerden, J. (2009). *The impact of water scarcity on economic development initiatives*. Pretoria: University of Pretoria.

Biswas, A. (2004). Integrated Water Resources Management: A Reassessment. *Water international*, 29 (2): 248-256.

Boccaletti, G., Stuchtey, M., & Van O. (2010). *Confronting South Africa's water challenge.* Johannesburg: McKinsey & Company.

Bowler, S. (1983). *The basic needs approach to development: A case study of water supply in Kenya*. Vancouver: University of British Columbia.

Braun, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 44 (3) 34-52.

Brikci, N., & Green, J. (2007). A guide to using qualitative research methodology. London. *Journal of Tropical Medicine and International Health*, 7(3): 288-292.

Brown, E. (2012, January 22). '*SA Geography'*. Retrieved from Water Management in South Africa, 2 July 2017:http://sageography.myschoolstuff.co.za/wiki/grade-10/water-in-the-world/water-management-in-south-africa/

Bryman, A. (2001). *Social research methods*. Oxford: Oxford University Press, pp. 234-281.

Business Report. (2009, September 27). '*South Africa has widest gap between rich and poor'*. IOL. Retrieved from: https://www.iol.co.za/business-report/economy/south-africa-has-widest-gap-between-rich-and-poor-707558.

Calow, R. & May, N. (2014). *The real water crisis: Inequality in a fast-changing world*. London: ODI.

Campbell, S. (2003). *Case Studies in Planning: Comparative Advantages and the Problem of Generalization.* (Working paper, University of Michigan). Retrieved from: www-personal.umich.edu/~sdcamp/workingpapers/URRC%2002-7.pdf.

Chipu, S.T. (2011). *Institutional capacity of local municipalities in the delivery of services to communities: A case study of the Polokwane municipality in Limpopo province*. University of Limpopo: Limpopo.

Clark, D. (2008). “The Capability Approach: Its Development, Critiques and Recent Advances.” In R. Ghosh, K. R. Gupta, and P. Maiti (eds.), Development Studies, vol. II. New Delhi, Atlantic Books and Distributors

CoGTA (Cooperative Governance and Traditional Affairs). (2009). *State of local government in South Africa, Overview Report of National State of Local Government Assessments.* Pretoria: Department of Cooperative Governance and Traditional Affairs.

CoGTA (Cooperative Governance and Traditional Affairs). (2016). *Presentation to the National Council of Provinces select committee on cooperative governance and traditional affairs*. Pretoria: Department of Cooperative Governance and Traditional Affairs.

CoGTA (Cooperative Governance and Traditional Affairs). (2016). *The back to basics approach concept document.* Pretoria: Department of Cooperative Governance and Traditional Affairs.

CSIR (Council for Scientific and Industrial Research). (2014). *Annual Report: Our future through science.* Pretoria: Department of Science and Technology

Dany, V., Bowen, K. & Miller, F. (2015) Assessing the institutional capacity to adapt to climate change: a case study in the Cambodian health and water sectors. *Climate Policy*, 15 :(3),388-409.

Davis, R., Zunckel, K. & Kruger, T. (2012). *Spacial Economic Overview.* Pietermaritzburg: KZN Department of Economic Development & Tourism.

Davids, I. (2006). *Learning about local government: A first step towards active engagement.* Cape Town: Foundation for Contemporary Research (FCR).

de Coning, C., & Sherwill, T. (2004). *An assessment of the water policy process in South Africa (1994 to 2003)* (Water Research Commission Report No. TT232/04) Pretoria: Water Research Commission.

de Langen, A. (2009) *Nurses' opinion of pain in patients who suffer from dementia*. Pretoria: University of South Africa.

de Paula, N. (2016). The New Urban Agenda and the SDGs: Synergies and Challenges Ahead. International Institute for Urban Development.

Department of Water Affairs and Forestry. (2002). *Free basic water implementation strategy.* Pretoria: Department of Water Affairs and Forestry.

Department of Water and Sanitation. (2011). *Institutional Reform and Re-Alignment: A strategic framework for institutional realignment and reform.* Pretoria: Department of Water and Sanitation.

Department of Water and Sanitation. (2012). *National Water Resource Strategy: Managing water for an equitable and sustainable future*. Pretoria: Department of Water and Sanitation, pp.12-40.

Department of Water and Sanitation. (2013). *National Water Resource Strategy*. Pretoria: Department of Water and Sanitation.

Department of Water and Sanitation. (2015). *Strategic overview of the water services sector in South Africa.* Pretoria: Department of Water and sanitation.

Department of Public and Development Administration. (2017). *Skills transfer in municipalities in South Africa.* Limpopo: University of Venda.

Devereux, S. (2001). Sen's Entitlement Approach: Critiques and Counter-critiques. *Oxford Development Studies*, 45-67.

Dollar, E., Nicolsonb, C. A. Brownc , J. K. Turpied , A. R. Jouberte , A. R. Turtonf , D. F. Groblerg , H. H. Pienaarh , J. Ewart-Smithi and S. M. Manyakaj. (2010). "Development of the South African Water Resource Classification System (WRCS): A Tool towards the Sustainable, Equitable and Efficient Use of Water Resources in a Developing Country". *Water Policy*, 479-632.

Draft Report on the Status Quo. (2009). Environmental Management Framework for the Olifants and Letaba River Catchment Areas: Draft Report on the Status Quo, Opportunities, Constraints and the Desired State: July 2009.

Drislane, R., & Parkinson, G. (2011, May 22). *Qualitative research*. Retrieved from online dictionary of the social sciences: http://bitbucket.icaap.org/dict.pl.

Earle, A., Goldin, J. & Phemo, K. (2005). Domestic Water Provision in the Democratic South Africa – Changes and Challenges. Pretoria: University of Pretoria.

Eberhard, R., Margerum, R., Mayere, S., & Taylor, B., & Vella, K. (2017) The Practice of Water Policy Governance Networks: An International Comparative Case Study Analysis. *Society & Natural Resources*, 30:4, 453-470.

Essays, U. (2015, March). *Factors Influencing South African Water Supply Sustainability, Environmental Sciences Essay*. Retrieved from https://www.ukessays.com/essays/environmental-sciences/factors-influencing-south-africa-water-supply-sustainability-environmental-sciences-essay.php.

Fabre, E. (2017). Local implementation of the SDGS & the New Urban Agenda. UN Sustainable

Development Knowledge Platform

Foster, J. (1981). The Papers of J. Fagg Foster. *Journal of Economic Issues*, 15 (4): 857–1012.

Fourie, D. & Valeta, L. (2008). Intergovernmental fiscal relations in the South African context. *Journal of Public Administration*, Vol.2, no 1, pp. 31-141.

Franceys, A & Nickson, R. (2003).Tapping the market: The Challenge of Institutional Reform in the Urban Water Sector. London. Palgrave Macmillan

Frankson, L. (2015, July 17). *Department welcomes KZN's drought response*. Retrieved from Infrastructure news and service delivery: http://www.infrastructurene.ws/2015/07/17/department-welcomes-kzns-drought-response/

Frescura, F. (2000). *Deconstructing the Apartheid City.* Pretoria: HSRC. Retrieved from http://www.sahistory.org.za/franco/urban-issues-apartheid-city.html

Garduno, H., Romani, S., Sengupta, B., Tuinhof, A., Davis, R. (2011). *India Groundwater Governance Case Study. Water papers.* World Bank, Washington, DC.

Galtung, J. (1980). *The basic needs approach.* Berlin: University of Oslo.

Garvin, D. (1993). *Building a learning organization*. Harvard Business Review, July-August

Gautier, P. (2010). Inter-Organisational Relationships and Supply Chain Performance: Case Study of the Subsidiary Company of a Car Parts Manufacturer. *International MultiConference of Engineers and Computer Scientists* (p. 1). Hong Kong: IMECS.

Gera, W. (2008). Rethinking Bureaucratic Institutionalization in Philippine Political Decentralization. *Indiana Journal of Political Science*: 28-41.

Global Water Partnership. (2000). *Towards Water Security: A Framework for Action.* Stockholm: Sweden.

Golafshani, N. (2003). Understanding Reliability and Validity in Qualitative Research. *The Qualitative Report Vol 8: 28-37*.

Gombert, A. P. (2003). Rural water and sanitation services in KwaZulu-Natal: An investigation into addressing existing backlogs in basic services. Pietermaritzburg: University of Natal.

Gumede, Z. (2017). My history of Jozini Dam. *Word press*. Available at: https://zgumede. wordpress.com/2017/04/29/my-history-of-the-jozini-dam/ [Accessed: 17 October 2017]

Hall, P & Taylor, R. (1996). Political Science and the three new institutionalisms. Lothroner, Germany: MPIFG.

Harding, J. (2006). *Dictionary of Social Research Methods.* SAGE Publishers. Available online http://dx.doi.org/10.4135/9780857020116

Harman,B., & Wallington, T. (2010). *Institutional arrangements for water management in South East Queenslad*. Urban Water Security Research Alliance, City East.

Hodgson, G. (2006). What are institutions? *Journal of Economic Issues*, 1-25.

Howard, S. (2005). *Tapping into the private sector*: *Private sector participation in water supply and sanitation e sector participation in water supply and sanitation.* Addis Ababa: Water Aid.

Huysaman, G. (1994). *Methodology for Social and Behavioral Science.* International Thomas Publishing.

International Labor Organisation. (1976). Employment, Growth and Basic Needs: A One World Problem. Geneva. *International Labour Review,* May-June 1976, pp. 391-392.

Ingram, D. (2016, August 21). *Why Is Organisational Structure Important?* Retrieved 02.06.2017 from Chron: http://smallbusiness.chron.com/organisational-structure-important-3793.html

Institute for Democracy in South Africa (2008) The State of Local Government and Service Delivery in South Africa: Issues, Challenges and Solutions. Submitted to the Portfolio Committee on Cooperative Governance and Traditional Affairs (CoGTA) for Public Hearings, Coordinated Service Delivery on 22 January 2008. Cape Town.

IMF (International Monetary Fund). (2015). *Is the Glass Half Empty or Half Full? Issues in Managing Water Challenges and Policy Instruments*. Siddharth Tiwari.

International Union for Conservation of Nature. (2016). Annual Report. Gland, Switzerland: IUCN

Ivey, J., de Loë, R., Kreutzwiser, R., & Ferreyra, C. (2004). An institutional perspective on local capacity for source water protection. *Geoforum* 37(6): 944-957

Iyer Rothaug. (2003). uMkhanyakude District Municipality Spatial Framework. Durban: IYER.

Iza, A. and Stein, R. (2009). *Reforming water governance.* Gland, Switzerland: IUCN.

Jacobson, M., Meyer, F., Oia, I., Reddy, P. & Tropp, H. (2013). *Assessing water governance.* Denmark: United Nations Development Programme.

Kalapurakal, R. (2018). Cities 2030: Implementing the New Urban Agenda. United Nations Development Programme

Kalpesh, V. (2013). Advantages and disadvantages of audio recording interviews. Dissertation India. [Online] Dissertationindia.com. Available at: http://www.dissertationindia.com/blog/advantages-and-disadvantages-of-audio-recordinginterviews-2 [Accessed 4 October 2017].

Kanyane, M.H. (2011). Financial viability of rural municipalities in South Africa, *Journal of Public Administration*, Vol 46, no 2, pp. 935-945.

Keizer, P. (2008). The Concept of Institutions: Context and Meaning. *Koopmans Research Institute*, 4-23.

Khothari, C. (2004). *Research Methodology: Methods and Techniques.* New Age International Publishers.

Koma, S.B.(2010).The State of Local Government in South Africa: Issues, Trends and Options, Journal of Public Administration, Vol.45, No.1.1, 111-120.

Kumar, R. (2011). *Research methodology: A step-by-step guide for beginners.* London: Sage publications.

Leftwich, A. (2010). Beyond institutions: Institutions and organisations in the politics and economics of poverty reduction. Manchester: University of Manchester

Lowndes, V., & Roberts, M. (2013). *Why institutions matter: The new institutionalism in political science*. Basingstoke: Palgrave Macmillan.

Lynn, L., Heinrich, C., & Hill, C. (2000). Studying governance and public management: Challenges and prospects. *Journal of Public Administration Research and Theory*, 10(2), 233-26

Maliti, N. (2017, July 12). *IFP to 'expose corruption' in uMkhanyakude.* Retrieved from City Press: http://city-press.news24.com/News/ifp-to-expose-corruption-in-umkhanyakude-20170712

Marock, C. (2010). Thinking 'out the box' by thinking 'in the box': Considering skills development: Challenges and recommendations. Development Bank of Southern Africa.

Marshall, N. (1996). Sampling for qualitative research. *Family Practice,* 13: 522-525.

Martin, P. (2004). Gender as Social Institution. *Social Forces*, 1249-1273.

McDonald, D., and Pape, J. (2002). *Cost recovery and the crisis of service delivery in South Africa*. Cape Town: HSRC Publishers.

McDonald, D., & Ruiters, G. (2005). *The age of commodity: water privatization in Southern Africa*. London; Earthscan Press.

Mehta, L. (2014). Water and Human Development. *World Development*, 59-69.

Moffett, D. (2003). *Evaluation of the implementation of water supply and sanitation services to an in-situ upgrade housing project: A case study of New Town, Pietermaritzburg.* Pietermaritzburg: University of Natal.

Moisa, S. (2004). Proceedings of the 2004 Water Institute of Southern Africa (WISA). *Biennial Conference 2-6 May*. pp. 12-18. Cape Town.

Molobela, I. P. & Pramod, S. (2011). *Management of water resources in South Africa.* Johannesburg: University of South Arica.

Morgan, P. (2006). The concept of capacity. *European center for development policy management*, pp. 1-22.

Mohapi, M. (2016). uMkhanyakude District Municipality Intervention: Briefing by MEC. Parliamentary Monitoring Group.

Moisa, S. (2004). Proceedings of the 2004 Water Institute of Southern Africa (WISA). *Biennial Conference 2 - 6 May* (pp. 12-18). Cape Town.

Muller, M. (2008). Free basic water – a sustainable instrument for a sustainable future in South Africa. *Environment & Urbanisation*, Vol 36, pp, 67-81.

Muller, M. (2017). *The Conversation.* Retrieved 16.03.2017 from the conversation.com: http://theconversation.com/south-africa-is-no-longer-the-poster-child-for-providing-access-to-safe-water-74884

Municipal Demarcation Board. (n.d.). *Municipal capacity.* Retrieved 18 May 2017 http://www.demarcation. org.za/site/capacity-assessment-introduction1/

National Treasury. (2014). *Uniform Financial Ratios and Norms.* Pretoria: National Treasury.

National treasury. (2016). *The state of local government finances and financial management as at 30 June 2016*. Pretoria: Department of National treasury.

National Treasury. (2017, September 2017). *Municipal Money uMkhanyakude.* Retrieved 03.04.2018 from municipal money: https://municipalmoney.gov.za/profiles/district-DC27-umkhanyakude/

Ncube, M. & Khumalo, B. (2016). Financial and Functional Viability and Sustainability of Municipalities – Beyond the Demarcation Instrument. *Research and Recommendations Programme* (pp. 3-5). Financial and Fiscal Commission.

Ndaw, M. (2016). Private Sector Provision of Water Supply and Sanitation Services in Rural Areas and Small Towns. Washington, DC: World Bank Group.

Ndudula, M. R. (2013). An analysis of the politics-administrative interface and its impact on delivery of municipal services - a case of the Mnquma local municipality. Alice: Universty of Fort Hare

Nickson, A. and Franceys, R. (2003). *Tapping the market: the challenge of institutional reform in the urban water supply*. 1st ed. Houndsmills: Palgrave Macmillan, pp.1-182.

Nkwi, P., Nyamongo, I. & Ryan, G. (2001). Field research into socio-cultural issues: Methodological Guidelines. Cameroon. United Nations Educational, Scientific and cultural organisation

North, D. (1990). *Institutions, Institutional change, and economic performance*. 1st ed. Cambridge: Cambridge University Press, pp.11- 85.

ODI. (1978). *Basic Needs.* London: Overseas Development Institute.

Otoo, S., Agapitova, N. & Behrens, J. (2009). *The Capacity Development Results Framework.* PLACE: The World Bank Institutute.

Panayotou, T. (1998). *The Role of the Private Sector in Sustainable Infrastructure Development.* Cambridge, Massachusetts: Harvard Institute for International Development.

Peters, G. (1999). *Institutional Theory in Political Science: The New Institutionalism*. London: Pinter, pp.26-29.

Pietersen, K., Beekman, H., and Holland, M. (2011) South African Groundwater Governance Case Study. WRC Report No. KV 273/11. Water Research Commission, Pretoria.

Pressend, M. (2011*). South Africa's Neoliberal Water Policies Exacerbate the Effects of Climate Change on the Poor.* The South African Civil Society Information Service

Rahman, Z.A. (1998). Environmental planning for sustainable water use - A case study on the development of catchment management plans in Malaysia. Newcastle: Newcastle University Library

Ramnath, A. (2007). A process of synchrony between integrated development plans and regional water plans. Durban: University of KwaZulu-Natal.

Rogerson, C. (1996). Urban poverty and the informal economy in South Africa's economic heartland. *Environment & Urbanisation,* Vol 8, pp. 167-170.

Robson, C. (2011). *Real world research.* Chichester: Wiley.

Romzek, J. (2009). *The machinery of Iraqi water institutions: The development of institutions in a post war state*. Lund University Department of Political Science.

Ross, M. A. (2012). *uMkhanyakude District Municipality: Status quo rivers and wetlands.* EnviroRoss.

Rossignoli, C. (2015). *Theories explaining inter-organisational relationships in terms of coordination and control needs*. Switzerland: Springer International Publishing.

Rouse, M. (2014). Gap analysis. Tech Target, [Online] Available:https://searchcio.techtarget.com /definition/gap-analysis

Samuels.J., & Khosla, R. (2014). *Spatial Justice and Informal Settlements: Integral Urban Projects in the Comunas of Medellin*. Bingley: Emerald Publishing Limited.

Sauerland, D. (2015). Ideologies, Institutions and New Institutions. *International Encyclopedia of Social & Behavioural Science*, (12)2 pp. 1-30.

Screiner, B. (2007). *Water management in South Africa.* Pretoria: Department of Water Affairs and Forestry.

Shiva, V. (2002). *Water wars: Privatisation, pollution and profits*. Cambridge: South End Press.

Singh, K. (2017, July 13). *IFP cries foul in KZN municipal manager's selection.* Retrieved 17.10.2017 from News 24: https://www.news24.com/SouthAfrica/News/ifp-cries-foul-in-kzn-municipal-managers-selection-20170713.

South African Local Government Association. (2011). *Presentation to the Portfolio Committee on Co-operative Governance and Traditional Affairs.* Budgetary Review and Recommendations Report.

Starman, A. (2013). The case study as a type of qualitative research. *Journal of Contemporary Educational Studies*, 64(1), 28–43.

Streenten, P. (1979). Basic needs: Premises and promises. J*ournal of Policy Modelling*, 39(3) pp. 136-147.

South Institute for Democracy. (2008). *Local Governance Barometer.* IDASA.

Stenbacka, C. (2001). Qualitative research. Management Decision, 39 (7), pp. 551-555.

Tiroyamodimo, T. (2007). *Impact of current institutional setup on water service delivery: A synopsis of two water authorities in Botswana.* Harare. University of Zimbabwe

Triegaardt, J. (2006). *Reflection on poverty and inequality in South Africa: Policy considerations in an emerging democracy*. Johannesburg: Development Bank of Southern Africa.

United Nations Development Programme (2010). *Human development in India: Analysis to action.* New Delhi: United Nations Development Programme.

UMkhanyakude District Municipality. (2015). *Draft integrated development plan*. Mkhuze: UKDM.

UMkhanyakude District Municipality. (2015). *Annual report for the uMkhanyakude District Municpality.* Mkhuze: uMkhanyakude District Municipality.

UMkhanyakude District Municipality. (2016). *uMkhanyakude district-wide reviewed spatial development framework*. Mkhuze: uMkhanyakude District Municipality.

UMkhanyakude District Municipality. (2015). *Integrated development plan review.* Mkhuze: UMkhanyakude District Municipality.

United Nations Development Plan Report. (2010). *Capacity Development Practices.* Bratislara: United Nations Research.

United Nations Children's Fund (UNICEF) (2017). *Progress on Drinking Water, Sanitation and Hygiene:* 2017 update and SDG baselines. Geneva: World Health Organization, pp.22-63.

UN-Water (2014). *Water and Energy*. The United Nations World Water Development Report. Paris: UNESCO, pp.13-42.

Van Baalen, S. (2014). Investigating capacity self-assessment as a catalyst for improved municipal service delivery. Stellenbosch University.

Van Donk, M., Swilling, M., Pieterse, E. & Parnell, S. (2008). *Consolidating developmental local government: Lessons from the South African experience.* Cape Town: UCT Press.

Van de Meene, S. (2008). Institutional capacity attributes of sustainable urban water management: The case of Sydney, Australia. *International conference on urban drainage* (pp. 1-10). Edinburgh: Monash University.

Wallace. C, Qadir. M, & Adeel. Z, & Renaud. F, and Dickin, S. (2015). Putting Water and Energy at the Heart of Sustainable Development. Tokyo. United Nations University.

Water Research Commission. (2004). *Manual.* Water Research Commission.

Wells, T. (ed). *Sen's Capability Approach.* Retrieved 14 May 2017 from Internet Encyclopedia of Philosophy: http://www.iep.utm.edu/sen-cap/#SH3a

Wilde, A., Narang, S., Laberge, M. & Moretto, L. (20012. *Measuring Local Governance.* Oslo: UNDP Oslo Governance Centre.

World Bank. (2004). *Public and private sector roles in water supply and sanitation services*. Washington, DC: World Bank.

Yin, R. (1981). The case study crisis: Some answers. Administrative Science Quarterly, 26, 58-65.

Zainal, Z. (2007). Case study as a research method, *Jurnal Kemanusiaan*, 9(2), pp. 18-28.

Appendixes

Appendix 1: Interview Schedules

A. Interview Schedule for Mhlathuzi Water Board & CoGTA official(s)

Understanding Capacity

1. What is your role in the formation of Water Service Development Plans?
2. What factors affect the selection of projects for water provision in this Municipality?

Challenges of water provision

3. What is your organisations role in water provision?
4. How do you believe your organisation has been you been performing in the exercise of its functions related to water provision?
5. What challenges are you aware of that the Municipality faces in the provision of water in rural areas?
6. What are the possible solutions to improving water provision in rural areas?
7. What strategies are in place to address these challenges?
8. How effective are those strategies?
9. What factors are you aware of that affect the district in providing free basic water?

Decision making powers of actors

10. What relationship exists for providing water in areas under traditional authorities?
11. What challenges arise in coordinating and collaborating with other stakeholders?
12. What relationship exists for providing water in areas under traditional authorities?

Policy and practice

13. What are the policy challenges to the provision of water?
14. What are the potential solutions to overcoming the policy challenges?
15. What are the legal challenges arise in the provision of water?
16. What are the potential solutions to overcoming the legal challenges?

B. Interview Schedule for: DWS & UKDM officials

Understanding Capacity

1. In your opinion, what do you think/feel is lacking and needs to be improved in the management of water resource?
2. What are the areas in which capacity building is needed within district municipalities in general and UKDM in particular?

Challenges of water provision

3. What is your understanding of the Municipality's role in water provision?
4. In your opinion, how has the municipality been performing in the provision of water?
5. What challenges are you aware the municipality face's in the provision of water in rural areas?
6. What strategies are in place to address some of these challenges?
7. How effective are those strategies?
8. What challenges does the district face in providing free basic water to communities?

Decision making powers of actors

9. What relationship exists between the district municipalities and local authorities such as Councillor's, Induna's and Chiefs for providing water in areas under traditional authorities?
10. How is the relationship between the municipality and the community?
11. What relationship exists for coordinating and collaborating between the district municipality and local municipalities?
12. Do you think that the coordination and collaboration of stakeholder (such as Cogta, DWS, Salga, DM's and Water Boards) in satisfactory?
13. What challenges does the municipality face in coordination and collaboration with stakeholders?
14. What factors affect the selection of projects for water provision in this Municipality?

Policy and practice

15. What are the policy challenges in the provision of water?
16. What are the potential solutions to overcoming these policy challenges, if any?
17. What are the legal challenges that arise in the provision of water?
18. What are the potential solutions to overcoming these legal challenges, if any?
19. Does the Municipality (in case) have a Water Services Development Plan?

Appendix B: Ethical clearance

20 September 2016

Mr Sinenkhosi Hlalanathi Dlamini 212541991
School of Built Environment and Development Studies
Howard College Campus

Dear Mr Dlamini

Protocol reference number: HSS/0987/016M
Project title: Assessing the capacity of municipalities for water provision within a rural context. A case of Umkhanyakude District Municipality, KwaZulu-Natal, South Africa

Full Approval – Expedited Application

In response to your application received 5 July 2016, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....

Dr Shamila Naidoo (Deputy Chair)
Humanities & Social Sciences Research Ethics Committee

/pm

Cc Supervisor: Dr SL Myeni
Cc Academic Leader Research: Professor Oliver Mtapuri
Cc School Administrator: Ms Nolundi Mzolo

Humanities & Social Sciences Research Ethics Committee
Dr Shenuka Singh (Chair)
Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4000
Telephone: +27 (0) 31 260 3587/8350/4557 **Facsimile:** +27 (0) 31 260 4609 **Email:** ximbap@ukzn.ac.za / snymanm@ukzn.ac.za / mohunp@ukzn.ac.za
Website: www.ukzn.ac.za