

Overview of waste water treatment governance in the Berg River Catchment, South Africa

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PREFACE AND ACKNOWLEDGEMENTS

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ABSTRACT

The water resources of South Africa are contaminated. A major contributor to this challenge is poorly managed operational and incompetently controlled municipal waste water treatment works (WWTWs). The objective of the research was to investigate the interfaces and challenges of co-operative governance based on waste water treatment works within the Berg River Catchment Water Management Area (WMA). In this study, the Drakenstein Municipality (DM) was used as an example of a municipality, located within the Berg River WMA in the Western Cape Province. Questionnaires were distributed to participants within the Department of Water and Sanitation (DWS) and DM to obtain their views and opinions (data) regarding co-operative governance in the management and operation of WWTWs. Results were analysed and several challenges and factors contributing to the failure of municipalities fulfilling their constitutional obligations related to management and operation of WWTWs were indicated. These included the lack of resources (human and financial) and technical skills, high staff turnover, lack of stakeholder engagements, delay in issuing of licenses, co-operation among officials within various directorates of DWS, insufficient support from national sphere of government to local government funding for the ageing of the current infrastructure.

It is suggested that the DWS develop an operational strategy aiming to strengthen the licensing and compliance and enforcement units. Furthermore, collaboration between spheres of government and the external (relevant) stakeholder is necessary as the stakeholders work closer to communities and know what is happening within the community at large. The implementation of the recommendations made, may enable all institutions responsible for the management and operation of WWTWs to work in a holistic manner and adhere to principles of co-operative governance as mandated by the Constitution (1996).

Keywords: local municipality; district municipality; waste water; governance.

ABBREVIATIONS AND ACRONYMS

CER	Centre for Environmental Rights
CMA	Catchment Management Agency
COGTA	Co-operative Government and Traditional Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
DM	Drakenstein Municipality
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMRG	Environmental Management Research Group
E-WULAAS	Electronic Water Use Licence Application and Authorisation System
FNASREC	Faculty of Natural and Agricultural Science's Research Ethics Committee
IDP	Integrated Development Plan
IWRM	Integrated Water Resource Management
NEMA	National Environmental Management Act
NHA	National Health Act
NPA	National Prosecution Authority
NWA	National Water Act
NW&SMP	National Water and Sanitation Master Plan
OECD	Organisation for Economic Co-operation and Development
SANS	South African National Standard
SAPS	South African Police Services
SPSS	Social PP Science Software
UESM	Unit for Environmental Sciences and Management
WMA	Water Management Area
WQMF	Water Quality Management Forums
WDCS	Waste Discharge Charge System
WRM	Water Resource Management
WRC	Water Research Commission
WSA	Water Services Act
WULA	Water Use Licence Application
WUL	Water Use Licence
WWTWs	Waste water Treatment Works

KEY DEFINITIONS

- I. **Co-operative governance** is defined by Ismail *et al.* (1997) as the advanced idea to resolve matters associated with intergovernmental relations and it tries to address the complications experienced by most large administrations in organising their government functions and rationalisation their administrative activities.
- II. **Governance** is the exercise of economic, political and authoritative position to deal with a nation's undertakings at all levels. It includes the components, cycles and foundations through which residents and gatherings articulate their inclinations, practice their lawful rights, meet their commitments and intervene their inequalities (WRC, 2006b).
- III. **Intergovernmental Relations** is the “*relationships that arise between different governments or between organs of state from different governments in the conduct of their affairs*” (South Africa, 2005).

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CHAPTER 1 INTRODUCTION

Similar to a majority of other developing African countries, South Africa is facing a continuing state of urbanisation (Co-operative Governance and Traditional Affairs, 2016). The 2011 census concluded that South Africa had a population of approximately 51.8 million people with an annual growth rate of 1.5% and an urbanization proportion of 61.7% (StatsSA, 2012). According to Arndt *et al.* (2018) the metropolitan regions, mostly in Gauteng and Western Province (Cape Town) are experiencing high migration rates and therefore an increase in population. These metros are imperative to the country's improvement pathway, with over 60% of the country's populace presently moved in the metropolitan regions and is estimated to grow to 71,3% in 2030 (South Africa, 2016).

The political transformation in South Africa resulted in not only a dramatic change in the entire administration and policy transformation, but also culminated into a system which pursued to adjust to new challenges and opportunities carried in by the external environment (Ngoy, 2009). For instance, one of the changes was the significance of intergovernmental relations within the entire framework of macro-economic, social and political dispensation (Ngoy, 2009). Narsiah (2011) confirmed that when South Africa transitioned to a constitutional democracy in 1994, the country encountered massive urban development challenges. The White Paper on Local Government (1998d) listed some of these challenges as increased urbanisation, urban extension, poverty and underdevelopment. This placed a high demand on the provision of public services in the three spheres of government, namely the national sphere, provincial sphere, but more specifically on the local sphere of government. As a result of challenges stated, South Africa established a system of co-operative governance (Zulu, 2014).

A study conducted by Maluleka *et al.* (2017) indicated that co-operative governance is collaboration among the three spheres of government and entails each sphere to accomplish particular roles and responsibilities. Malan (2005) concluded that the government recognised that a definitive objective of any state ought to be the improvement of general government assistance and harmony and that, in creating and changing states, for example, South Africa; this must be accomplished by the advancement of intergovernmental relations and co-operative governance. Malan (2005) further explained that the concentration of the government of the day rested on a common understanding that the new democratic South Africa would have to be a developmental one, and that policy needs to redress past inequities through cohesive, partaking and partnership-orientated governance, planning and management.

1.1 Background

Section 40 of the Constitution of the Republic of South Africa (South Africa, 1996), (hereafter referred to as the Constitution), makes provision for three spheres of government, namely the national, provincial and local spheres with distinctive, interdependent and specific roles and responsibilities. All three spheres of government are constitutionally obligated to notice and implement the principles of co-operative governance and intergovernmental relations while developing and applying policies and performing their responsibilities and duties (Woolman and Roux, 2009). According to Algotsson *et al.* (2009) the principles of co-operative governance entail that all connection amongst the three spheres of government must play out in a coordinated and co-operative manner. The principles of co-operative governance and intergovernmental relations are stipulated in Chapter 3 of the Constitution. To give effect to the requirements of section 40, section 41 provides a specified explanation and confine as to how spheres of government are to co-exist in harmony and unity. Section 41 (e) – (h) emphasise the positive responsibilities of co-operative governance and intergovernmental relations. The Constitution (1996) stipulates that all spheres of government and all organs of state within each sphere must:

- *“Respect the constitutional status, institution, powers and functions of government in the other spheres;*
- *Not assume any power or function except those conferred on them in terms of the Constitution;*
- *Exercise their powers and perform their functions in a manner that does not encroach on the geographical, functional or institutional integrity of government in another sphere; and*
- *Co-operate with one another in mutual trust and good faith”.*

It is crucial to realize the importance and significance of intergovernmental relations in attaining the principles of co-operation and coordination that facilitate and foster the formative objective of government. The intergovernmental relations’ correlation amongst and between the different governments, and organs of state plays an important role in the governance of the country. Section 41 (1)(h) clearly highlights this concept as it asserts that spheres of government and all organs of state must *“co-operate in mutual trust and good faith by:*

- *Fostering friendly relations;*
- *Assisting and supporting one another on matters of common interests;*
- *Informing one another and consulting one another on matters of common interests;*
- *Coordinating their actions and legislation with one another;*
- *Adhering to the agreed procedure; and*
- *Avoiding legal proceedings against one another”.*

Co-operative governance between the three spheres of government and amongst different state entities is vital to ensure effective service delivery, including water services (Zulu, 2014). This is essential for the provision of the successful delivery of water services, more specifically waste water, where various governmental entities are involved, including entities from health, water, sanitation, energy, agriculture and environmental affairs (DWS, 2018).

Section 21, of the National Water Act (Act No. 36 of 1998) (NWA), classifies eleven types of water uses [(a)-(k)] which may have a detrimental impact on the water resource. The two "water uses" that are relevant to this study include:

- "Section 21(f): *discharging of waste or water containing waste into a water resource via a pipe, canal, sewer, sea outfall or other conduit, and*
- Section 21(g): *disposing of waste and waste water in a manner which may detrimentally impact on the water resource*".

In terms of *permissible water use*, Section 22(1) (b) requires a Water Use Licence (WUL) for discharging and disposing of effluent into a water resource. For the treatment of waste water, the Department of Water Affairs and Forestry (DWAF, 2002) suggests that waste water treatment works (WWTWs) is one of the main facilities used to treat and discharge treated effluent into a water resource. To regulate the discharge of waste water or effluent from WWTWs, the NWA requires a WUL including adhering to norms and standards that the responsible entity (in this case the municipality) must comply with for the management and operation of WWTWs (National Water Resource Strategy 2, 2013).

Furthermore, the National Environmental Management Act (Act No. 107 of 1998) (NEMA), specifies that for any construction and operation of WWTWs, authorisations and/or permits must be obtained before commencement of of the water use activities. Overall, an environmental authorisation (EA) is required in terms of the NEMA Environmental Impact Assessment (EIA) Regulations (GN R.983 and 984 of 4 December 2014), as amended, to lawfully develop and operate a WWTWs.

Over the years, the continuous failure of municipalities to comply with WUL conditions and effluent discharged norms and standards have resulted in poor quality of the final effluent being discharged into the water resource (Karsten, 2015). Statistics provided by the Department of Water and Sanitation (DWS) in the National Water and Sanitation Master Plan (NW&SMP), indicate that approximately 56% of the 1150 WWTWs in South Africa are operated above the design capacity, in a poor or critical condition and in dire need of urgent maintenance (Vosloo *et al.*, 2019 and Department of Water and Sanitation, 2013a). These scenarios of poorly maintained

WWTWs, together with non-compliance to WUL conditions and norms and standards, have led to the contamination of water resources in South Africa (Vosloo *et al.*, 2019 and Hene, 2015).

Basson, (2011) stated that approximately 30% of the water supply in the country is used for urban and domestic use while the residue is being utilised for mining, bulk industries and as cooling water for power generation. According to Edokpayi *et al.* (2017) the volume of freshwater availability is one of the main challenges facing the country, and that almost one-third of the drinking water requirement of the country is obtained from surface sources such as rivers, dams, lakes, and canals. Whilst WWTWs contribute to the contamination of water resources, there are many South African communities still reliant on these water resources (DWA, 2002). Basson (2011) confirms this reliance on surface water resources particularly for urban, industrial and irrigation necessities.

The scenario within the Berg River Water Management Area (WMA) is no different. The management and operation of WWTWs remains a challenge as it contributes to the deterioration of water quality in the catchment (DWA, 2007a). Poor water quality may harm economic growth and social development and may lead to inadequacy to sustain safe drinking water quality for the entire catchment (IDP 2017/2022). The Green Drop Report (2011) stated that of the 6 WWTWs assessed within the Drakenstein Municipality (DM), only 4 WWTWs achieved an average score but none of these systems obtained the Green Drop statuses (DWA, 2011). The Green Drop Report of 2013, indicated that the DM Green Drop statuses slightly decreased compared to the previous statuses of 2011 (DWA, 2013a). Approximately 95% of people in the catchment reside in urban areas with 87% concentrated in the greater Cape Town sub-area and are reliant on surface water for domestic purposes (DWA, 2007a and IDP 2017/2022). It is therefore of utmost importance that municipalities control and manage potential pollution emanating from their own activities and undertakings which pose a pollution risk, such as waste water management (du Plessis, 2015a).

1.1.1 Berg River Status quo

The Berg River originates from the mountains nearby Franschhoek area and the run-off is characterised by ideal water quality. However, the quality deteriorates in a downstream direction as a result of human activities, such as agricultural activities (river modifications, water abstractions, and run-off from irrigated soils) (DWA, 2007a).

Another concern in the Berg River is the discharge of treated waste water from WWTW, irrigation with vineyard waste water and the enrichment of nutrients as a result of the discharge of vineyard waste water that may not have been properly treated. Diffusion pollution, including the run off

from the informal settlements such as the Klein Berg River (Tulbagh) catchment area, affects the quality of the water directed to the Voëlvlei dam. This adds to the troublesome algae problems of the middle and low mountains, and the Voëlvlei dam that is supplying potable water to the City of Cape Town (Clark *et al.*, 2018).

There is growing concern about the quality of microorganisms in rivers affected by sewage spills and spills from informal settlements (Clark and Ractliffe, 2007). Rivers such as the Plankenberg and Eerste River near Stellenbosch, Stiebeul River near Franschhoek and the Kuils river in Bellville are impacted poor quality of sewage discharge from the WWTWs and as well as from some high dense informal settlements with poor sanitation services (DWAF, 2007a). Mema, (2015) further stress that the deteriorating municipal sewage, pumping station failures and sewage treatment infrastructure in South Africa is a major cause of much of the country's pollution problems and is also a major cause of health problems in poor communities. As a result, domestic water treatment costs are very high. The local government must be accountable to local communities (as they are constitutionally mandated to provide certain basic services); and that in doing so, municipalities should structure their budgets, administration and planning in such a manner as to prioritise the needs of the community.

The local government must be accountable to local communities (as they are constitutionally mandated to provide certain basic services); and that in doing so, municipalities should structure their budgets, administration and planning in such a manner as to prioritise the needs of the community.

1.2 Problem statement and rationale for the study

The Water Research Commission (WRC) (2006a) emphasises that poor collaboration among institutions in the implementation of their interrelated mandates has caused ineffective utilisation of limited resources and/or endless disputes. The South African government, through the Constitution, prioritises service delivery to formerly omitted citizens in the second economy (DWA, 2018). The unpublished document by Faull, (2005) defines the notion of the second economy as mainly informal, marginalised, unskilled economy, populated by the unemployed and those unemployable in the formal economy.

According to the WRC (2006a) there are challenges when it comes to policy implementation in an environment of shared responsibility. Furthermore, the WRC (2006a) also states that public-government institutions must approve institutional co-operation and collaboration for effective provision of public services, both at the approach system level and the operational-usage level. Other challenges comprise of insufficient money and operative funds for waste water treatment,

lack of planning to deliver for augmented levels of urbanisation, deficient human asset limit and technical skills and a non-existence of co-operative governance between stakeholders in municipalities (Ntombela *et al.*, 2013).

Pillay (2016) highlighted that even though there is inter-connectedness between departments, each department is focusing on its own interests or obligations while at the same time influencing one another. Algotsson *et al.* (2009) and Hene, (2015) argue that some of the concerns with ineffective service delivery can be overcome through improved co-operative governance.

Insufficient co-operation between government departments and local authorities resulted in the deterioration of water resources within the Berg River WMA (Nitsche *et al.*, 2006). Surface water quality within the catchment is impacted by several aspects which include the discharge of effluent, mostly from WWTWs into rivers (DWAF, 2007a). This is of great concern since certain WWTWs are not complying with the WUL conditions (DWAF, 2007a). Furthermore the issue of insufficient co-operative governance within the Berg River WMA results in non-compliance by municipalities to prescribed national norms and standards of effluent discharge which needs urgent attention (DWAF, 2007a and Hene, 2015). Hene (2015) maintains that to address non-compliance by local authorities and non-enforcement by the national government requires all three spheres of government to work together.

This study aims is to determine and evaluate the key highlights of South Africa's structure of co-operative governance and intergovernmental relations and to observe the nature of intergovernmental relations regarding service delivery especially the management of the WWTWs within the DM. The focus of this study will be on municipal WWTWs due to the high risk of potential water resource pollution caused by waste water discharged effluent.

1.3 Research question

Based on the problem statement above, the following research question was developed:

- What are the challenges of co-operative governance based on waste water treatment works within the Berg River Catchment Water Management Area?

1.4 Structure and outline of the dissertation

In order to ensure that the research question is answered, the dissertation was structured in the following manner:

Chapter One: Introduction

Chapter one delivers a general introduction to the study by describing the background to the study and providing a clarification of the research problem. Furthermore, this chapter discusses the key research question that the study aims or seeks to answer.

Chapter Two: Research Methodology

Chapter two justifies the use of a qualitative research approach and also describes the research method, data collection and data analysis procedures including the strategies used to ensure the integrity of the research outcomes.

Chapter Three: Literature Review

Chapter three focuses on the existing literature, in particular the interference in waste water treatment works and service delivery at the local sphere of government. It outlines the current co-operative governance framework within the DWS and the local municipality (DM). Definitions of the key concepts and terms will also be covered in this chapter.

Chapter Four: Results/Data Analysis and Discussion

Chapter four interprets, analyses and discusses the main research findings of the results provided based on the research question, literature review and theoretical framework.

Chapter Five: Conclusion and Recommendations

Chapter five provides a conclusion based on the obtained results and suggests some recommendations on conducting further studies on waste water treatment governance in the Berg River Catchment.

CHAPTER 2 METHODOLOGY

2.1 Introduction

This chapter elaborates on the methods implemented to collect the data required to answer the research question as stated in section 1.3 of the dissertation.

The research methodology adopted in this study is a qualitative method. A study conducted by Gale *et al.* (2013) defines the qualitative research method as a flexible method that is appropriate for any manner of data collection and analysis. Qualitative researchers gather data using the method of written or spoken language, sometimes in the form of statements that are recorded in language and assess the data by classifying and grouping themes (Blanche *et al.*, 2006).

De Vos *et al.* (2011) states that qualitative research attempts to answer questions by scrutinising different social settings and the individuals who inhabit these settings. Qualitative research has advantages and disadvantages that are explained in [Table 1](#) below.

Table 1: Advantages and Disadvantages of qualitative research *Adopted from De Jonckheere and Vaughn (2019), Strauss and Corbin (2004), Kohlbacher (2006), Hoepfl (1997), Creswell (1998) and Rahman (2016)*

Advantages	Disadvantages
<ul style="list-style-type: none"> Empowers the analyst to find, expand on thorough data. 	<p>Data yield enormous volumes of interview notes, tape chronicles or different records all of which must be interpreted.</p>
<ul style="list-style-type: none"> The results of the study are obtained from the information gathered, <i>“instead of being imposed by a structured statistical analysis.”</i> 	<ul style="list-style-type: none"> Data analysis is not generally simple since the gathered information does not legitimately fit into systematic classifications and there can be various ends to be produced using different pieces of conversations or perceptions.
<ul style="list-style-type: none"> It can be a creative approach to collect open-ended data from participants. 	<ul style="list-style-type: none"> Unwillingness of participants to participate in the study and individuals are hard to engage in conversation
<ul style="list-style-type: none"> It has an adaptable structure since the strategy can be developed and remade positively. 	<ul style="list-style-type: none"> Some participants cannot possibly fully express themselves or may be

Advantages	Disadvantages
	unenthusiastic to share sensitive or personal topics.

2.2 Research design

Research design refers to the overall strategy chosen and applied to answer the research question (Kelley *et al.*, 2003). It therefore establishes a logical order of formulating the research question and the approaches to be followed so as to collect applicable data to answer the research question and how this will be accomplished. Some of the characteristics of the research design include data collection procedures and mechanisms (see section 2.3); sample collection) and data analysis (see section 2.4) (Sileyew, 2019).

With the aim of answering the research question, the research involved a literature study ([see chapter 3](#)) of books, electronic/internet sources, peer-reviewed journal articles, theses and dissertations, legislations, and relevant municipal integrated development plans (Kabir, 2016). This phase of the research focused on literature analysis and gathering of initial data which serve as sources of information to develop the structure of the questionnaires and the type of interview questions. To supplement the information collected from the above, questionnaires were circulated and one-on-one interviews were conducted with selected officials from the DWS and DM.

2.3 Data collection

According to Brown (2008) the quality of the collected data determines the quality of the findings of the research. The data collection and analysis were based on the grounded theory research method (Gale *et al.*, 2013). The grounded theory research methodology operates inductively derived from the study of the phenomenon it represents. It is revealed, developed, and provisionally substantiated through fact or situation systematic data collection and analysis (Strauss and Corbin, 1998).

For the benefit of this study, data were classified into two categories, namely (i) primary data and (ii) secondary data.

2.4 Primary data

To obtain the primary data for the research study, questionnaires were developed and distributed to the DWS and the DM officials. The questionnaires used in the study were designed and based on a scale from 1 to 5 (Sileyew, 2019). This study employed the Likert scale, which is commonly

used in qualitative research studies (Maree, 2017). This method of a rating scale is appropriate for participants who can conceptualise linear scales and numerical values (Boynton and Greenhalgh, 2004). A total of twenty-one (21) questions relevant to co-operative governance and five (5) interview questions were formulated. Questionnaires were assigned values from one to five (1-5) with terms expressing the degree of opinions (1=Strongly disagree; 2=Disagree; 3=Neutral 4=Agree; and 5=Strongly agree) (see Appendix C) (Maree, 2017). Interviews (one-on-one and/or telephonically) were conducted amongst selected officials within the local municipality (DM) and the DWS (Berg River Catchment). The questionnaires were generated and circulated within the DM and DWS to the selected participants for completion.

2.4.1.1 Interview Survey

Cassell and Symon (2004) suggest that interviews are one of the methods of data collection used most frequently in qualitative research. Cohen *et al.* (2007) clarify that research interviews aim to investigate the opinions, experiences, beliefs and/or motivations of individuals on a particular matter as well as to provide a deeper understanding of social phenomena than would be obtained from other methods, such as questionnaires. Several different interview methods exist, namely; (i) structured, (ii) semi-structured and (iii) unstructured methods (Maree, 2007). A total number of twenty-nine (29) participants which include senior and middle management were selected and interviewed from the above-mentioned institutions. To nominate participants, IDP (from Municipality) and websites for each institution were consulted to verify the institutional structure. Participants were identified based on their daily roles and responsibilities and involvement in the management and operation of the WWTWs. Some of the duties of the participants include *technical, operational, pollution control, monitoring of WWTWs, policy implementation and stakeholder engagements*, respectively. Each participant was asked to sign a consent form before commencing with the interview as evidence of their willingness to participate in the research study.

To undertake the research in question, a semi-structured interview method was used to allow the researcher to analyse and interpret the meaning, attitudes, opinions and experiences of the participants and to enable the interviewees to freely bring up issues that they felt are relevant to the study (Cohen *et al.*, 2007). Due to the national lockdown and Covid-19 Regulations, face-to-face interviews were not considered since officials in both institutions (DWS and DM) were working remotely during lockdown. Personal contact or one-on-one sessions were not viable due to Covid-19 Regulations; therefore, interviews were conducted using Microsoft Teams and telephone calls since some of the officials had limited and/or no access to internet connection during this time.

2.4.1.2 Questionnaire Survey

Bradburn *et al.* (2004) suggest that questionnaires are generally accepted to be effective. A questionnaire should be clear, reliable and valid for the purpose for which it will be used. It should be as concise as possible, avoid leading and double-barrelled questions and avoid questions with implied assumptions. The questionnaires had both open and closed-ended questions. Open-ended questions were designed to allow participants to give relevant answers in their own words and to freely express their opinions, recommendations or criticism without being limited by the options available as in the case of closed questions (Bradburn *et al.*, 2004). Cohen *et al.* (2007) maintain that the closed-ended questions include a group of all possible answers and participants were asked to choose the most appropriate answer.

The questionnaire comprised of 20 statements in which participants were required to select a response between strongly disagree, disagree, neutral, agree and strongly agree (questionnaire and answer semi-structured interview).

2.4.1.2.1 Development of questionnaires

The questionnaires used in the study were divided into 4 categories (see appendix C). To understand the concept of co-operative governance between the spheres of government and to gather data, questions related to the research topic and research question were developed by the researcher and questionnaires were distributed to the national department (DWS) and local government. The grouping of the questions in the questionnaires are briefly described below.

- The first section of the questionnaire dealt with questions related to the knowledge of the participants on current environmental legislation,
- The second section was to distil an understanding of the participants on the concept of co-operative governance,
- The third section was to obtain opinions of the participants on the current compliance and enforcement and regulatory instruments that are available to manage WWTWs in South Africa, and
- The fourth section dealt with the status of the water resource within the Berg River Water WMA, stakeholder engagement, support and communication in local government.

All the questions that were developed by the researcher in this study was an attempt to get challenges of co-operative governance based on waste water treatment works within the Berg River Catchment Water Management Area.

An informed consent form (see Appendix B), and questionnaire form (see Appendix C) were forwarded via email to those officials who had been selected (see section 2.4.1.1 and 2.4.1.2) and had indicated their willingness to take part in the study.

2.4.2 Secondary data

Kabir (2016) states that data collected from a source that has been previously published in any form is considered as secondary data and the review of literature in any research is based on secondary data. For this study a literature review (see Chapter 3) was conducted in order to develop and obtain a broad understanding of the subject in question. The literature review was focused on studies conducted on co-operative governance in South Africa. Existing documents from sources such as books, peer-reviewed articles and published reports were observed to understand how other scholars and researchers dealt with the subject of co-operative governance in general and how it relates to WWTWs (Baron, 2019 and Hene, 2015). Relevant sections of environmental legislation were also reviewed (section 3.4 and [Table 4](#)).

2.5 Data analysis

To analyse the captured data from the DWS and DM, a qualitative data analysis method was used. Babbie (2005) states that qualitative research aims to understand rather than to guess. From the analysed data, this study seeks to understand co-operative governance in respect to service delivery emanating from the management of WWTWs.

Subsequent to the data collection, data was organised and analysed using the Statistical Package for the Social Sciences software (SPSS). Miller *et al.*, (2002) describe the SPSS as a computer software package that is specifically designed to perform statistical operations and facilitate data analysis and is by far the most popular statistical package used by social scientists and is used to gauge an accurate view of the respondents' opinions. The data was analysed and presented in the form of bar and pie graphs plotted from the SPSS.

2.6 Methodological limitations

The Corona virus limited the physical interaction with participants as the methodology as implemented required some form of interaction (conducting of interviews). This has resulted in a decrease in the size of the study sample since some participants either did not have access to emails or internet connection due to the national lockdown at the time.

2.7 Ethical considerations

Prior to commencement of the study, the research proposal and subsequent research study were reviewed by the Scientific Committee of the Environmental Management Research Group (EMRG) within the Unit for Environmental Sciences and Management (UESM). A final review and decision was made by the Faculty of Natural and Agricultural Science's Research Ethics Committee (FNASREC) to exempt this research study from a full ethical review based on the fact that this research study did not include '*any risk to animal or human participants*' and that the proposed methodology for the study was considered to be low risk.

The study involved officials from the DWS and DM. The participants reserved the option to be recognized, regarded and secured during the process of sharing their perspectives and points of view on co-operative governance. Given the nature of this (qualitative research) study and as a result of the fact that the study involved interpersonal interviews that revealed what the thoughts of the interviewees were, together with the fact that the researcher had to visit the participants' real worlds where they worked, to conduct the research. The above-mentioned issues all imply ethical dimensions that must be anticipated and addressed (Patton, 2002).

Before collecting any information, permission had to be sought to visit both the DWS and DM to conduct the interviews. A formal letter was written to request permission to conduct the study (Appendix A). This letter included the following:

- The purpose and detail of the study;
- Data collection techniques that would be utilized;
- The expected utilization of the researcher; and
- How the participants would be associated with the research and the risk (assuming any) that would be included.

All possible care and means were required to shield the participants' comforts and welfare from conceivable impairment of their participation in the research study (Silverman, 2010). The researcher must also assure both confidentiality and the protection of the participant's privacy.

2.8 Chapter summary

This chapter provided an overview of the research design and research methodology applied to the research study and elaborated on how the study will be conducted. The section provided a justification for the use of qualitative research, described the research design, data collection and data analysis techniques, strategies that will be used to ensure the validity of the study findings, ethical considerations and the research limitations of the study.

CHAPTER 3 LITERATURE REVIEW

3.1 Introduction

According to Bless *et al.* (2006) a literature review is the form of assessment and classification of what reliable scholars have written on a subject, the sources and identification of a specific research problem. This chapter covers an overview of the literature available on co-operative governance as well as existing literature specific to WWTWs and service delivery within the local sphere of government in South Africa. It will critically outline the current co-operative governance relationship between the DWS and the local government. The assessment of the literature on co-operative governance is important as it underpins the analysis of the empirical component of the study. This chapter will also provide the definitions to clarify important concepts and terminologies that will be used in the study.

3.1.1 Definitions of key concepts and terms

Before discussing the existing literature, it is imperative to explain key concepts that will be presented during the study. Some concepts and terms are used and are generally accepted as the norm whereas other concepts and terms may need explanation.

3.1.2 Governance

When evaluating the literature, the term governance is utilised in a diversity of ways (Stoker, 1998). Stoker (1998) suggests that governance refers to theories and subjects of social co-ordination and the nature of all arrangements of regulation. More specifically, governance refers to numerous new theories and practices of ruling and problems to which they give rise. The following definition of governance will be used in the study as defined by the WRC (2006b); the exercise of an economic, political and authoritative position to deal with a nation's undertakings at all levels. It includes the components, cycles and foundations, through which residents and gatherings articulate their inclinations, practise their lawful rights, meet their commitments and overcome their inequalities.

3.1.3 Co-operative Governance

Malan (2005) explains co-operative governance as a co-operation between spheres of government requiring each sphere to fulfil a particular role. Marks (1993) explains co-operative governance as a system of unceasing co-operation between nested governments at numerous state ranks. All these ranks (national, provincial, local government) are seen as essential aspects in current politics, as well as how political authority is being distributed over or occupied within

various levels of government. The following definition will be used for this study as defined by Ismail *et al.*, (1997); co-operative governance is the advanced idea to resolve matters associated with intergovernmental relations and it tries to address the complications experienced by most large administrations in organising their government functions and rationalising their administrative activities.

3.1.4 Intergovernmental Relations

Wright (1988) argues that intergovernmental relations incorporate the connection amongst two or more governments of different nations or the connection and relations among various stages of the equal government. Malan (2005) further explains that intergovernmental relations refer to imperative collaborations occurring between the governmental institutions in all spheres. For the purpose of this study, the following definitions shall apply; “*relationships that arise between different governments or between organs of state from different governments in the conduct of their affair*” (South Africa, 2005).

3.2 The Department of Co-operative Governance and Traditional Affairs

One of the most important actors in the national government for ensuring sound co-operative governance is the Department of Co-operative Governance and Traditional Affairs (COGTA). The COGTA'S mandate is derived from Chapters 3 and 7 of the Constitution (South Africa, 1996). The vision of COGTA is: “*An integrated, responsive and highly effective governance system, including communities, to achieve sustainable development and improved service delivery*”.

Its main goal is to encourage co-operative governance and uphold all spheres of government, advance customary undertakings while backing related establishments through:

- “Developing appropriate policies and legislation to promote integration in government's development programmes and service delivery;
- Providing strategic interventions, support and partnerships to facilitate policy implementation in the provinces and local government; and
- Creating enabling mechanisms for communities to participate in governance”.

As a national department, its mandate is to develop national policies and legislation regarding co-operative governance on a province's and local level of government.

3.3 Description of the three spheres of Government

Schedule 4 of the Constitution (South Africa, 1996) sets the instructions for the operation of government. The South African government is structured in such a manner to provide for three spheres of government. These spheres of government are distinctive, inter-related and inter-dependent. All three spheres function according to the Constitution, laws and policies prepared by the national Parliament. To give effect to these Constitutional obligations, laws and policies, departments are established within each sphere of government and the onus lays on each governmental department to execute the laws and policies as determined by Parliament.

Other Departments, such as the DWS, exclusively exist at the national level since they deal with matters of concern for the country as a whole. While provincial or local sphere of government may not do anything that is in contradiction of the laws or policies set down by the national sphere of government. Section 154 of the Constitution (South Africa, 1996) states that the national and provincial governments are required to support and reinforce the capacity of municipalities to accomplish their own affairs, to execute their tasks as well as to exercise their powers.

3.3.1 National Government

Sections 42 and 83 of the Constitution (South Africa, 1996) make provision for the establishment of a national government which consists of Parliament (Chapter 4) and a National Executive (Chapter 5). The national government is solely liable for national defence, foreign affairs, the criminal justice system (safety and security, courts), higher education, water and sanitation, energy resources and administrative operations such as home affairs and tax collection. The majority of social administrations are shared capabilities among the national and provincial governments which consist of social security, housing, agriculture, school education, health services and welfare services. In these sectors the national government is accountable for policy formulation, determining regulatory frameworks comprising norms and standards, and managing the implementation of these functions (COGTA, 2016).

Section 2 of the Water Services Act (Act 107 of 1997) state that national government also has the responsibility to assist local government to apply the Water Services Development Plans (South Africa, 1997) and promote effective water resource management, water conservation and demand (South Africa, 1997). The national government through the DWS, as a regulator, has to oversee the contractual interactions among water services authorities and water services providers and intermediaries (South Africa, 1997). This is necessary to ensure the protection of water resources in the interests of all citizens (South Africa, 1997 and National Water Resources Strategy 2, 2013b).

3.3.2 Provincial Government

The Constitution (South Africa, 1996) provides powers and authority to South Africa's nine provinces, including a provincial legislature and a provincial executive. The province's executive authority is implemented by the Premier, co-operatively with other members of the Executive Council. The task of the provinces is to ensure policy implementation within the national policy framework (De Villiers, 2008). The legislative provincial authority is assigned in the provincial legislature and the authority of the provincial legislature is only related in the specific region of each province (Roux *et al.*, 1997). Provinces are "unique" in the sense that they implement their powers and employ their tasks within the regulatory framework established by the national government (De Villiers, 2008). The national government is responsible for monitoring compliance with the said framework and if need be, intervening when constitutional or legislative requirements are not fulfilled (Zulu, 2014).

3.3.3 Local Government

The Constitution (South Africa, 1996) is autonomous and from it moves a number of local government acts and policies setting up the legislative framework for local government. This policy framework makes provision for local independent governance, co-operative governance, as well as for public participation.

Local government has a constitutional directive to supply basic service delivery necessities such as water and sanitation, electricity, roads, transport and stormwater drainage of which water provision is of utmost importance (South Africa, 1996). Furthermore, the local government is accountable for the promotion of a safe and healthy environment (Du Plessis 2015b), not limited to the effective management of waste water and effluent discharge (South Africa, 2000). It is required to furnish water and sanitation services to communities limited to potable water supply systems, domestic waste water and sewage, stormwater management, refuse removal, disposal systems, solid waste disposal and refuse dumps (South Africa, 1996).

Section 152(2) of the Constitution (South Africa, 1996) states that "*a municipality must strive, within its financial and administrative capacity, to achieve the objects set out in subsection 152(1)*":

- (a) *To provide democratic and accountable government for local communities;*
- (b) *To ensure the provision of services to communities in a sustainable manner;*
- (c) *To promote social and economic development;*
- (d) *To promote a safe and healthy environment; and*

(e) To encourage the involvement of communities and community organisations in the matters of local government”.

Section 155(1) of the constitution categorises South African Municipalities into three categories which are namely: Category A, Category B and Category C. According to Sansom and McKinlay (2013) South Africa is structured into 278 municipalities. [Table 2](#) below summarised the categories of South African municipalities, responsibilities and numbers per category.

Table 2: Summary of Municipal Categories in South Africa: (Adopted from du Plessis 2013 and Sansom and Mckinlay, 2013)

Category	Type	No. of Municipalities	Responsibility
• Category A	• Metropolitan Municipalities (e.g. City of Johannesburg).	8	• Has exclusive municipal executive and administrative authority in its jurisdictional region, in contrast to Categories B or C
• Category B	• District Municipalities (e.g. Tlokwe).	44	• The district municipality is formed by a group of Category B municipalities. The key centre territories of ability incorporate town arranging and capacity-building.
• Category C	• Local Municipalities (e.g. Kenneth Kaunda).	226	• Offers its power with the region inside whose zone it falls.

Furthermore, the Constitution stipulates that the different spheres of government must work in a co-operative manner (Gray *et al.*, 2016). De Villiers (1994) emphasises that no sphere of government can work successfully without collaboration. The reason is that of similar inter-dependency and inter-relatedness of some governmental purposes, spill-overs in services, scarce resources, poor economic situations and popular accountability as well as integral power. This brings up the issue with respect to whether the current level of decentralization in water

administrations arrangement and nearby degrees of guideline is proper, particularly given the enduring municipal capacity constraints (Smith, 2009).

The three spheres of government are discussed above, and [Table 3](#) below summarises the roles and responsibilities of each sphere of government as it relates to the water sector.

3.3.4 Promotion of co-operative government by national and provincial government

As part of the finance, the budget allocation and resource is the key to the government's roles of allocation, redistribution of resources and economic stabilisation. According to Local Government: Municipal Finance Management Act (Act No. 56 of 2003), section 35 states that the national and provincial departments and public entities must:

“(a) in their fiscal and financial relations with the local sphere of government, promote co-operative government in accordance with Chapter 3 of the Constitution; (b) promptly meet their financial commitments towards municipalities; (c) provide timely information and assistance to municipalities to enable municipalities: (i) to plan properly, including in developing and revising their integrated development plans; and (ii) to prepare their budgets in accordance with the processes set out in Chapter 4 of this Act; and (d) comply with the Public Finance Management Act, the annual Division of Revenue Act and the Intergovernmental Fiscal Relations Act, 1997 (Act No. 97 of 1997), to the extent that those Acts regulate intergovernmental relations with the local sphere of government”.

Laubscher, (2010) concluded that municipalities in SA are under pressure as a result of poor financial control and lack of accountability, leading to extensive corruption and financial mismanagement with detrimental consequences for effective and efficient service delivery. De Vries *et al.*, 2008 further stated that financial mismanagement in the South African public sector hampers progress, development and growth which result and hinders provision of service.

Table 3: Summary of the respective roles of the three spheres of government as specified in the Constitution

Entity	Sections of the Constitution Mandates (1996)	Responsibility in terms of co-operative governance	Responsibility in terms of water sector
COGTA	40 and 154	<ul style="list-style-type: none"> • Enable co-operation and support all spheres of government. • Develop national policies, and legislation. • Generate channels for communities to participate in governance (South Africa, 1996). 	<ul style="list-style-type: none"> • Facilitate policy implementation in the provinces and local government in terms of service delivery (COGTA, 2016).
National Government	125(5), 154 (1) and 155 (7)	<ul style="list-style-type: none"> • Establish and facilitate sustainable national norms and standards for service delivery (Marius and Visser, 2008). • Assist provinces to develop the administrative capacity required for the effective exercise of their powers and performance of their functions as stated in Schedule 4 and 5 (South Africa, 1996). • Ensuring that all the spheres take collective accountability for service delivery. 	<ul style="list-style-type: none"> • Regulator for the country's water resource. • Formulation of national norms and standards for the discharge of effluent from WWTWs (South Africa, 1996).
DWS	154(1)	<ul style="list-style-type: none"> • Liaise with other government departments in the national, provincial and local sphere with issues that has impact on the environment with a view of coordinating service delivery (De Villiers, 2008). • Oversee relations between water services authorities and water services providers (South Africa, 1997). 	<ul style="list-style-type: none"> • Implementation of national effluent discharge standards and policy strategy. • Performing the functions contemplated in the NWA and WSA in related to construction and operating WWTWs.

Entity	Sections of the Constitution Mandates (1996)	Responsibility in terms of co-operative governance	Responsibility in terms of water sector
			<ul style="list-style-type: none"> • Supports and regulates local government with respect to water services (in collaboration with COGTA and the provincial governments). • Monitor compliance of local government with statutory framework and effluent discharge norms and standards. • Protect water resources in the interests of all the users (South Africa, 1998a).
Provincial Government	152(1)(b), (d) and 152(2) and 156(4)	<ul style="list-style-type: none"> • Generate an enabling environment, by promoting and facilitating the provision of adequate services in the province (Marius and Visser, 2008). • Perform their functions within the regulatory framework set by the national government (De Villiers, 2008). • Take all reasonable and necessary steps to support and strengthen the capacity of municipalities (du Plessis, 2013, (Marius and Visser, 2008). 	<ul style="list-style-type: none"> • Provide support to local government on administration of any of their own responsibilities listed in Schedule 4 or 5 of the Constitution (du Plessis, 2015b). • Has very limited functions when it comes to water provisions.

Entity	Sections of the Constitution Mandates (1996)	Responsibility in terms of co-operative governance	Responsibility in terms of water sector
Local Government	152 and 153	<ul style="list-style-type: none"> • Provide public goods and services to the communities such as water and sanitation, electricity, roads, stormwater drainage and transport (South Africa, 1996). • Ensure that unhealthy and unsafe environmental conditions are prevented (du Plessis 2013). • Ensuring co-ordination between departments and agencies in the municipal sphere with responsibilities that affect the environment and WWTWs issues and bring together the relevant experts. 	<ul style="list-style-type: none"> • Ensure proper management of WWTWs and effluent discharge standards are met (du Plessis, 2013). • Responsible for management and disposal of solid waste such as sludge emanating from both WWTWs and water treatment plant (Haigh <i>et al.</i>, 2010). Has the authority to determine and regulate local water policies, norms and standards and make by-laws (du Plessis, 2013).

Conflict resolution mechanisms within the municipal spheres of government are stipulated under section 146 of the Constitution (1996). NEMA also suggested a statutory instrument for accomplishing co-operative environmental governance, such as establishment of national environmental management principles, planning frameworks and processes for conflict resolution (Bosman and Boyd, 2008). The reviewed literature indicates that the spheres of government are interconnected and should perform their functions as they ought to, thus reflecting on the Constitution. This does not always go as planned, since there are often conflicts or overlapping of duties in the sphere so that responsibilities are not accomplished as expected. The Constitution (1996) further states that an organ of state involved in an intergovernmental dispute must make every reasonable effort to settle the dispute employing mechanisms and techniques supplied for that purpose and must use all other remedies before approaching a court to resolve the argument.

Case in point; in 2013 the DWS took Stellenbosch Local Municipality to court regarding the poor quality of effluent that was discharged into the Eerste River (Cronje, 2013). There were many complaints that water from the river was not suitable for irrigation purposes. The DWS supported the Municipality with the Regional Bulk Infrastructure Grant (RBIG) funding and directives were issued, however; there was no improvement. The directives were unnoticed until the DWS sought relief and used section 53(2) (b) of the NWA to request the National Prosecuting Authority (NPA) to prosecute. The NPA rejected the application for prosecution and was of the view that the DWS and Stellenbosch Local Municipality must resolve the matter by exercising co-operative governance requirements (Cronje, 2013 and Hene, 2015). According to Bosman and Boyd (2008), the requirements of co-operative governance prevent the taking of legal action against non-compliant local governments, unless there is enough evidence that shows the support was given but the situation remains unchanged. The subsequent section discusses applicable legislation that municipalities should use to construct and operate WWTWs to avoid discharging of inadequately treated effluent into water resources.

3.4 Legal framework for waste water governance and water provision

This section provides an overview of South African legislation that applies to the development and operation of municipal WWTWs. The relevant environmental legislation and sections are discussed in [Table 4](#), whilst the primary legislation and subsequent regulations, used to regulate and protect the receiving environment from impacts related to WWTWs includes the Constitution of the Republic of South Africa, 1996; (i) environmental legislation and (ii) other legislation.

Table 4: South African legislation applicable to the operation and maintenance of municipal WWTWs: Adapted from South Africa, 1977, 1996, 1997, 2000, 2008 and 1998 (a, b, c) and Herbig and Meissner (2019)

Legislation	Applicable sections	Responsibilities of the municipality with regard to environmental requirements	Penalties of non-compliance
Constitution of the Republic of South Africa, 1996	Section 24 of the Constitution of the Republic of South Africa, (1996) states that “everyone has the right to an environment that is not harmful to their health or wellbeing, and to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures.	Section 24 and 27 provide protection of the environment, water for human needs of acceptable quality and quantity. The Constitution therefore imposes a responsibility on all parties that may act in a management or operational capacity at a municipal WWTWs to ensure no adverse impacts affect the health and wellbeing of the natural environment or the people that live in it.	The framework to enforce Section 24 of the Constitution is provided by the NEMA. A person convicted of an offence in terms of the provisions of NEMA may face penalties such as a fine not exceeding R10m or imprisonment for up to 10 years.
	Section 27 of the Constitution further provides the right to access to sufficient water.		

Legislation	Applicable sections	Responsibilities of the municipality with regard to environmental requirements	Penalties of non-compliance
	<p>Section 156(1) of the constitution provides Powers and functions of municipalities where it states that a municipality has executive authority in respect of, and has the right to administer:</p> <p>(i) the local government matters listed in Part B of Schedule 4 and Part B of Schedule 5; and</p> <p>(ii) any other matter assigned to it by national or provincial legislation.</p>	<p>Local government is granted the mandate to deal with issues of local scale such as to provide water and sanitation services limited to potable water supply systems and domestic waste water and sewage disposal system to the South African Citizen.</p>	

Legislation	Applicable sections	Responsibilities of the municipality with regard to environmental requirements	Penalties of non-compliance
National Environmental Management Act (Act 107 of 1998) (NEMA)	<p>Chapter 1 of NEMA sets out environmental principles designed to guide the actions of persons and all organs of state to prevent significant harm to the environment. Principles applicable to the management and operation include the Polluter Pays principle, Precautionary principle, and the principles of Sustainable Development and Environmental Justice (South Africa, 1998a).</p> <p>Section 24 of NEMA requires that an Environmental Impact Assessment (EIA) is needed for activities which could have a significant impact on the environment (South Africa, 1998a). Section 24 of NEMA, together with regulations on EIA regulations and regulations on Environmental Management</p>	<p>It is therefore the responsibility of every person or manager performing duties at municipal WWTWs to prevent any pollution emanating from WWTWs or to take reasonable measures to remedy pollution that has occurred.</p> <p>Section 28(1A), stipulates that not only does the obligation defined in Section 28(1) apply to possible or actual pollution, caused by the actual polluter, that may occur or has occurred in the present or future, but also significant environmental pollution and degradation that occurred before the commencement of NEMA.</p>	<p>In terms of NEMA, any natural or a juristic person commits an offence if he/she, amongst others, fails to comply with a condition of an Authorisation (EA) or negligently commits any act, or fails to act on an incident, which causes significant pollution or degradation of the environment or people. A person convicted may face penalties as severe as a fine not exceeding R10m or imprisonment for up to 10 years.</p>

Legislation	Applicable sections	Responsibilities of the municipality with regard to environmental requirements	Penalties of non-compliance
	<p>Frameworks (EMF Regulations), deal with environmental authorisations.</p> <p>The Government Gazette, dated 04 December 2014 states that the following may not commence without an environmental authorisation from the competent authority. These activities such as the development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2000 cubic metres but less than 15000 cubic metres, relates to transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes within a road reserve, and</p> <p>The expansion and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage where the capacity will be increased by 15000 cubic</p>	<p>It is the responsibility of the municipality to obtain an EA prior to the commencement of any activity that is listed under the EIA regulations as amended.</p>	

Legislation	Applicable sections	Responsibilities of the municipality with regard to environmental requirements	Penalties of non-compliance
	metres or more per day and the development footprint will increase by 1000 square meters or more		
	Section 28(1) NEMA stipulates the responsibilities associated with the duties of care and remediation of environmental damage, where responsible persons must take reasonable measures to prevent pollution from occurring, continuing or recurring.		
	Section 30 of the NEMA focuses on the control of emergency incidents and defines the event as sudden or unexpected which will or can possibly cause serious damage to the environment. Section 30 (3) further obligates the responsible person to take reasonable steps to notify the public should any risk be posed to public health and safety in general.	This Section of NEMA requires the responsible person (including Municipalities) to minimise or contain the associated risks in relation to public health and the environment. Therefore, all possible and reasonable actions must be undertaken to limit the effects on health and safety in relation to the public.	

Legislation	Applicable sections	Responsibilities of the municipality with regard to environmental requirements	Penalties of non-compliance
National Water Act (Act 36 of 1998) (NWA)	Section 19(1) of the NWA makes provision for the general duty of care and states that an owner of land, a person in control of land or a person who occupies or used the land on which any activity or process is or was undertaken, which causes, has caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring South Africa, 1998b).	Section 19 of the NWA legally enforce a duty of care on the owner, operator and/or manager of a municipal WWTW to take all reasonable measures to prevent any pollution from occurring, continuing or recurring. This duty becomes further legally binding once a water use, as defined in Section 21 and 22 of the NWA, is licensed.	In terms of Section 151 of the NWA, any person who, amongst other provisions, intentionally or negligently causes pollution of a water resources, or fail to perform his designated duties, which includes acting and remedying pollution caused, is guilty of an offence and liable to a fine or imprisonment for up to 5 years, or both, on first conviction, or a fine or imprisonment up to 10 years, or both, on second conviction.
	Section 20 deals with pollution of water resources following an emergency incident. Section 20(1) "incident" includes any incident or accident in which a substance – (a) pollutes or has the potential to pollute a water resource; or (b) has, or is likely to have, a detrimental effect on a water resource.	Section 20(2) stipulates that the responsible person (municipality) must take a remedial action. If the responsibility person caused the incident failed to react, the relevant catchment management agency may take the necessary steps and recover the costs from every responsible person.	

Legislation	Applicable sections	Responsibilities of the municipality with regard to environmental requirements	Penalties of non-compliance
	Section 21 defines eleven types of water use which may have a detrimental effect on the water resource. The operation of WWTWs can be managed through the implementation of the norms and standards of the final discharge effluent, waste water regulations and policies as well as the issuance of WUL conditions.	Section 22 states that all the water users that are practising any of the eleven water uses must obtain a water use licence if it is not under Schedule 1, Existing lawful use and general authorisation.	
Water Service Act (Act 108 of 1997) (WSA)	Section 3 of the WSA stipulates the right of access to basic water supply and basic sanitation.	The WSA works in conjunction with NWA to implement its objectives. In terms of Section 6 or 7 of the Act the water service authority must give approval to a person to dispose of industrial effluent in any manner approved by the service authority.	Fines and imprisonment in conjunction with Section 151 of the NWA.
National Health Act (Act 63 of 1977) (NHA)	Section 20(1) of the NHA states that "every local authority shall take all lawful, necessary and reasonably practicable measures to avoid any nuisance, unhygienic condition, or any offensive condition. The local authority must furthermore prevent the pollution of any	The NHA enforces a liability on local authority, and by extension, responsible managers to take all lawful, necessary and reasonable practicable measures to prevent	In terms of Section 57 of this Act any person who contravenes or fails to comply with any provision of this Act, shall be guilty of an offence. These vary from a fine not exceeding R500 or 6 months imprisonment on first conviction

Legislation	Applicable sections	Responsibilities of the municipality with regard to environmental requirements	Penalties of non-compliance
	water intended for the use by its inhabitants, irrespective of whether such water is obtained from sources within or outside its district, or must purify such polluted water”.	the pollution of any water intended for the use of the inhabitants.	up to R1 500 or imprisonment not exceeding 2 years for third conviction.
Local Government: Municipal Structures Act (Act 117 of 1998)	Section 84(1) of the Local Government: Municipal Structures Act sets out the division of functions and powers between district and local municipalities. In terms of sections 84(1) a district municipality's functions and powers include management of domestic waste water and sewage disposal systems (South Africa, 1998c).	There is however a shared responsibility of powers and functions as described in the Structures Act to be exercised between the Local and District Municipality. The municipal manager is <i>inter alia</i> responsible and accountable for all income and expenditure which would be required to implement his/her functional areas.	It appears as if no direct provision for penalties is provided except for cross-cutting functions with similar municipal acts in which instances the penalties on offences of those specific acts apply.
Local Government: Municipal Systems Act (Act 32 of 2000)	Section 55(1) of the Local Government: Municipal Systems Act specifies that the municipal manager as head of administration is, subject to the policy directions of the municipal council, responsible and accountable for provision of services to the	Core services to be provided by municipalities include as the provision of clean drinking water, sanitation, clean drinking water and waste removal.	In terms of this Act a councillor who attempts to influence the municipal manager or an agent of a municipality not to enforce an obligation in terms of this Act, any other applicable legislation or any by-law is guilty of an offence and

Legislation	Applicable sections	Responsibilities of the municipality with regard to environmental requirements	Penalties of non-compliance
	local community in a sustainable and equitable manner.		on conviction liable to a fine or to imprisonment for up to two years.

The environmental legislation requires authorisations, permits and licenses for the development and operational activities of WWTWs. As per section 21 of the NWA, the relevant water uses related to WWTWs are:

- Section 21(f) “discharging *waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit*: and
- Section 21(g) *disposing of waste and waste water in a manner which may detrimentally impact on the water resource*”, whether a surface or groundwater resource it requires a Water Use Licence Application (WULA).

For the development of the infrastructure related to WWTWs, the NEMA Environmental Impact Assessment (EIA) Regulations (GNR.983 and 984) as amended, Listing Notice 1, activity 25 and Listing Notice 2, activity 6 require an Environmental Authorisation (EA) to lawfully construct and operate a WWTWs.

The Environmental Impact Assessment (EIA) Regulations. (Regulations No R543 to R546 published under sections 24(5), 24M and 44 of NEMA) determines the processes for, and activity triggers or that requires, EIA authorisations. Furthermore for the development of the infrastructure related to WWTWs, the NEMA Environmental Impact Assessment (EIA) Regulations (GNR.983 and 984) as amended, Listing Notice 1, activity 25 and Listing Notice 2, activity 6 require an Environmental Authorisation (EA) to lawfully construct and operate a WWTWs. This includes activities such as infrastructure for bulk or expansion of transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve; or where such development will occur within an urban area and the development and related operation of facilities or infrastructure for the treatment of effluent, waste water or sewage with a daily throughput capacity of more than 2000 cubic metres but less than 15000 cubic metres.

All the mentioned statutes make provision for a contravention of a requirement to be a punishable criminal or administrative penalty (Macrory, 2014). However, in administrative cases legislation grants powers to public authorities to utilise administrative enforcement measures to enforce compliance without following a court process (Algotsson *et al.*, 2009). Punishments could appear as a fine or detainment, regardless of whether the non-compliant party is a government institution or in the private sector.

The obligation to guarantee water accessibility and to supply water services is a dual responsibility for national and local government levels, respectively. The provincial sphere of government has no specific assigned role in terms of water management. However, in terms of the Constitution and the provision of the NEMA, environmental management and pollution control are concurrent functional areas of national and provincial competence (South Africa, 1996 and South Africa 1998a).

As a regulator, the DWS is therefore required to investigate other compliance enforcement procedures and methods through

- (i) Reinforcing co-operative governance, and
- (ii) Generation of water sector intergovernmental relations forums instructed employing Implementation Protocols, as provided for in section 35 of the Intergovernmental Relations Framework Act (Act No.13 of 2005).

The establishment and involvement of forums in the management of WWTWs is important. These forums ensure that concerns of community members are represented when it comes to pollution prevention of the water resources by sewer spillages or discharge effluent. Municipalities should construct and operate WWTWs in accordance with the above discussed legislation ([Table 4](#)) to avoid sewer spillages and/or discharging of partially treated effluent into water resources (Strydom *et al.*, 2009).

3.5 Description and responsibilities of the Berg River Water Management Area

The Berg River Water Management Area (WMA) is located within the Western Cape Province and is situated in the south-western corner of South Africa (DWAf, 2007a). The Berg River WMA is one of the 9 WMAs within DWS in the country and it is responsible for the protection of water resources management and water services provision in the area (Karar, 2017). These responsibilities are shared by the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP), the Western Cape Department of Agriculture and by each of the local authorities (municipalities) within the Berg River WMA. The Berg River WMA is constitutionally mandated to support, regulate and strengthen the capacity of local government to achieve their functions as well as to ensure effective performance of its duties. The Berg River WMA as the custodian of water resources has to ensure that the NWA (1998) and WSA (1997)

are implemented together with their functions related to water resource management (WRM). Some of the important functions of these acts are summarised in [Table 5](#) below:

Table 5: Functions of National Water Act (1998) and Water Services Act (1997)

National Water Act (1998)	Water Services Act (1997)
<ul style="list-style-type: none"> • Implementation of national planning. 	<ul style="list-style-type: none"> • Implementation of water strategic planning.
<ul style="list-style-type: none"> • Regulating water use e.g. Section 21 (a-k). 	<ul style="list-style-type: none"> • Regulating water service in terms of contracts and municipal by-laws.
<ul style="list-style-type: none"> • Implementation of water sector policies and strategies. 	<ul style="list-style-type: none"> • Implementation and maintaining of policies and strategies within the WMA e.g. SANS 241.
<ul style="list-style-type: none"> • Protection of water resource. 	<ul style="list-style-type: none"> • Monitoring and auditing e.g. Blue and Green Drop Certification programme.

The Berg River WMA has different sub-directorates namely; a water quality management unit, licensing unit and enforcement unit that are performing their functions respectively. These units are facing the following challenges (Funke *et al.*, 2007).

- Staff shortages;
- Staff members are overworked and do not have sufficient time to focus on the effective implementation of environmental legislation and policies related to the management of WWTWs;
- Lack of communication within the above-mentioned departmental units affects service delivery in terms of water use license application assessment, implementation and enforcement of WUL conditions. This lack of communication is often not merely ascribed to poor working relationships, but also attributable to human resources and time constraints (Bosman and Boyd, 2008); and
- DWS is not coping sufficiently well with the water quality problems within the catchment areas and while these are currently not severe, however, they do have the potential to gradually deteriorate water quality in the near future (Water, 2002).

Despite the above-mentioned challenges, the DWS (regional office) must ensure that the water resources are protected as the efficient management of water resources is, therefore, a growing necessity. Water managers (DWS) also need to ensure that environmental legislation is

implemented, communication within DWS sub-directorates and external stakeholders (including municipalities) improved.

3.6 Challenges between national and local government in the water sector

The constitutional command of the government is to ensure that suitable water and sanitation services are provided with dignity to all citizens of South Africa. Both the WSA (1997) and the NWA (1998) provide for the statutory framework for water services and WRM respectively. The policy framework developed from these statutes highlights three significant concepts that form the basis of water governance in South Africa, namely “(i) *Integrated Water Resources Management (IWRM)*, (ii) *the principle of equity in access to water*, and (iii) *the promotion of institutional decentralization to bring about better effectiveness* (Savage et al., 2008)”.

The WSA (1997) requires that water services should be provided in a sustainable way and not pollute the water resource. Municipal compliance concerning waste water discharges ensures that water quality standards for effluent are met. The DWS issues WULs specifying conditions to adhere to by applicants operating WWTWs, such as local government, for the discharge of effluent into the water resource (Eales, 2008).

According to the DWS (2017a) a report prepared by the Caucus, the DWS committed themselves to intensify enforcement action and demonstrate a "zero-tolerance" approach towards polluters and water transgressors (Malan, 2015). The DWS deploys the Blue Scorpions to ensure that all of the country's water resources are secured and all water and sanitation laws and regulations are enforced (DWS, 2018). This important component however, is experiencing major concerns such as capacity constraints, insufficient training and unfilled vacancies with only 35 compliance and enforcement officials instated (DWS, 2017a). “The DWS operates at national, provincial and local levels across all spheres of the water management cycle (i.e. from water resource management, water abstraction, water processing and distribution of potable water, waste water collection, to treatment and discharge)”. However; the DWS does not perform all of these functions; some are constitutionally allocated to suitable sector partners. DWS as a national government is responsible for policy development, implementation, regulation, monitoring, enforcement and administration.

The DWS also lacks verification of compliance to license conditions, reviewing of audit reports submitted by local government, attends to reported complaints regarding sewage spills and

degradation of water resources by WWTWs (du Plessis and Nell, 2011 and Jankielsohn, 2012). The DWS noticed that Process Controllers lack the needed technical knowledge to operate WWTWs and are not registered and classified as required by Regulation 2834 (GNR 2834 of 27 December 1985) (Chunderduri, 2014). Compounding to existing challenges, is the fact that municipalities do not have accredited laboratories to test the quality of effluent discharged into water resource (Harding, 2017).

Municipalities face several challenges in meeting statutory requirements for the provision of water services. According to a study conducted by Mema (2010) and Lyners Consulting Engineers (2013), the roots of untreated sewage and poor quality waste water discharge are caused by poor plant designs, overloaded capacity, shortage of skills (plant operators), poor operation, lack of maintenance and faulty equipment of municipal WWTWs. These challenges are further compounded by the processing time in the finalisation of WULs. Furthermore, the finalised and issued licenses have several shortcomings in the form of clerical errors, conditions that are not practicable or enforceable and municipalities cannot or are unwilling to comply with these conditions leading to a slew of amendment requests (DWAF, 2004 and Ochieng *et al.*, 2015).

This creates problems between the DWS and local government as the DWS cannot fully enforce compliance within the absence of a WUL. On the other hand, the local government is failing and/or unwilling to meet statutory requirements for waste water discharge. The challenges of co-operative governance due to the tensions between the DWS and local government results in the deterioration of water resources including ecological ecosystem as a result of municipal discharge effluent that is not complying with effluent standards (DWS 2013b).

3.7 Chapter summary

The literature review attempts to obtain a broad and in-depth understanding (roles and responsibilities in terms of service delivery) of each sphere of government as provided for in the Constitution (1996). The evaluation of literature shows that spheres of government should work in collaboration and share the common responsibility of improving the quality of life of all through *inter alia* the accomplishment of fundamental rights (Cronje, 2017). This chapter has discussed the main environmental legislation framework and its relevant sections (see section 3.4 [Table 4](#)) that are applicable in the management and operation of the WWTWs. Morrison *et al.* (2001) stated that treatment of waste water is regarded as important in the management of water resources as

it reduces the amount of pollutants that are present when the discharged effluents end up into water resources.

The lack of co-operation, poor communication between the DWS and local municipalities lead to poor service delivery in terms of water and sanitation management (Enqvist and Ziervogel, 2019).

South Africa has comprehensive environmental legislation that regulates the operation of the WWTWs in preventing and protecting the water resources from pollution. Environmental legislation is important for supporting environmental sustainability especially as a source of guidance and enforcement. To ensure the implementation of the legislation requires all spheres of government have to operate in unison including other institutions within the Catchment.

CHAPTER 4 RESULTS/DATA ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the result of the data analysis done in line with the methodology defined in chapter 2. The data were collected using questionnaires and presented in the form of bar graphs plotted using the SPSS. The interview questions are presented using pie graphs. The data analysis will assist in answering the research question *what are the interfaces and challenges of co-operative governance based on waste water treatment works within the Berg River Catchment Water Management Area*. The questionnaire data is presented in sections A to D (as grouped in the questionnaire). Each question of the interview data was presented individually.

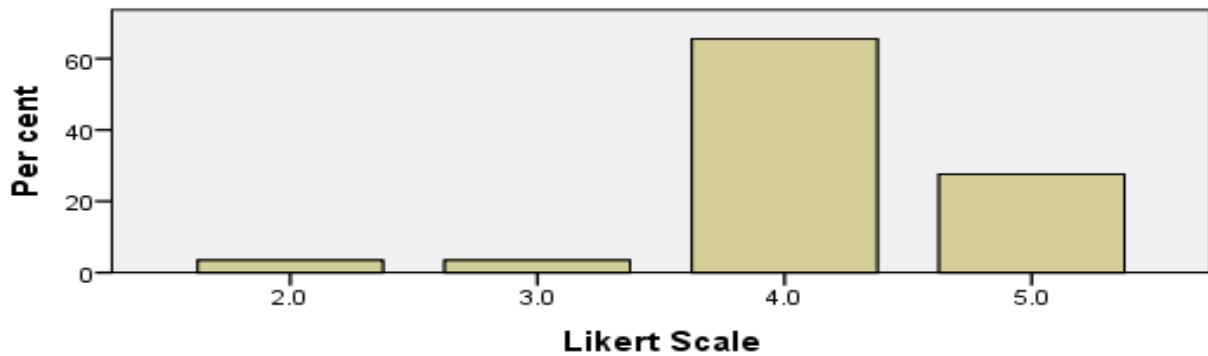
4.1.1 Section A: Environmental legislations/law

[Table 6](#) lists the questions that were posed to participants under Section A of the questionnaire.

Table 6: Section A of questionnaire questions

No	Questions
1	Participants are familiar and have knowledge of what the law requires when performing roles and responsibilities in terms of co-operative governance and WWTWs.
2	Constitution instructs the spheres of government to avoid courts and exhaust all the processes of co-operative governance to resolve the dispute.
3	South Africa has adequate and effective rules and laws that promote the practice of co-operative governance for the management of WWTWs.
4	The environmental laws and/or policies of my institution are easy to interpret and understand.
5	Regardless of the policy, legislation and structures created by legislation, government officials that manage WWTWs are still sometimes unwilling to co-operate with one another.
6	The legal system in South Africa helps to improve co-operative governance between all spheres of government (National, provincial and local) and DWS.

A1: Participants are familiar and have knowledge of what the law requires when performing roles and responsibilities in terms of co-operative governance and WWTWs



1 =strongly disagree 2 =disagree 3 =neutral 4 =agree 5 =strongly agree

Figure 1: Knowledge in terms roles and responsibilities

[Figure 1](#) indicates that 3.4% participants disagreed, 3.4% remained neutral, 65.5% agreed and 27.6% strongly agreed to the statement posed in terms of their roles and responsibilities within co-operative governance related to WWTWs. SEA (2017) confirms that it is very important for key role players in all spheres of government to understand and know their responsibilities when performing their daily duties in the management of WWTWs. Vienings and Lima, (2015) maintain that government departments and municipalities are diverse, hence specialists and people with relevant skills are needed in the water sector. Their responsibility is to ensure that water resources are protected sustainably. This requires the implementation of environmental legislation that also encourages co-operative governance between government employees including the spheres of government as provided by Chapter 3 of the Constitution (1996).

Bosman *et al.* (2004) concluded that the collaboration between government employees is key as the employees need to make resolutions on legislation or policy implementation, work together and share responsibilities when performing their daily duties.

A2: Constitution instructs the spheres of government to avoid courts and exhaust all the processes of co-operative governance to resolve the dispute

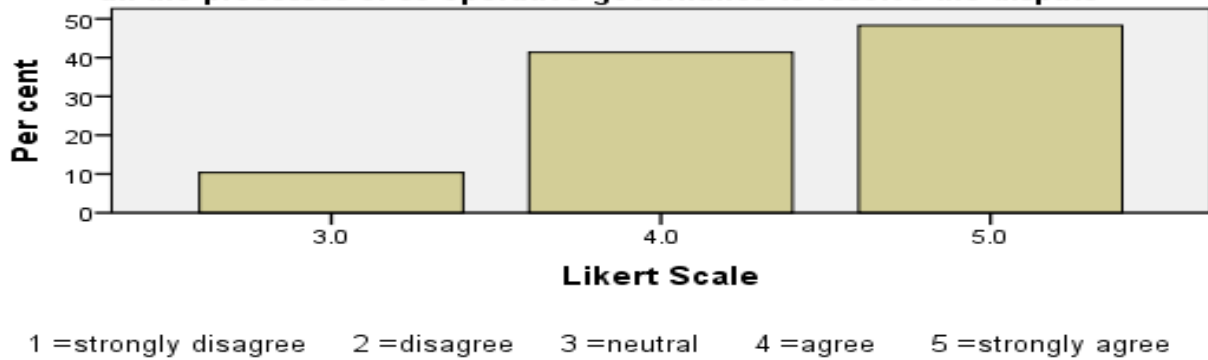


Figure 2: Spheres of government avoid courts to resolve disputes

[Figure 2](#) above illustrates that the response of the participants, where 10.3% of participants remained neutral, 41.4% agreed and 48.3% strongly agreed.

All the spheres of government are obliged and should adhere to the Constitution of the Republic of South Africa (1996) in resolving legal matters related to environmental management but not limited to management of the WWTW. Simeon and Murray (2001) stated that the collaboration envisages the concept of co-operative governance places intergovernmental relations at the centre of the South African framework. In addition to the principles discussed earlier, the Constitution (1996) instructs the government to make "every reasonable effort to resolve any disputes through intergovernmental negotiation" and to exhaust "all other remedies" before approaching the courts to resolve them. If a court is not satisfied that such efforts have been made, the court can refer the matter back to the governments.

A3: South Africa has adequate and effective rules and laws that promote the practice of co-operative governance for the management of WWTWs

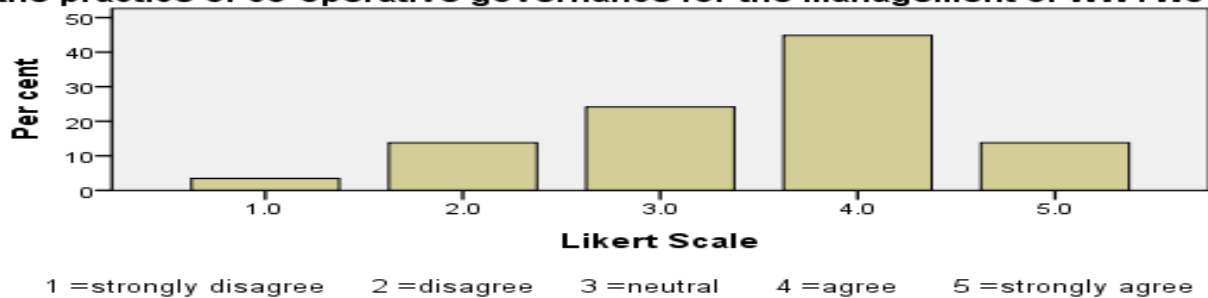


Figure 3: Practice of co-operative governance in the management of WWTWs

[Figure 3](#) illustrates that 3.4% participants strongly disagreed, 13.8% disagreed, 24.1% were neutral, 44.8% agreed and 13.8% strongly agreed. Participants had different views on the

adequate and effective rules and laws that promote the practice of co-operative governance. The Constitution (1996) creates provision for co-operative governance in all spheres of government. Even though this responsibility is weak and officials are not willing to work together, sometimes it spoils the purpose of co-operative governance (du Plessis, 2013). The legislation and policy in South Africa attempt to intensify co-operative governance especially in environmental challenges, resulting in achievements and failures. The system of co-operative governance is presented in chapter 3 of the Constitution (1996) and in different requirements of the NEMA (Act No. 107 of 1998) as well as other specific environmental legislation. Bray (1995) emphasises that co-operative governance is necessary to all environmental governance organisations in the national, provincial and local spheres and in addition, to all channels of administrators of each sphere.

A4: The environmental laws and/or policies of my institution are easy to interpret and understand

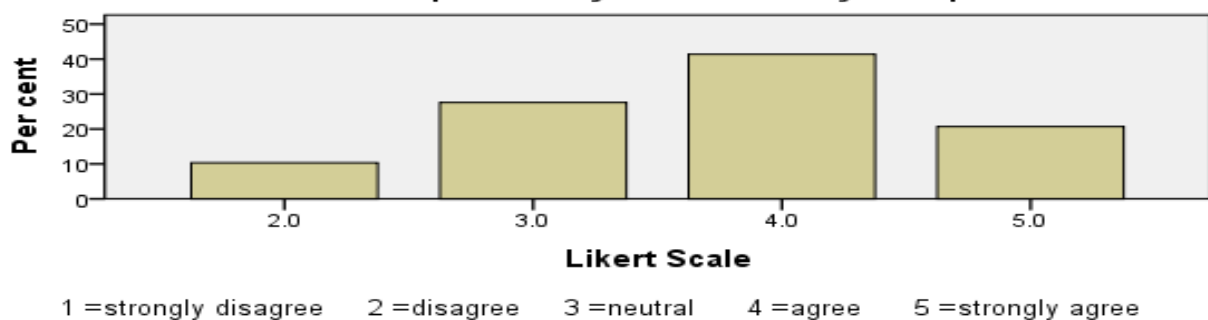


Figure 4: The environmental laws and/or policies are easy to interpret and understand

[Figure 4](#) illustrates that the majority of the participants, 41% agreed with the statement that environmental laws and policies of their institutions are easy to interpret and understand, whilst 10.3% disagreed, 27.6% are neutral and 20.7% strongly agreed. The results indicate that environmental legislation and policies relevant to the participants' institutions are easy to understand, interpret and implement. Reflecting on the discussion related to environmental legislation in chapter 3, South Africa has comprehensive environmental legislation related to construction and operation of WWTWs in place. Algotsson *et al.* (2009); Diemont, (2012); Nkosi and Odeku, (2014) argue that even though environmental laws and policies are easy to interpret the reality is it that it is not effective in terms of preventing WWTWs to stop contamination since the implementation is still lacking.

A5: Regardless of the policy, legislation and structures created by legislation, government officials that manage WWTWs are still sometimes unwilling to co-operate with one another

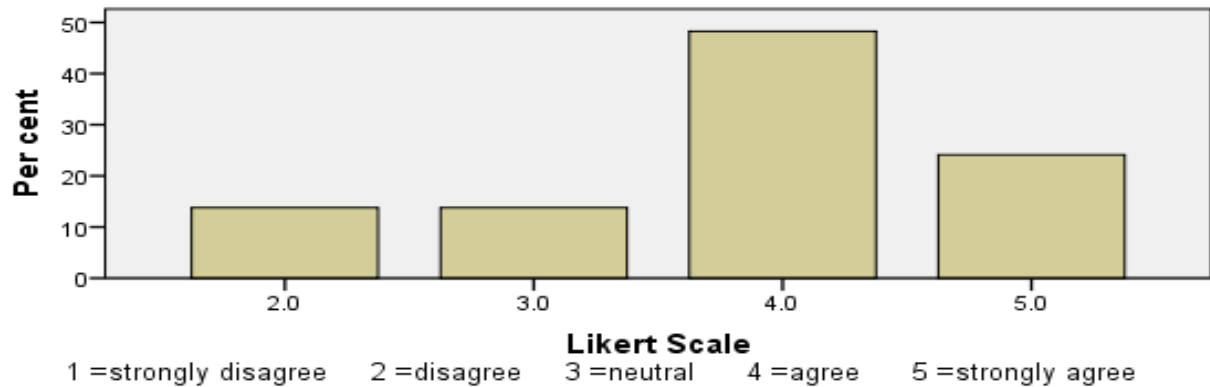


Figure 5: Government officials are unwilling to co-operate

According to [Figure 5](#) participants responded as follows; those who disagreed are 13.8%, 13.8% neutral, 48.3% agreed and 3.4% strongly agree. The results indicate that 48.3% of participants agree to the statement that “regardless of the policy, legislation and structures created by legislation, government officials are unwilling to co-operate.” The responses illustrated that officials that manage and operate WWTWs in spheres of government are unwilling to work together. The unpublished study conducted by Tebele (2013) maintains that the unwillingness to co-operate and lack of collaboration amongst different units of the same department resulted in a lack of support and consultation, which turns to the poor performance of the employees and insufficient service delivery and implementation of legislation.

The unwillingness of government officials is also confirmed in the study conducted by du Plessis (2013) finding that even though the policy, legislation and structures established by legislation and government workers are occasionally not willing to work together. Amongst other reasons that resulted in a lack of collaboration within government employees includes lack of communication and implementation of legislation. Vivier *et al.* (2015) stated that poor communication starts with senior managers within government departments which in turn affects the service delivery. This creates more divisions among middle and lower government officials who performs duties on the ground and also leads to a lack of trust and willingness to co-operate with one another. du Plessis (2013) further stated that the overlap of responsibilities within different units of the same department and sphere of government results in confusion amongst them and to external stakeholders.

The results indicated that there is a lack of communication and coordination between government officials and various sphere of governance specifically in the national government and local government.

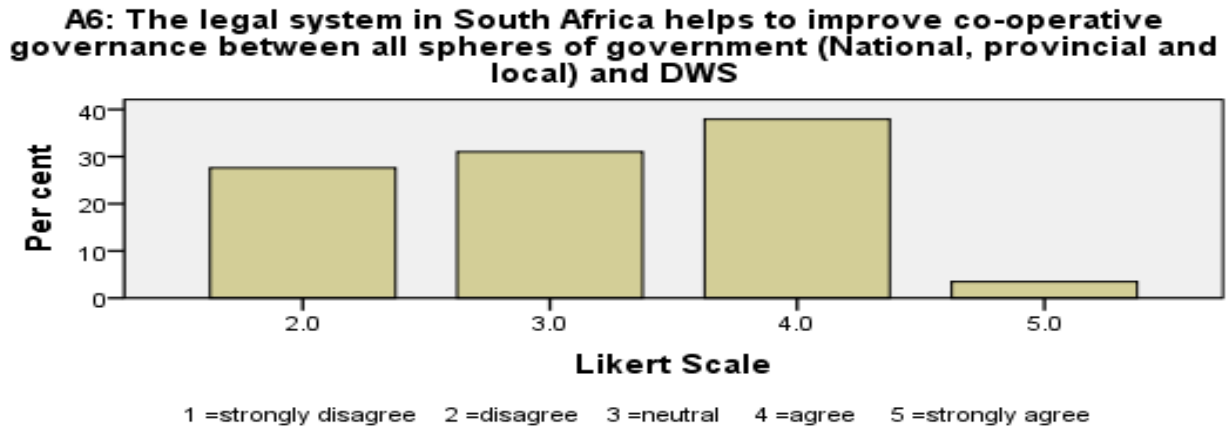


Figure 6: The legal system in South Africa helps to improve co-operative governance

Based on [Figure 6](#), 37.9% participants agreed, while 31% other participants remained neutral, 27.6% disagreed and 3.4% strongly agreed. The response indicates that participants have different opinions on legal systems in South Africa between spheres of government. This is also supported according to du Plessis (2013) where it is stated that South African statutory and strategy aid to strengthen co-operative governance, especially in environmental issues.

In summary, the results indicate that South Africa has a broad environmental legislation in place to prevent and protect water resources from being polluted. The legislation promotes co-operative governance within spheres of government which allows the different governments to work together. One of the issues noted was that during the analysis or the results were the unwillingness of the officials to work together. This defeats the purpose of co-operative governance. It appears also that there is a significant school of thought that feels that SA law does not improve co-operative governance.

4.1.2 Section B: Co-operative Governance

[Table 7](#) lists the questions that were posed to participants under Section B of the questionnaire.

Table 7: Section B of the questionnaire questions

No	Questions
1	Co-operative governance is not only important between local government and other spheres of government, but also between municipalities <i>inter se</i> .
2	Co-operative governance between DWS and DM improves the performance of WWTWs.
3	Principles of co-operative governance are being executed in the management of the WWTWs.

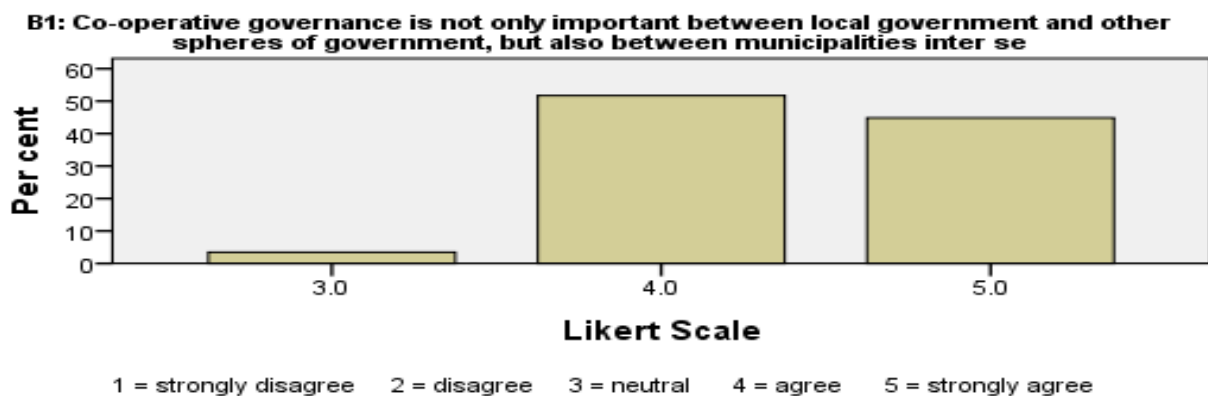


Figure 7: The importance of co-operative governance between different spheres of government

[Figure 7](#) above indicates that most of the participants agreed, 51.7%, followed by 44.8% strongly agreed while 3.4% remained neutral on the importance of co-operative governance between Municipalities. The results indicate that co-operative governance is important amongst spheres of government. Co-operative governance aids co-operation and collaboration between politicians and public servants through the interpretation of roles and duties that should be performed by each sphere of government. According to the Constitution (1996), section 152 and 153 govern the principle of local government to offer public goods and services to the societies and to enable their social and economic development.

According to the unpublished research by Myburgh (2018) mentioned that the concept of co-operative governance in itself is a multiplex duty that is worldwide taken as major element of

operative governance between the spheres of governance. When it comes to operation and management of WWTWs, co-operative governance becomes more important especially in the implementation of the key pieces of environmental legislation that regulate water resources and WWTW in South Africa (Hene, 2015).

Co-operative governance is also essential between government and municipalities in terms of sharing and managing the resource, such finances, policies, resolving intergovernmental disputes and it allows channels of communications. Hene (2015) emphasises that the system of co-operative governance encourages the different spheres of government as well as other key stakeholders to participate in the management of WWTWs and water resources, respectively. When used properly, the concept of co-operative governance reduces the amount of resources required by facilitating better decision making, eliminating redundancy and reducing the financial burden of the regulatory process (Myburgh 2018, unpublished research).

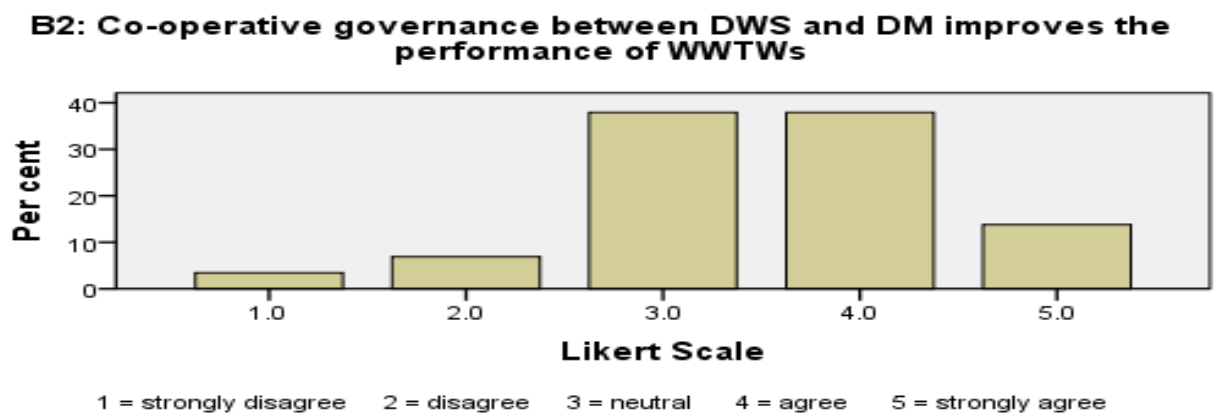


Figure 8: Co-operative governance between DWS and DM improves the performance of WWTWs

[Figure 8](#) illustrates that the majority of the participants have similar views with 37.9% neutral and 37.9% who agreed, followed by 13.8% strongly agreed, 6.9% disagreed and 3.4% strongly disagreed. The results indicate that the majority of participants are in agreement that co-operative governance improves WWTWs performance. The co-operation between spheres of government is important in the sense that DWS should play its role of ensuring that municipalities are complying with the environmental legislation, whilst the municipalities' role is to ensure that waste water treatment works are managed and operated optimally to ensure a good quality of the final effluent.

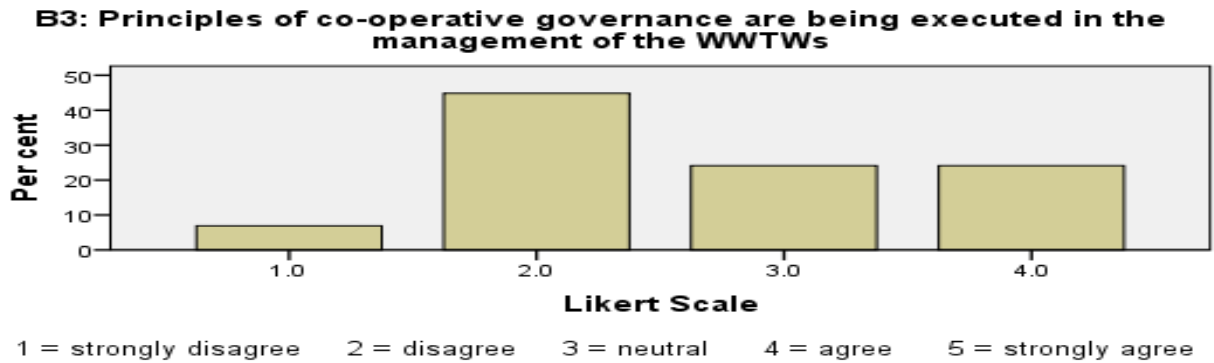


Figure 9: Principles of co-operative governance

[Figure 9](#) illustrates that the majority of participants, 44.8%, disagreed that the principles of co-operative governance are being executed within the context of managing WWTWs within the WMA. Furthermore, the results indicate that 24.1% of the participants were neutral, 24.1% agreed and 6.9% strongly disagreed. Participants disagreed that the principles of co-operative governance were being implemented in the management of WWTWs. The Constitution (1996) stipulated the principle of co-operative governance as defined in chapter-1, which is all spheres of government, should implement these when they exercise their duties and functions. Principles of co-operative governance need to be considered and executed in local governments to facilitate, develop and sustain the service delivery.

Section 41 (1)(h) highlights this concept as it asserts that spheres of government and all organs of state must “co-operate in mutual trust and good faith by fostering friendly relations; assisting and supporting one another on matters of common interests; informing one another and consulting one another on matters of common interests; coordinating their actions and legislation with one another; adhering to the agreed procedure, and avoiding legal proceedings against one another”. By implementing and utilising the same of these principles can assist co-operative governance in South African local governments.

All spheres of government are intended to communicate with each other and manage their actions to ensure the welfare of South African citizens. Nevertheless, the results illustrated that collaboration and communication do not happen. By implementing principles of co-operation can assist in promoting collaboration and communication between the spheres of government. In the end, this can lead to spheres of government to operate more successfully or efficiently and creatively as they will be supplementing and supportive and help one another while the co-operation resulting from this would permit them to produce a good quality service delivery.

The sustainable growth depends on the interconnection of environmental, social and economic domain, sustained by good governance. Muswaka (2017) maintains that good governance inter alia takes into account the principles of co-operative governance. The principles of co-operative governance are enshrined in Chapter 3 of the Constitution (1996) which will enhance co-operation among spheres of government. Spheres of government need to work in collaboration and observe the principle of co-operative government. By doing so, spheres of government can achieve their goals and yield well-organized and cohesive results. DWA (2009) further maintains that co-operative governance can lead to a good working relationship with different government departments that deal with the management of the environment, including management and operation of WWTWs in South Africa.

4.1.3 Section C: Compliance, enforcement and regulatory tools

[Table 8](#) lists the questions that were posed to participants under Section C of the questionnaire.

Table 8: Section C of questionnaire questions

No	Questions
1	The delay of issuing water use licences has a negative impact on the operation of local government.
2	The regulatory and enforcement authorities have powers, resources and the authority to enforce compliance in the WWTWs.
3	Enforcement methods in South Africa are not effective enough to get municipalities to account for inadequate management of WWTWs.
4	The Green Drop Certification incentive-based method is the regulatory approach to improve the level of waste water management in South Africa.
5	Compliance with South Africa's water regulatory laws related to WWTWs is broad and complex.

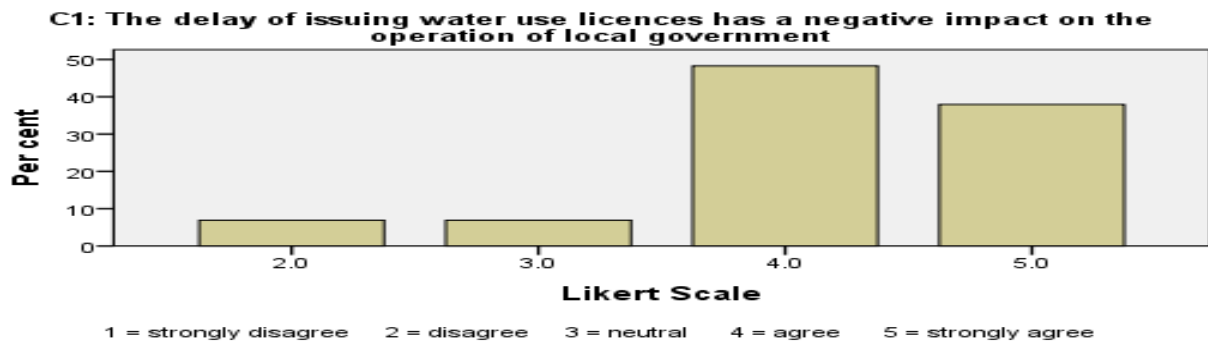


Figure 10: The delay of issuing water use licences has a negative impact on the operation of local government

[Figure 10](#) indicates that the majority of participants, 48.3%, agreed that the delay of issuing of WULs impacts on the management and operation of WWTWs, whilst the other participants strongly agreed, 37.9%, 6.9% disagreed and 6.9% remained neutral. The results also reflect the practice of previous challenges in 2009 where the Department had to outsource the private consultants to processes licenses (Schreiner *et al.*, 2009).

G. Ramaliba (Personnel Communication, December 09, 2020) stated that currently, the DWS does not have a fully operational licensing unit and the WUL assessors that assess licences are still hired on a contract basis and are assisted with officials that have other duties to do, hence the processing of these licenses is very slow. The Centre for Environmental Rights (CER) (2012) confirms that to obtain a WUL from DWS can take more than two years. The delay in water use licence applications (WULA) processing can be a result of the inexperienced assessors and a lack of expertise within the department.

The unpublished research by Myburgh (2018) found the following amongst other challenges that led to the delay of issuing WULs; (i) the lack of capacity and skills, (ii) time taken to provide specialist inputs, (iii) inefficient process management and reporting at the DWS offices, (v) administrative processes being too extensive and complex, (vi) high rate of staff turnover and (vii) different directorates that sometimes are unwilling to communicate. The lack of communication can result in mistakes being made that will later need amendments, adding to an increased workload.

This has resulted in a backlog in issuing licences. Since 2011, the department introduced a project that was called the 'Letsema project' where all backlogged licences were assessed and issued but due to financial implications, the project was ceased (WRC 2013). According to the CER

(2012) and WRC (2013), most of the licences issued include numerous errors that have resulted in the need for licenses to be amended while in some cases municipalities are unwilling to comply with conditions set out in their licences. This results in questions on the effectiveness and quality of the WULA process (WRC 2018).

WRC (2018) stated that the assessment of WULA is difficult and complex. The lack of knowledgeable and competent employees to make decisions on the WULA results in major delays. Furthermore, the process of DWS to recommend WUL is very long in the sense that applications are assessed and recommended at the regional level but final signatures are obtained at DWS head office. These processes create frustration when it comes to accountability for decision making, with the DWS national office seeming to take priority over recommendations made by the regional office.

In 2015, the DWS introduced an online electronic system known as Electronic Water Use Licence Application and Authorisation System (e-WULAAS) to address the problem of delays in issuing WUL. As per WULA and appeals regulations the Government Gazette, No. 40713 date dated March 2017, applications have to be logged online and licences must be issued within three hundred (300) days (DWS 2017b). Due to technical problems (network connection), lack of training to official use of the system and limited resources such as limited data, the stipulated days to issue a WUL have not been met. The system encountered technical issues early in 2020, resulting in the e-WULAAS to be off-line for nearly four (4) months.

C2: The regulatory and enforcement authorities have powers, resources and the authority to enforce compliance in the WWTWs

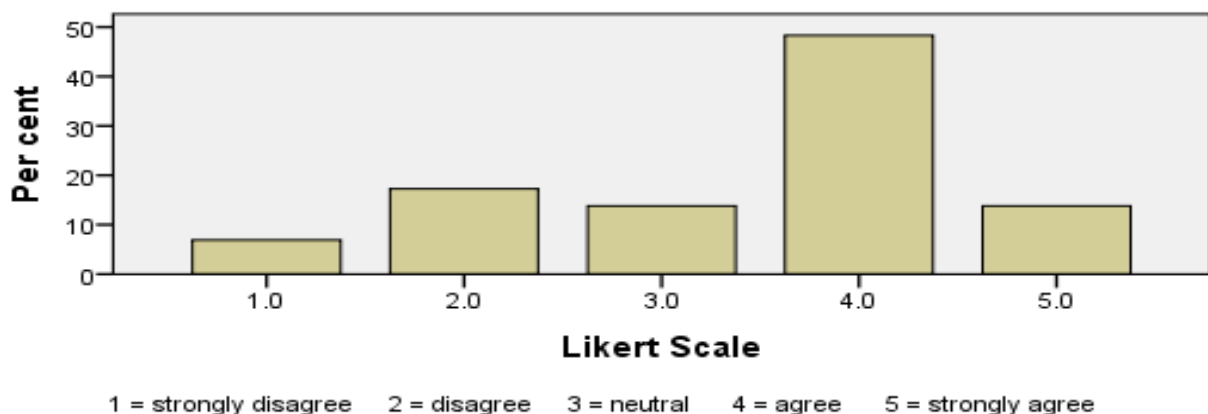


Figure 11: The regulatory and enforcement authorities have powers, resources and the authority to enforce compliance in the WWTWs

[Figure 11](#) illustrates that the participants agreed, 48.3%, followed by disagreed, 17.2%, neutral, 13.8%, strongly agreed, 13.8%, and strongly disagreed, 6.9%, that “the regulatory and enforcement authorities have powers, resource and the authority to enforce compliance in the WWTWs.” The DWS issues water use licences based on an assumption that licensees would abide too. The results indicate that enforcement authorities have powers and resources to ensure that municipalities are complying with effluent discharged standard.

Though the results indicate that authorities have powers and resources to enforce compliance, the CER (2015) argues that authorities have not been effectively enforcing compliance due to the fact that when WUL and permits are issued, however; these turn out to be a “moving target”, with numerous standard, incorrect licence conditions and insufficient monitoring requirements. CER (2015) further states that the lack of training is also a challenge in compliance and enforcement units. Another challenge related to enforcement of compliance is the slow turnaround time in which DWS issues licences. CER (2012) highlights that the amendment process of licences by DWS is tremendously slow and this results in enforcement being very difficult.

According to DWAF (2010) enforcement is a set of activities that the regulating authority conducts in reply to identified non-compliance. One of the actions required from the polluter is to provide a remedial action that confirms the rehabilitation and prevention pollution of the affected water resource. The national and local government spheres have an obligation to enforce regulations in the water division. The decentralised regulatory authority of local government supplements that of national government (Pillay, 2009). The DWS enforces regulations related to the various water uses as stipulated in Section 21 of the NWA (Act No.36 of 1998), whereas the local government enforces regulations regarding all features of water services provision via by-laws and socio-economic regulations.

Thompson (2006) concludes that both NWA (Act No. 36 of 1998) and the WSA (Act No.108 of 1996) allow the Minister to practise criminal, administrative and civil processes to instruct all water users to suspend actions that disobey the supplies of the water sector regulations. Furthermore, the Constitution (1996) and local government legislation (Local Government: Municipal Structures Act (Act 117 of 1998) Local Government: Municipal Systems Act (Act 32 of 2000) suggests a number of methods that can be used to force municipalities to fulfil their responsibilities including the provision of service.

C3: Enforcement methods in South Africa are not effective enough to get municipalities to account for inadequate management of WWTWs

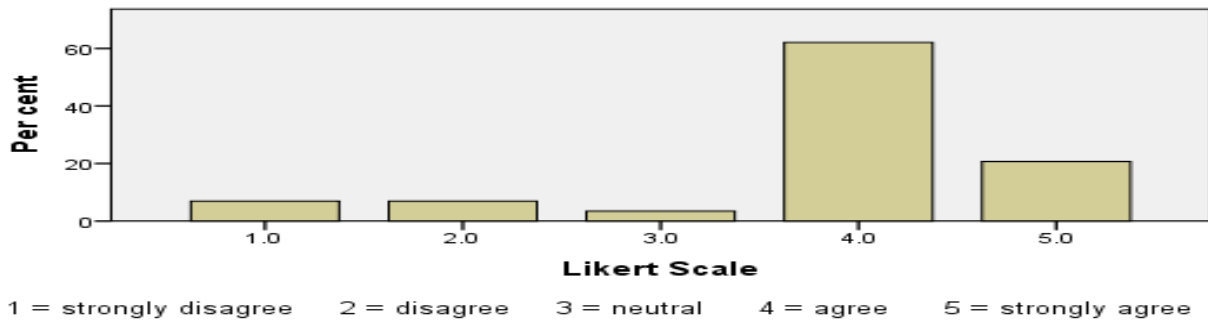


Figure 12: Enforcement in South Africa is not effective

[Figure 12](#) indicates that the majority of participants, 58.6%, agreed that enforcement methods in South Africa are not effective enough for municipalities to be accountable for inadequate management of WWTWs, followed by 17% of participants who strongly agreed, 3.4% were neutral, 6.9% disagreed and 6.9% strongly disagreed. The results in [Figure 12](#) above indicate that regulatory and enforcement authorities do have powers and resources to ensure that enforcement is in place, however, with the current enforcement methods, there is work to be investigated and implemented to strengthen South Africa's enforcement protocols.

The CER (2016) states that the insufficient enforcement diminishes the regulatory mechanisms, which in turn disadvantage those that do comply, whereas those that are compliant are demoralised from doing so. To strengthen enforcement the DWS Compliance and Enforcement unit (CME) requires being active and enhancing the current system of enforcement in both DWS and DEA&DP (WRC 2018). The CER (2016) further asserts that the major problem in enforcement is lack of political and controlling prioritisation of CME unit and so far, it has been explicitly thought that CME of water and environmental laws should be converted to a political and management priority within the government departments such as DEA&DP and DWS. The CER (2012 and 2016), DWS (2014) proposed the following methods to enhance compliance and enforcement:

- Investing in CME capacity;
- Introducing a complete CME plan and strategy;
- Employing appropriate administrative penalty system; and
- Ensuring transparent reporting of outcomes.

The CER (2012 and 2016) concludes that a correct compliance and enforcement approach and strategy together with transparent functioning processes for CME is essential to achieve sufficient

implementation of the enforcement. This involves co-operation between sector enforcement agents which involve the Environmental Management Inspectorate, Blue Scorpions, Green Scorpions, South African Policy Services (SAPS) and the NPA.

C4: The Green Drop Certification incentive-based is the regulatory approach to improve the level of wastewater management in South Africa

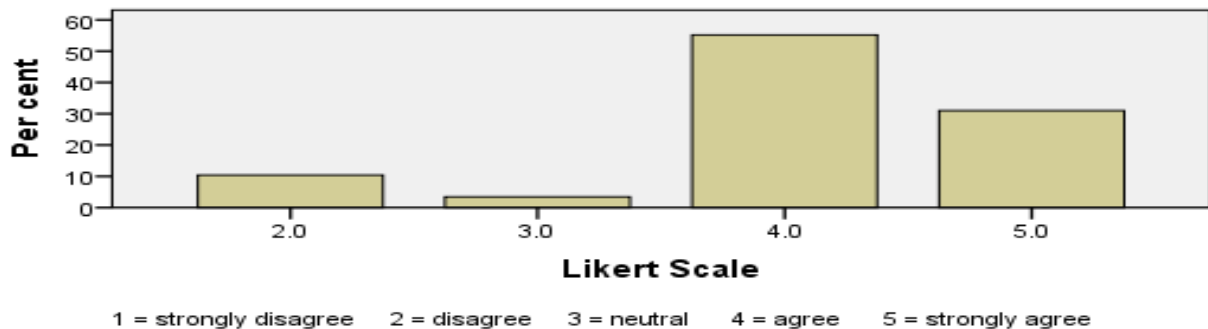


Figure 13: The Green Drop Certification incentive-based approach

As indicated in [Figure 13](#), 10.3% participants disagreed, 3.4% remained neutral, 55.2% agreed and 31% strongly agreed that the Green Drop (GD) Certificate incentive-based approach can improve the level of waste water management in the country. This incentive-based approach was initiated by DWS in 2008 to encourage municipalities to perform better at managing waste water within their areas of jurisdiction. Due to financial challenges within DWS and political systems in South Africa, the national award programme collapsed, however, the incentive is still implemented by regional offices respectively.

According to DWA (2011) and DWA (2013a), the Green Drop Report of 2011 indicated that six (6) of the WWTWs assessed within the Drakenstein Municipality, only four (4) WWTWs achieved an average score (80.3%) however, none of these WWTWs obtained a Green Drop status. Whilst the Green Drop Report of 2013, indicated that the DM Green Drop status slightly decreased (77, 79%) compared to the previous status of 2011.

It is argued that the DWS need to re-introduce the Green Drop Certification Programme verified through the Green Water Service Audits. This may encourage better performance by municipalities responsible for waste water management within the Berg River WMA.

C5: Compliance with South Africa's water regulatory laws related to WWTWs is broad and complex

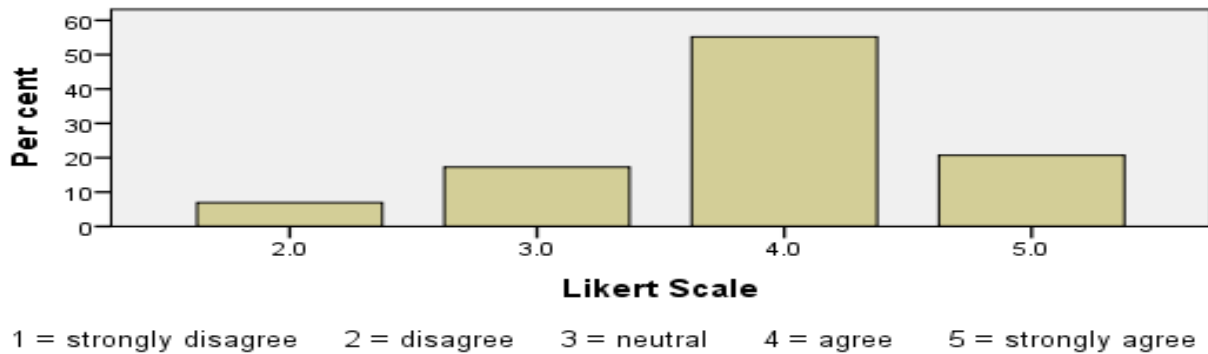


Figure 14: Compliance with South Africa's water regulatory laws

[Figure 14](#) indicates that 6.9% participants disagreed, 17.2% remained neutral, 55.2% agreed and 20.7% strongly agreed that South Africa has broad and complex laws regulating WWTWs.

According to the CER (2012) South Africa has numerous and different regulation laws for the prevention and protection of water resources being polluted. However, the regulatory laws to protect the environment are not too quickly understood and this has resulted in major delays in the implementation phase. Schreiner *et al.* (2009), further states that the DWS (as a regulator) at presently has insufficient workforces to govern the water resources sustainably and enforce compliance efficiently. This can be the results of the lack of expertise or capable officials within the government departments which makes it difficult to implement and apply regulation laws.

The DWS and other regulatory authorities are therefore needed to investigate ways to simplify the environmental laws and explore other alternative compliance enforcement tools and methods. One of the methods would be to reinforce co-operative governance and revive water-sector intergovernmental relations forums conducted using Implementation Protocols, as provided for in section 35 of the Intergovernmental Relations Framework Act (Hene, 2015).

4.1.4 Section D: Water Resource within the Berg River WMA, stakeholder engagement, support and communication in local government

[Table 9](#) lists the questions that were posed to participants under Section D of the questionnaire.

Table 9: Section D of questionnaire questions

No	Questions
1	The Water Quality Management Forums are effective in resolving challenges of Water Quality in the Berg River WWA.
2	Water resources within the Berg River WMA are highly polluted due to non-compliance of WWTWs.
3	The high levels of non-compliance of the WWTWs in the Berg River WMA could be attributed to possible lack of adequate or poor compliance monitoring and support that is expected from the DWS and/or other relevant sector department.
4	There is a lack of co-operation and poor stakeholder relationships between the key stakeholders liable for the management of WWTW.
5	There's appropriate human and financial resource to coordinate policy implementation.
6	National and Provincial government is offering sufficient support to the local government in terms of WWTWs management.

D1: The Water Quality Management Forums are effective in resolving challenges of Water Quality in the Berg River WWA

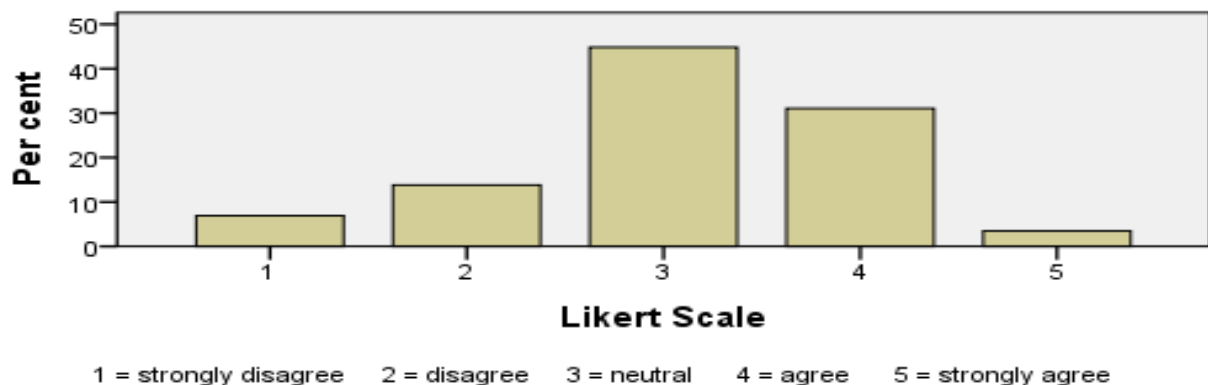


Figure 15: The effectiveness of Water Quality Management Forums

[Figure 15](#) indicates that 6.9% of the participants strongly disagreed, those who disagreed were 13.8%, those who remained neutral were 44.8%, whilst 31.0% of the participants agreed and 3.4% strongly agreed on the statement related to the effectiveness of Water Quality Management

Forums (WQMF). The results indicated that participants have different views in terms of the statement. The Berg River WQMF meets every quarter to discuss the management of water quality within the WMA. In some instances, the attendance is poor or the attendees do not meet the quorum causing the meetings to be postponed.

The catchment forum is a formal structure that is associated with the Catchment Management Agency (CMA). The forum typically comprises of various government departments, non-governmental organizations, industries, local authorities, water service providers and individual agricultural personal within the catchment. On this forum, a meeting is where co-operative and consultative water quality concerns are debated including non-compliance issues including WWTWs. The majority (30%) of the participants indicate that WQMF are effective in the WMA. This is where resolutions are brainstormed and recommendations can be made.

Du Plessis (2013) mentioned that even though government departments do not continuously co-operate with one another, external stakeholders do meet and have informal sessions to ensure co-operative governance on environmental issues. These meetings are an attempt to conclude on new methods to ensure the enforcement of environmental policies and legislation.

D2: Water resources within the Berg River WMA are highly polluted due to non-compliance of WWTWs

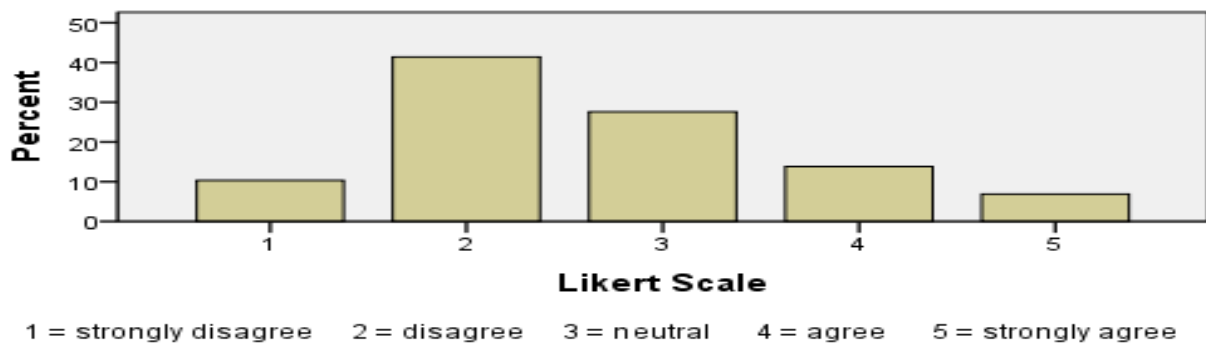


Figure 16: Water resources within the Berg River WMA

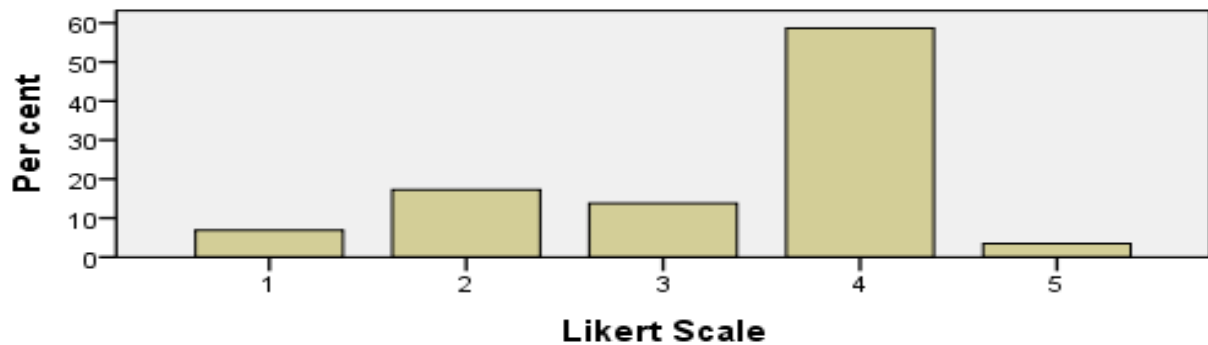
[Figure 16](#) indicates that the majority of participants, 41.4%, disagreed with the statement. While other participants strongly disagreed 10.3%, 27.6% remained neutral, 13.8% agreed and 6.9% strongly agreed. The existing literature as discussed below is in stark contrast to the views of the participants. Although there are other sources (such as irrigation with winery effluent and the enrichment of nutrients as a result of the discharge of vineyard waste water that may not have

been properly treated, run off from the informal settlements and illegal effluent discharge) that contribute to water pollution within the Berg River WMA (City of Cape Town, 2011; Heydorn and Grindley, 1982 and Ninham, 1979) the major pollution source is still considered to be discharge of treated and/or partially treated effluent from WWTWs (Council for Scientific and Industrial Research, 2010; Pool, 2008 and City of Cape Town, 2011). Municipalities that failed to compile with the WUL conditions, performed beyond the designed capacity, no upgrade of the plant and its sewer infrastructure lead to poor quality of the effluent discharged into the water resource (Mema, 2015).

Ewart-Smith and Ractliffe (2002) emphasise that the alteration in the stream from a “*seasonal to a perennial system*” is a result of the discharged effluent that has a negative effect on the resource. The unpublished research conducted by Rui, (2005) confirms the findings of Ewart-Smith and Ractliffe (2002) that the Kuilsriver in the Western Cape was a seasonal river (flows only in winter and dry in summer months) but due to effluent discharged from different WWTWs, the river became a perennial river. The unpublished research conducted by Rui, (2005) further elaborates on the fact that the discharge of effluent into the Kuilsriver is possibly the major source of pollution. A study conducted by Clark and Ractliffe (2007) the in Berg River further confirms that microbiological pollution was extremely high as result of effluent discharge from the WWTWs in the area and pose a threat to human health.

The DWAF, (2007a) concluded that due to the current state of the river systems, within the Berg River WMA, rehabilitation of the systems is not possible and the onus remains on the municipalities to ensure that effluent discharged into the water resource should adhere to WUL conditions and standards.

D3: The high levels of non-compliance of the WWTWs in the Berg River WMA could be attributed to possible lack of adequate or poor compliance monitoring and support that is expected from the DWS and/or other relevant sector department



1 = strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree

Figure 17: Support from DWS for non-compliant WWTWs

[Figure 17](#) illustrates that the majority of participants agreed, 58.6%, while 6.9% of others strongly disagreed, 17.2% disagreed, 13.8% remained neutral and 3.4% strongly agreed that high levels of non-compliance in the Berg WMA may have resulted from the lack of adequate or poor compliance monitoring and support that should be provided by DWS and other relevant stakeholders. The DWS is experiencing a shortage in staff responsible for compliance monitoring and enforcement.

Schreiner *et al.* (2009) maintain that the lack of ability inside the government is of major concern and requires a full review of the existing methods being taken in the water sector. The CER (2012) confirmed the challenge related to the need for support by the DWS citing that issues of capacity within the DWS remain a serious concern, especially the time it takes to issue WULs and investigate non-compliances. The CER (2012) also highlighted that the effect of a delayed and/or failure to issue a WUL within the specific timeframe results in the applicant commencing with water use without the necessary authorisations or licenses issued.

D4: There is a lack of co-operation and poor stakeholder relationships between the key stakeholders liable for the management of WWTW

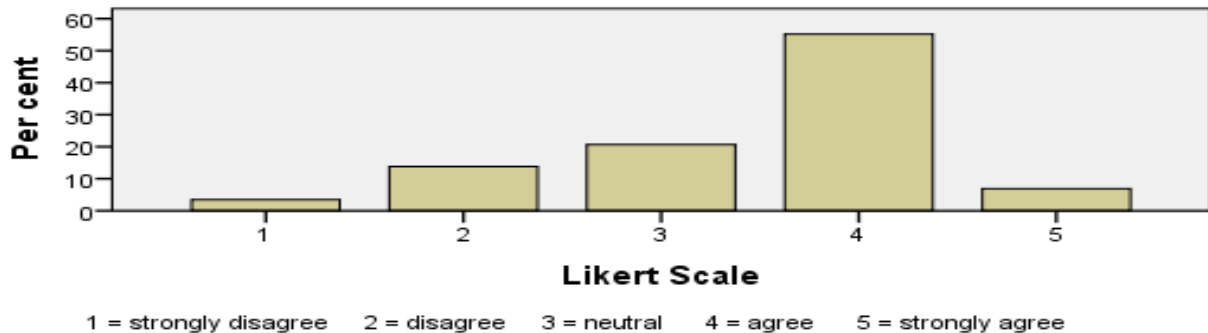


Figure 18: Lack of co-operation and poor stakeholder relationships

According to [Figure 18](#) the majority of participants, 55.2%, agreed while 20.7% of the participants remained neutral, 13.8% disagreed, 6.9% strongly agreed and 3.4% strongly disagreed that there is a lack of co-operation and poor stakeholder relationship between key stakeholders responsible for the management of WWTWs.

According to Mkhize (2015), Freedman (2013) and Currie *et al.* (2001) insufficient or poor involvement of stakeholder's relationships is a result of poor co-operation and consultation within all spheres of government. The issue of a lack of co-operation and consultation amongst government and related stakeholders violates the Constitution of the Republic of South Africa (1996). The Constitution (1996) requires a participatory democracy. Consequently, poor consultation amongst government and key stakeholders ultimately leads to poor service delivery. The spheres of government including stakeholders that are responsible for WWTWs should work in unison with one another, sharing information and being transparent between them (Constitution, 1996). Engagement with local communities and other stakeholders should be encouraged to ensure healthy public accountability when dealing with the management and operation of WWTWs. The ineffectiveness or the insufficient collaboration of activities can lead to the inadequate management of WWTWs and poor service delivery.

D5: There's appropriate human and financial resources to coordinate policy implementation

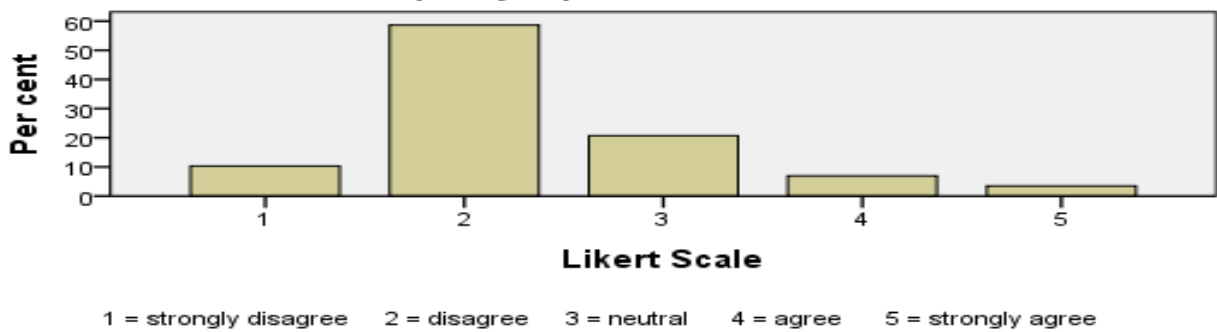


Figure 19: Appropriate human and financial resources

[Figure 19](#) illustrates that 10.3% of participants strongly disagreed, 58.6% disagreed, and 20.7% remained neutral, 6.9% agreed and 3.4% strongly agreed with the statement concerning the availability of human and financial resources to implement policies. Without the implementation of policies, there is a limit to what can be done towards the improvement of polluted water resources.

The implementation of environmental legislation and policies requires all the necessary resources to be available. It is also then of utmost importance to monitor and evaluate the implementation thereof to ensure the effectiveness of the policies is in place (Roux, 2002).

Carden and Armitage (2013) and Herbig (2019) confirmed that most municipalities do not have the financial resources and skills to attend to problems related to the policy implementation for the management of WWTWs. Munnik and Barnes (2016) confirm the lack of expertise in municipalities and government departments and its impact on the operation of WWTWs. Bray (1995) further alluded to the fact that the insufficient resources in the water sector (both financial and human) prevent and delay the execution of policies and the enforcement of environmental regulations.

D6: National and Provincial government is offering sufficient support to the local government in terms of WWTWs management

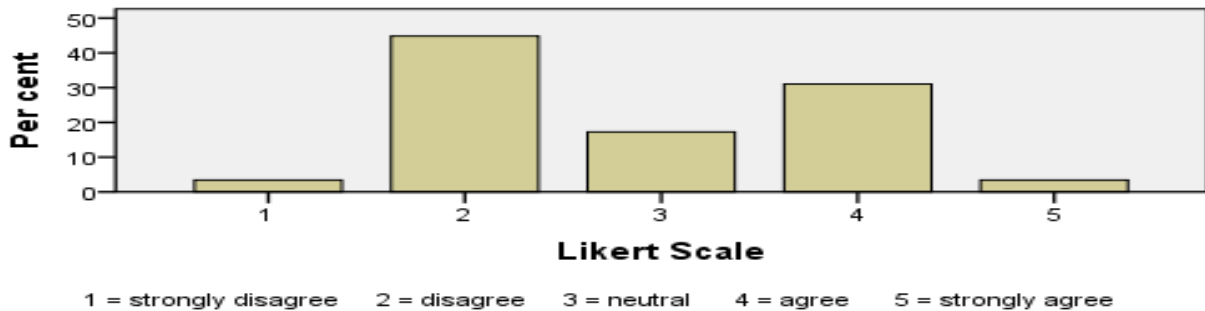


Figure 20: Support from National and Provincial government

In [Figure 20](#) above different views were noted on whether or not the national and provincial government are lending sufficient support in the management of WWTWs. The majority of participants, 44.8%, disagreed that sufficient support is lent whilst 31% agreed that support is sufficient and 3.4% other participants strongly disagreed, 17% were neutral and 3.4% strongly agreed. (Freedman (2013) concluded that all three spheres of government should work together amidst the overlapping of certain duties and responsibilities. Management of WWTWs is the duty of the local government with the support of the national government.

The spheres of government are assigned powers, responsibilities and roles in terms of the context and scope of co-operative governance, which provides for distinctive, yet interdependent and interrelated spheres. Section 151 of the Constitution (1996), stipulates that a municipality has a duty to manage the activities of its society independently and responsibly. Section 152 allocates local government the obligation of extending autonomous and responsible governance to its civil society. The Constitution (1996) further provides that the national sphere of government should govern the provincial sphere while they both oversee the local sphere of government. In terms of section 154, the national and provincial governments should support and strengthen the ability of municipalities to govern their matters, to employ their powers and to carry out their responsibilities.

4.2 Interview Data Analysis

4.2.1 Legal framework relating to WWTWs

Of the 29 respondents, 18 (62.1%) indicated that there are gaps with the present legal framework related to WWTWs management whilst 11 (39.9%) of the respondents stated that there were no gaps in the current legal framework. The majority of the respondents highlighted that the implementation of the legislation is still lacking. In terms of statistics, the mean value of 1.241 was obtained on gaps in the current legal framework (SPSS).

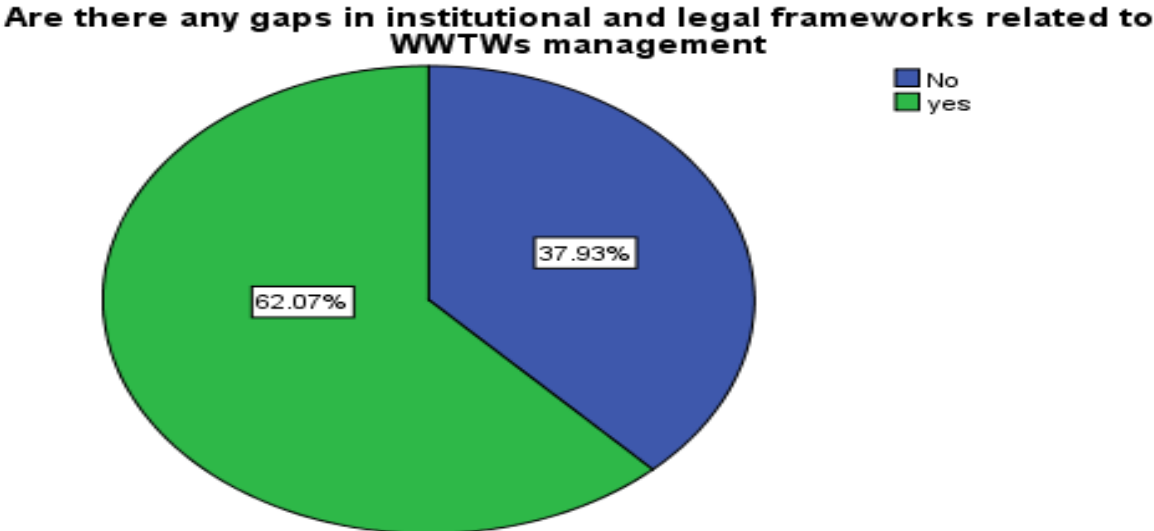


Figure 21: Gaps in institutional and legal framework related to WWTWs management

Most of the participants noted that the problems experienced with institutions are not related to legal frameworks but rather to politics in the spheres of government in the Berg River WMA. This has resulted in confusion on the side of local authorities to whom they must report, DWS as national government or DEA&DP as provincial government. Participants further stated that the various legislative mandates make it difficult for WWTWs to be managed effectively. The politics in the catchment are responsible for the lack of proper coordination and uncertainty about how overlaps of responsibilities and mandates in managing WWTWs should be handled. In some instances, the legal frameworks are pulling in different directions which lead to a lack of effective decision making and implementation measures given to the WWTWs.

The majority of participants indicated that the current legal framework does not allow the DWS to take another sphere of government directly to court since DWS must adhere to Chapter 3 of Constitution (1996) and Intergovernmental Relation Framework Act (Act No. 13 of 2005) in

particular. This restricts speedy enforcement measures that the enforcement unit can take to enforce compliance as the DWS must also observe section 154 of the Constitution, 1996 (DWS, 2014).

The respondents were of the view that South Africa has a broad legal framework that is used to manage municipalities especially the operation of WWTWs. Both DWS and DEA&DP should work hand in hand in managing WWTWs.

One of the key elements raised by the participants was accountability. It can be concluded that local government is going through a crisis of trust in governments departments. Frequently, the ability of governments to supply community services at reasonable cost is an indicator of responsibility. The issues of transparency and integrity are also important in a sector that has a high degree of monopolistic behaviour. Managing WWTWs will need an empowering and regulatory environment that permits monitoring and measuring improvement transparently and inclusively.

In a study that was conducted by the Organisation for Economic Co-operation and Development (OECD) (2015) water-related obligations were divided across water bodies and levels of government which brings up the issue of vertical and horizontal harmonization for functional execution of legislation in the operation of WWTWs. The entire government approach that goes beyond its operating capacity is needed but not to jeopardize the implementation of the law to local municipalities. This requires a completely developed national strategy and assurance at management level to address the issue of WWTWs, which also involve local regulators and a wide range of stakeholders in the execution (Haarhoff, 2019).

4.2.2 Effectiveness of co-operate governance on WWTWs

A total of 7 (24.1%) respondents indicated that the co-operative governance system is effective in the Berg River WMA, whereas 22 (75.9%) respondents indicated that co-operative governance is not effective within the Berg River WMA ([see Figure 22](#)). A mean value of 1.76 was found on statistics (SPSS). This indicates that the current co-operative governance system in managing WWTWs is not effective.

Is the system of co-operative governance effective in terms of WWTWs management in the Berg River WMA

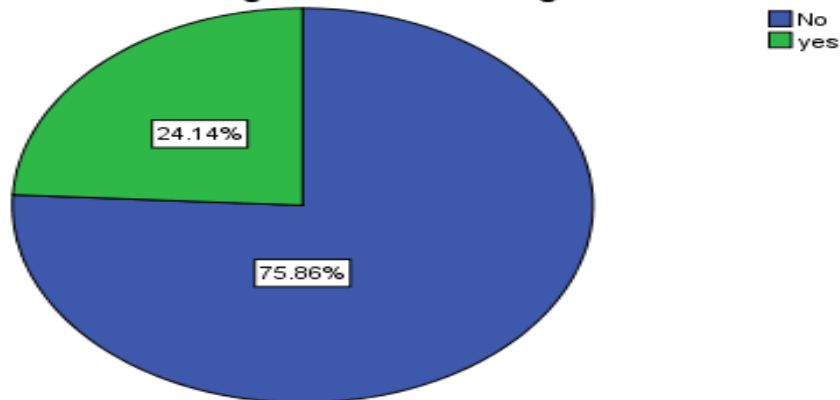


Figure 22: Effectiveness of cooperate governance on WWTWs

Participants noted that the major stumbling block for effective co-operative governance is the game of politics in that the local government is led by a different political party than the national government. However, the WWTWs performance in other parts of the country is far worse than in the study area. The issue of water resource management becomes a political game even though there is good communication between the local government and the Berg River WMA. Access to certain information or participation in water-related events organised by local government is very limited. Politics results in co-operative governance not being fully employed. Jankielsohn (2012) asserts that the management of water resources in South Africa is currently turned into severe politics and environmental concern. The battle and political distress over water have now become a reality, this results in a failure to render service delivery to numerous citizens within the country.

The bilateral meetings between DWS and local government trying to form a partnership and strengthening the relationship in terms of effective and managing of WWTWs were established. The bilateral meetings are where the matters related to improving compliance of effluent discharge as well as better management of the WWTWs are discussed. It was also noted that there is a lack of proper consultation between local government and stakeholders about the formulation of strategies and policies in managing the WWTWs business and lack of proper coordination of process in local government level. Engaging all stakeholders at different levels from information to partnerships or co-decisions depending on the needs will strengthen co-operative governance in the catchment. This also stands as a prerequisite for effective buy-in and liability. Ndinisa (2017) confirmed that the ineffective communication channels between spheres

of government and external stakeholders can result in delays of service delivery when the main information cannot be communicated.

4.2.3 Effectiveness of DWS in enforcing compliance

Only three (10.34%) of the respondents indicated that DWS is efficient and effective in enforcing compliance against non-compliance municipalities while 26 (89.66%) were of the view that DWS has not yet started to enforce compliance. On the effectiveness of DWS in enforcing compliance in non-complying municipalities, a mean value of 1.86 was obtained (SPSS). This is an indication that DWS is not fully executing the regulatory laws and policies in terms of non-compliance. The views of participants transcribed during the interview session were compiled and are discussed below. [Figure 23](#) shows the percentage of respondents.

Do you think DWS is efficient and effective in enforcing compliance in terms National Water Act (Act No 36 of 1998) in municipalities that are not complying to the final effluent discharge standards

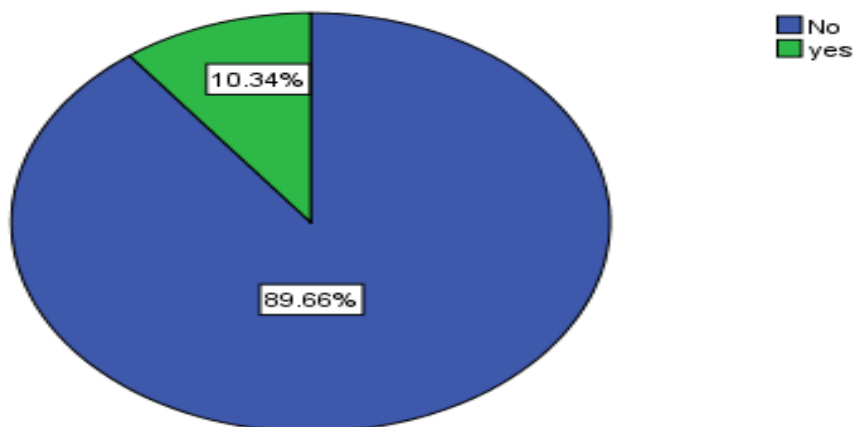


Figure 23: Efficient and effective in enforcing compliance

Most of the respondents were of the view that it is rare for DWS to undertake any action against a municipality which is not complying with final effluent discharge standards. This is the case because the CME unit of the department lacks the expertise (this is also confirmed in the study conducted by CER, 2012) and the know-how to tackle such cases making it ineffective in dealing with transgressors. The Blue Scorpions do not sting, making it all talk and no action taken. The enforcement unit lacks direction and has limited staff in this directorate.

DWS tries to enforce compliance in terms of the NWA but because the municipalities are dependent on the department for funding, it becomes difficult for the department to enforce compliance. The respondents are concerned that DWS is not employing the legislation to its full

potential in terms of non-compliance. The department should urgently investigate the ways of reinforcing compliance through the implementation of regulations to prevent the public from losing trust in the efficiency of the department.

Some respondents felt that the department needs to ensure that it has adequate, well-trained staff on the enforcement directorate. Capable Officials should be appointed to the different vacant posts, especially the regulation unit to improve WWTWs service management and enforcement. Respondents believed that enforcing non-compliance will take years from identifying a problem of non-compliance to implementing the solution that will address the non-compliance.

The respondents further indicate that the co-operative governance procedure to be followed to enforce compliance delays the process of enforcing the law or take the hush enforcement steps. The problem with the co-operative governance is that there is no measurement for the support that should be provided before escalating the case to a higher level. The case officer(s) who deal(s) with the case must apply their discretion that, DWS has given “enough support” and in the absence of improvement can move forward with the implementation of the enforcement. This is one of the loopholes that the polluter uses when cases are taken to court: no one knows how much support is “expected” and how much is “enough”. This could change if the support duty before hush enforcement can fall away. Also if the department could enforce ring-fencing of water services funding to ensure that once a budget is confirmed it remains available for that specific project. According to Algotsson *et al.* (2009); Diemont, (2012) as well as Nkosi and Odeku, (2014) the DWS is also of the view that the criminal prosecution of a state organ is not an easy method, and that an “assistive” rather than a “litigative” method is to be favoured when dealing with contraveners. In comparison with DEA&DP, NEMA (Act No. 107 of 1998) provides appropriate reasoning for government departments to issue compliance notices to non-compliant municipalities. This is supported by the directive that was recently issued by DEA&DP to City of Cape Town Municipality regarding the non-compliance of municipal infrastructure such as the overflow of manholes, stormwater runoff and sewer pump stations located in the Milnerton area.

The issue of not taking a government institution to court is also a hindrance. This effectively erases the importance of the polluter-pays principles and rather opens up negotiation conversations which do nothing to protect the environment. The municipality will always plead lack of funding to improve the WWTWs and nothing further is done to protect the environment. The DWS must ensure that there is an endpoint to negotiation conversations to address the non-compliance and drastic measures that need to be taken against the municipalities.

The other issue which was raised by the respondents was that of non-compliance by local authorities which has not been finalised. Respondents indicated that DWS is also asked regularly by other water users why the department is not prosecuting local authorities for non-compliance with licence conditions. It was concluded that there is unwillingness by the DWS to prosecute non-compliant local authorities and the DWS cannot answer. The respondents highlighted that the system of co-operative governance requires the department to first support the municipalities before implementing hush enforcement tools at the departmental exposure.

4.2.3.1 Blue Scorpion Establishment by DWS

The DWS has established a unit of Blue Scorpions to ensure that all South African water resources are protected by implementing the requirements of the NWA (1998). This directorate, however, is experiencing staff shortages, which poses a challenge to fulfil its mandate. According to the DWS (2017a), this unit has 35 officials nationally, dealing with non-compliance issues related to water management. Amongst other problems are capacity constraints, insufficient training and unfilled vacancies. According to the CER (2012) and WRC (2018), there is little information on compliance and enforcement results and capability that has been published and is accessible from the DWS. The CER (2012) further states that the only way to gain information related to the Blue Scorpions is through parliamentary enquiries posed to the Minister of the DWS.

The CER (2012) stated that *“The introduction of Compliance Monitoring and Enforcement (CME – “Blue Scorpions”) “Unit has made a good intervention in the area of dealing with unlawful water use”. “However, the impending process of reviewing legislation and regulations will strengthen this area and improve the service delivery environment of the Department”. “Functions like the enforcement on critical offences could not be fully implemented as a result of the lack of capacity”*. The DWA (2011) confirms that even though some amendments have been made in terms of the NWA (1998) since its promulgation, the NWA is limited in relation to subjects of execution and administration (regulation).

The lack of capacity, resources, staff shortages, and expertise on compliance monitoring and skills development in the enforcement unit leads to ineffective enforcement. The CER (2012) and the WRC (2018) stated that *“this unit is not given the mandatory political and institutional priority within the DWS”*. In order to improve the performance of the CME unit within the DWS, the CER (2012) suggested the following recommendations:

- *“the appointment of a senior “champion” within DWA with the right skills and vision to make the so-called Blue Scorpions a force to be reckoned with;*
- *increased resources to fill expanded staff structures (including more senior positions);*
- *recruitment of staff with appropriate compliance monitoring, investigation and legal skills;*
- *increased alliance-building and information sharing between the Blue Scorpions and other agencies in environmental CME;*
- *development of an appropriate CME strategy (incorporating prioritisation, compliance promotion and media strategy);*
- *increased criminal penalties in legislation;*
- *commencement of collection and publication of CME data; and*
- *immediate roll-out of more visible compliance monitoring in all sectors of water users”.*

The implementation of the above-mentioned recommendations can enhance the performance of the CME unit to ensure that environmental legislation is implemented and all non-compliant WWTWs are brought back into line.

4.2.4 Co-operative Governance and Traditional Affairs (COGTA)

Only four (13.8%) of the respondents indicated that COGTA has succeeded in addressing and providing support to all spheres of government, while 25 (86.2%) indicated that COGTA has failed to align and provide support to all spheres of government. The mean value of 1.76 was scored which indicates the ineffectiveness of COGTA in attending to issues at all spheres of government. Moreover, respondents are also not convinced of COGTA’s support in attempting to resolve challenges that face spheres of government on the ground. The respondents' opinions were assessed and summarised below. [Figure 24](#) below demonstrates the percentage of respondents.

Do you think COGTA has succeeded in addressing the arrangement of planning that should occur amongst national, provincial and local government and ceased the challenges where the three spheres of government are working in isolation

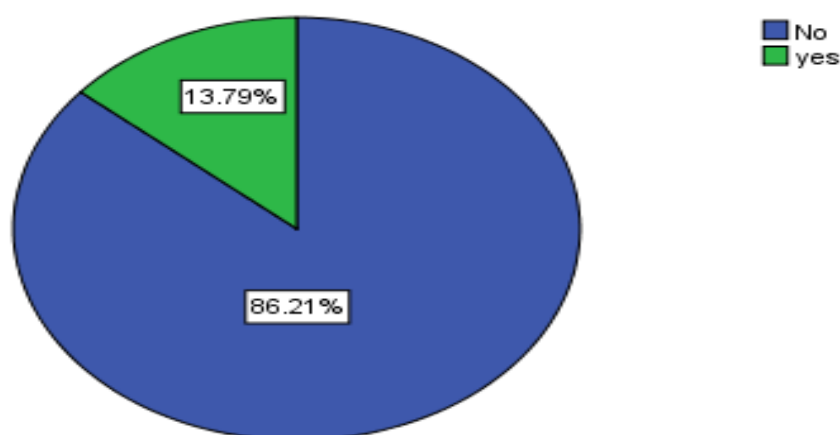


Figure 24: Co-operative Governance and Traditional Affairs

Respondents have different opinions when responding to the question posed, with the majority of the participants believing that COGTA was at the national sphere of government with no idea of what is happening at the local government. They continue saying that COGTA has failed to address issues of non-compliance in managing WWTWs in the sense that COTGA develops policy for local government, but does not check whether those policies are implemented or not. Most of the departments that deal with environmental protection are working in isolation and there is no collaboration. There are no strong stakeholder relationships within government departments and respondents were of the view that COGTA is not doing enough in terms of aligning planning between the three spheres of government.

The issue of isolation between spheres of government and other key stakeholders in the water sector was indicated by the majority of respondents. Pillay (2016) concluded that the effect of isolation is that even though water challenges ought to be managed in an incorporated approach and that all authorities and stakeholders should be connected, the inverse is happening because of problems in the existing water sector. COGTA (as a national sphere) still needs to ensure co-operation and harmonisation efforts amongst government departments to allow inter-connection in a viable environment; social and economic issues as well as reduce categorisation.

4.2.5 Ideas from the participants to improve WWTWs performance in South Africa

Respondents answered the question by saying DWS must enforce its legislation without fear or favour. The different directorates within the DWS need to start sharing information freely to get a better understanding of how WWTWs can be effectively managed and must stick to their mandates to stop confusion within the water sector. The Water Use Licensing Unit should also be improved so that water use authorisations are assessed timeously. This can be done by organising in-house training and mentorships.

One important suggestion made by participants was the implementation of a waste discharge charge system (WDCS). The WDCS was introduced by the Department of Water Affairs and Forestry (DWAF) back in 2009 to promote waste reduction and water conservation. This forms part of the pricing strategy being promulgated under the NWA (1998). “*The WDCS is based on the polluter-pays principle and aims to: (i) promote the sustainable development and efficient use of water resources, (ii) promote the internalisation of environmental costs by impactors, (iii) create financial incentives for dischargers to reduce waste and use water resources more optimally and (iv) Recover the costs of mitigating the impacts of waste discharge on water quality (DWAF 2007b)*”. Due to financial constraints within the DWS, the system has never implemented since then (R. Ndou, Personal Communication, 18 November 2020).

By understanding the need and purpose of ensuring compliance monitoring and enforcement, the Blue Scorpions should be more visible in the municipality for inspections and engage with municipal officials on a regular base. There needs to be short courses that are available to upgrade the skills of the officials responsible for enforcement. It must be understood that compliance monitoring and enforcement is not a box-tick process but rather requires full understanding of the functioning of the WWTWs therefore it's an on-going step. The responsive time to non-compliance matters must be improved. The knowledge skills of the staff component must be all-encompassing of water resource management. This will assist in understanding the impact of WWTWs on the natural environment and therefore also the importance of the enforcement unit. Other responses concluded by saying Process Controllers are valuable assets; they should be given more credit to motivate them to keep the WWTWs up to standard.

4.3 Chapter summary

This chapter provided an in-depth analysis and discussion of the results gathered during the questionnaire and interview sessions. Chapter 5 will provide a conclusion on the research study as well as recommendations for further studies in the field of co-operative governance.

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The objective of the study was to investigate the interfaces and challenges of co-operative governance based on WWTWs within the Berg River Catchment Water Management Area in South Africa. The study concludes with recommendations, as the purpose to consider issues for further investigation to enhance the system of co-operative governance within the spheres of government.

5.1.1 Conclusion

The main research question for the study was to assess the interfaces and challenges of co-operative governance based on the management of waste water treatment works within the Berg River Catchment Water Management Area. Several factors leading to the mismanagement of WWTWs were determined. The outcomes of the study revealed that South Africa has well-constructed water management policies and legislation however, the underlying concern identified was the implementation thereof. The other challenges determined that have a negative impact on the management and operation of WWTWs involved the lack of resources (human and financial), staff turnover, lack of stakeholder engagements, co-operation between officials within various directorates of DWS, insufficient support from the national sphere of government to local government funding and ageing of current infrastructure. Further concerns were centred on issues of immeasurable support that should be provided by the national government when the local government fails to comply with norms and standards of final effluent discharge. The lack of effective communication networks within the DWS and other external stakeholders was identified as a key challenge.

The issue of capacity and accountability on spheres of government was also highlighted as a concern. The failure of national and provincial spheres of government to provide support to local government when the local government fails to perform its roles and responsibility was noted. The plight caused by non-compliance by municipalities has to be acknowledged and approached within the context of co-operative governance arrangements. This needs both national and provincial spheres of government to fulfil their responsibilities to oversee and observe the functioning of local government by interceding to address failures, offer support and reinforce local capacity to perform their water and sanitation services.

The Constitution (1996) and national legislation provide for an extensive arrangement of enforcement procedures that were evaluated in the literature review. One of the major outcomes found was that of intergovernmental procedures when dealing with non-compliance issues. The intergovernmental processes make it difficult for the DWS to apply enforcement methods such as administrative, criminal and customary law on non-compliant municipalities. Regardless of the recognised challenges and indication of water resources being contaminated, the DWS has not been able to effectually apply compliance in municipalities in terms of effluent discharge standards and associated environmental regulations.

In addition, co-operative governance systems were noted as necessary to ameliorate compliance and enforcement processes. The study indicated that the system of co-operative governance needs to be implemented and used by all spheres for a synchronised approach to water quality management related issues. It is concluded that the enhancement of co-operative governance in the water sector is the major instrument to deal with the issues of non-compliance by the local government and non-enforcement by national and provincial government.

5.1.2 Recommendations

The following recommendations are constructed based on the analyses of the results (see chapter 4). These recommendations are suggested, as they are vital for the DWS as the custodian of water resources in South Africa and its capability to implement and enforce the requirements of the NWA (1998) throughout all the spheres of government:

- To enforce compliance to non-compliant municipalities (WWTWs) and to ensure that water use licences are issued within the stipulated timeframe.
- To improve co-operation, coordination, communication and relationships amongst spheres of government and key stakeholders through the implementation of co-operative governance and intergovernmental relations.
- The DWS should ensure that the legislation and policies related to waste water management are efficiently implemented. The execution of the Waste Discharge Charge System (WDCS) by the DWS is required to reduce pollution of water resources by effluent emanating from waste water treatment works.

- The implementation effective communication channels between the department directorates and key external stakeholder.
- The e-WULAAS should be maintained and upgraded to ensure on-going efficient issuing of WULs.
- The implementation of co-operative governance and intergovernmental relations principle to promote co-operation amongst all spheres of government.
- Appointment of dedicated staff (with the necessary skills and expertise) in both licensing unit and enforcement unit to improve the current state of compliance and enforcement at DWS and improve the performance and rate of WULA assessment at a regional level.
- Ensure that the DWS regional offices are empowered to issue WULs to realise the intent of the NWA (1998) and management of water resources at a catchment scale. As it currently stands the WULs are issued and finalised at head office.
- Provide in-house training (skills transfer) for new departmental employees on environmental legislation and internal processes.
- Development of a national strategy to deal with the support that should be provided before the national government (DWS) can approach the court in the case where municipalities fail to comply with environmental legislation related to the management and operation of WWTWs.

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Appendix A



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23 April 2020

To whom it may Concern

REQUEST FOR PERMISSION TO CONDUCT AN ACADEMIC RESEARCH

FACULTY: NATURAL AND AGRICULTURAL SCIENCE
UNIT: UNIT FOR ENVIRONMENTAL SCIENCES AND MANAGEMENT
PROGRAMME: MASTER OF ENVIRONMENTAL MANAGEMENT-ECOLOGICAL WATER
REQUIREMENTS
NAME: MR M.V.T. NOQHAMZA
STUDENT NO.: 24596884

The above student is registered with the University of North West-Potchefstroom Campus for the abovementioned programme. As part of the requirements for completing his degree, the student is anticipated to conduct a research and submit its findings to the University accordingly.

We hereby request you to grant permission for the student to conduct research in your organisation and interact with relevant selected office bearers and officials. We have informed the student to observe

professionalism and ethical considerations by keeping privacy of the participants concerned. The student has also been advised to retain strict confidentiality in his interactions with respondents.

Once the research is accomplished, it may be available to your institution on request. We hope that the findings on the research will benefit your institution in particular and country in general.

Please extend every assistance that the student will need during this period.

Yours Faithfully

Prof Francois Retief

Appendix B

INFORMED CONSENT

Dear Participant,

My name is Mzukisi Noqhamza. I am a student at the North West University -Potchefstroom Campus doing a Masters Degree in Environmental Management specialising on Ecological Water Requirements. I am conducting a research study on Co-operative Governance: title- *Overview of waste water treatment governance in the Berg River Catchment, South Africa*. The focus of the study will be on Wastewater Treatment Works (WWTWs) due to the potential risk of water pollution associated with the operation of the treatment works.

This is an invitation to participate in the research study conducted by the researcher. The formulated questionnaire and interview questions are part of the research project for the purpose of data collection. This data is necessary in order to achieve the objectives of the study. Your assistance is required for the data collection, your participation will include completing a questionnaire and answering interview questions which should take approximately 30 minutes of your time.

This research is only for the current academic year (2020), therefore your urgent response will be much appreciated. Participation in the study is solely optional and should you be willing to participate, please sign the consent form attached. Please note that participants can withdraw from the study at any time. All the responses will be kept confidential.

Thank you in advance for your support of this study.

Yours Sincerely

M. Noqhamza

Email. noqhamzam@gmail.com

Cell No. 073 546 0499

INFORMED CONSENT FORM

The researcher has clarified the purpose of the research study and all my questions and concerns have been addressed. All parts of the research study are clear to me.

I, _____(print name in full) hereby consent to participate in the research study.

I understand that:

- Participation is voluntary,
- I may refuse to participate in any part of the study,
- I may request to be withdrawn from the study and any time without penalties,
- No information that may identify me will be encompassed in the research report,
- My responses and participation will remain confidential, and
- There are no direct risks or benefits involved in my participation.

Signature:.....

Date:.....

Appendix C

QUESTIONNAIRE AND INTERVIEWS QUESTIONS

This questionnaire is part of an academic research study in pursuance of a Masters Degree in Environmental Management-Ecological Water Requirements on “Co-operative Governance”: Title- *Overview of waste water treatment governance in the Berg River Catchment, Western Cape Province*. The questionnaire is prepared only for the purpose of collecting information to determine co-operative governance in the Berg River Water Management Area and Drakenstein Municipality in the Western Cape Province. Respondents are hereby requested to provide honest answers to the questions below. The data provided and the uniqueness of the respondents will be kept strictly confidential.

Participants are requested to complete the questionnaire to show their level of agreement (from strongly disagree to strongly agree) with the given statement (items) on a scale. Questionnaires are designed and given a scale from 1 to 5. These values (1-5) are expressed in words as (1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; and 5=Strongly agree).

Information will be strictly confidential and will only be used for statistical analysis			
Job Profile:			
Female (F) / Male (M)		Number of years in your current field	
Institution			
Date completed			

Questionnaire

		Choose the answer by putting a cross on your answer of choice				
No.	Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

Section A: Environmental legislations/law

1.	Participants are familiar and have knowledge in what the law requires when performing roles and responsibilities in terms of co-operative governance and WWTWs.	1	2	3	4	5
2.	Constitution instructs the spheres of government to avoid courts and exhaust all the processes of co-operative governance to resolve the dispute.	1	2	3	4	5
3.	South Africa has adequate and effective rules and laws that promote the practice of co-operative governance for the management of WWTWs.	1	2	3	4	5
4.	The environmental laws and/or policies of my institution are easy to interpret and understand.	1	2	3	4	5
5.	Regardless of the policy, legislation and structures created by legislation, government officials that manage WWTWs are still sometimes unwilling to co-operate with one another.	1	2	3	4	5

6.	The legal system in South Africa helps to improve co-operative governance between all spheres of government (National, provincial and local) and DWS.	1	2	3	4	5
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Section B: Co-operative Governance

1.	Co-operative governance is not only important between local government and other spheres of government, but also between municipalities <i>inter se</i> .	1	2	3	4	5
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2.	Co-operative governance between DWS and DM improves the performance of WWTWs.	1	2	3	4	5
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3.	Principles of co-operative governance are being executed in the management of the WWTWs.	1	2	3	4	5
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Section C: Compliance and enforcement and regulatory tools

1.	The delay of issuing water use licences has a negative impact in the operation of local government.	1	2	3	4	5
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2.	The regulatory and enforcement authorities have powers, resources and the authority to enforce compliance in the WWTWs.	1	2	3	4	5
3.	Enforcement methods in South Africa are not effective enough to get municipalities to account for inadequate management of WWTWs.	1	2	3	4	5
4.	The Green Drop Certification incentive-based is the regulatory approach to improve the level of wastewater management in South Africa.	1	2	3	4	5
5.	Compliance with South Africa's water regulatory laws related to WWTWs is broad and complex.	1	2	3	4	5
Section D: Water Resource within the Berg River Water Management Area (WMA), Stakeholder engagement, Support and communication in local government						
1.	The Water Quality Management Forums are effective in resolving challenges of Water Quality in the Berg River WWA.	1	2	3	4	5
2.	Water resources within the Berg River WMA are highly	1	2	3	4	5

	polluted due to non-compliance of WWTWs.					
3.	The high levels of non-compliance of the WWTWs in the Berg River WMA could be attributed to possible lack of adequate or poor compliance monitoring and support that is expected from the DWS and/or other relevant sector department.	1	2	3	4	5
4.	There is a lack of co-operation and poor stakeholder relationships between the key stakeholders liable for the management of WWTW.	1	2	3	4	5
5.	There's appropriate human and financial resource to coordinate policy implementation.	1	2	3	4	5
6.	National and Provincial government is offering sufficient support to the local government in terms of WWTWs management.	1	2	3	4	5

Interview Questions

i. Are there any gaps in institutional and legal frameworks relating to WWTWs management? If yes, what are they?

ii. Is the system of co-operative governance effective in terms of WWTWs management in the Berg River WMA? Please support your statement.

iii. Do you think DWS is efficient and effective in enforcing compliance in terms of the National Water Act (Act No. 36 of 1998) of municipalities that are not complying to the final effluent discharge standards? Please state reasons.

iv. iv. What are your opinions on Blue Scorpions unit which is the main regulatory component that is set up to ensure the protection of all water resources in South Africa as well as the enforcement of all water and sanitation laws and regulations.

v. Do you think that COGTA has succeeded in addressing the arrangement of planning that should occur amongst national, provincial and local government and ceased the challenges where the three spheres of government are working in isolation? Please explain your answer.

vi. Could you please advise what can be done in order to improve enforcement in the Berg River WMA, especially for the management of WWTWs?
