The perceptions of municipal water service officials on the Blue Drop programme: The case of Nkangala District Municipality

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DECLARATION

I hereby declare that the mini-dissertation titled: “The perceptions of municipal water service officials on the Blue Drop programme: The case of Nkangala District Municipality” submitted for the degree Master of Development and Management at the Potchefstroom Campus of the University of the North West, is my own original work and has not previously been submitted to any other institution of higher education. I further declare that all sources cited or quoted are indicated and acknowledged by means of comprehensive list references.

DK MTSWENI _____

DATE: _____

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ABSTRACT

The Blue Drop Incentive-based Regulation (programme) was introduced in 2008 by the Department of Water Affairs (DWA) with the aim of maintaining and improving drinking water quality in South Africa. The programme is being implemented in order to protect consumers from water services providers who might not act in the interest of the public. For some years the confidence level of the public regarding the quality of drinking water in South Africa has not been at the desired level.

The programme involves annual assessment of water services authorities by the DWA. In order for water services authorities to be awarded the Blue Drop status they are required to comply 95% in terms of the criteria used in the assessments.

During the first and second years of Blue Drop assessments a number of municipalities chose not to be assessed but quite a few achieved the Blue Drop status nationally.

It is against this background that the researcher undertook a study to determine how water services employees in municipalities perceive the Blue Drop programme.

To achieve the study objective the mixed method involving quantitative and qualitative methodologies was employed. Semi-structured interviews were conducted with supervisors and management while water treatment works employees completed a survey questionnaire.

The qualitative and quantitative data analysis brought to light the following core findings:

- The Blue Drop programme has the support of the overwhelming majority of employees who participated in the research. They perceive the programme as an inspiration for improved performance of the water services function in municipalities.
- There is a lack of or poor understanding of the water sector legal framework including the Blue Drop assessment criteria by some participating employees.
- There is a perceived lack of management and political leadership involvement and support for the water service function.

Although the Blue Drop programme has been reported to be an excellent intervention by nearly all the participants, there are certain aspects that can be improved and are dealt with in the last chapter of the mini-dissertation.

Key words: Blue drop, certificate, water services, regulations, incentive-based, water service authority, drinking water quality, compliance, assessments criteria, municipalities.

SAMEVATTING

Die Blou Druppel-Aansporingsgebaseerde Regulasie (program) is in 2008 deur die Departement Waterwese (DW) bekendgestel met die doel om die gehalte van drinkwater in Suid-Afrika te volhou en te verbeter. Die program word geïmplementeer ten einde verbruikers te beskerm teen waterdiensteverskaffers wat moontlik nie in die publiek se beste belang optree nie. Vir ’n aantal jare al is die vlak van vertroue wat die publiek in die gehalte van drinkwater in Suid-Afrika plaas, nie na wense nie.

Die program behels die jaarlikse evaluering van waterdienste-owerhede deur die DW. Ten einde Blou Druppel-status te ontvang, word van owerhede wat waterdienste lewer, vereis om te voldoen aan 95% van die kriteria wat in die evaluering gebruik word.

Tydens die eerste en tweede jaar van die Blou Druppel-evaluerings het ’n aantal munisipaliteite die keuse uitgeoefen om nie geëvalueer te word nie, maar ’n hele paar het nasionaal Blou Druppel-status behaal.

Dit is teen hierdie agtergrond wat die navorser ’n studie onderneem het om vas te stel wat munispale werknemers in waterdienste se persepsie van die Blou Druppel-program is.

Ten einde die doelwit van die studie te behaal, is die gemengde navorsingsmetode aangewend, wat kwantitatiewe en kwalitatiewe metodiek behels. Halfgestruktureerde onderhoude is met toesighouers en die bestuur gevoer, terwyl werknemers by waterbehandelingsaanlegte ’n opnamevraelys ingevul het.

Die kwalitatiewe en kwantitatiewe data-insameling en -ontleding het die volgende kernbevindinge aan die lig gebring:

- Die Blou Druppel-program geniet die steun van die oorgrote meerderheid werknemers wat aan die navorsing deelgeneem het. Hulle sien die program as ’n inspirasie vir verbetering van die waterdienstefunksie in munisipaliteite.
- Daar is ’n gebrek aan of swak begrip van die watersektor se wetlike raamwerk, wat die Blou Druppel-evalueringskriteria deur party deelnemende werknemers insluit.
- Die gevoel is dat betrokkenheid by en steun vir die waterdienstefunksie deur bestuur en politieke leiers ontbreek.

Hoewel die Blou Druppel-program na berigte deur bykans al die deelnemers as ’n uitstekende ingreep beskou word, is daar sekere aspekte wat verbeter kan word en dit word in die laaste hoofstuk van die miniverhandeling aangespreek.

TABLE OF CONTENTS

CHAPTER 1: ORIENTATION AND PROBLEM STATEMENT

1.1 INTRODUCTION

South Africa (SA) has introduced new legislation and policies governing water supply and sanitation services, since the advent of democracy in 1994. This was done to ensure equitable access to water resources and water supply. The change in government also came with its own challenges, such as the capacity of local government to provide water services effectively and efficiently.

The Constitution of the Republic of South Africa, 1996,(hereafter called the Constitution) places the responsibility for water and sanitation provision on local government. Section 27 (i) of the Constitution stipulates interalia that everyone has the right to have access to sufficient food and water. The Constitution implies that municipalities should ensure that their communities are provided with safe drinking water.

The Water Services Act 108 of 1997 provides the regulatory framework for the water services sector in SA. The Act governs the provision of water and sanitation by municipalities in South Africa. The roles and responsibilities of the various Water Service Institutions are clearly stipulated in the Act. It also specifically outlines the role of the Department of Water Affairs (DWA).

The DWA is the water sector leader and the custodian of SA's water resources. It is also the regulator, which guides and coordinates the support to water service institutions, and is responsible for the development of public policy.

A Water Service Authority (WSA) refers to a municipality, or local authority that has executive authority for water services in the area under its jurisdiction (Tissington, Dettmann, Langford, Dugard & Conteh, 2008:15). A WSA is responsible for ensuring that its community has access to water and sanitation services.

The role of a water service provider (WSP) is to provide water and sanitation services to consumers. A WSP can be a municipality, a water board or a non-governmental organisation. For an external WSP to operate in a municipal area, it is required by law to enter into a service level agreement with the WSA.

The provision of water involves abstracting and purifying water, as well as the reticulation of potable water to consumers and to other users.

Water is purified at water treatment plants. According to the Department of Water Affairs and Forestry (DWAF) (1985), the construction, upgrading and registration of water treatment plants is regulated by Regulation 2834 – which is to be read together with section 12A of the Water Act 54 of 1956.

According to Manus and Van der Merwe (n.d.:2), "The National Water Services Regulation Strategy (Ref 5) provides a clear statement of strategic intent to regulate the water and sanitation sector in South Africa".

The Blue Drop certification programme was introduced in 2008 by the DWA as an incentive-based regulation aimed at maintaining and improving drinking water quality in South Africa. According to the DWA (2010:1), "The Department of Water Affairs initiated the drinking water quality regulation programme in 2005 with the objective of ensuring the improvement of tap water quality by means of compliance monitoring".

According to Balkaran (2008:8), "public entities will not improve performance unless mandatory requirements are set by the regulator". It is therefore important to establish the appropriate regulatory incentives to improve performance. According to Tremolet and Hunt, as quoted by Malzbender, Earle, Deedat, Hollingworth and Mokorosi (2009:10): "Regulation can be defined as a set of functions that ensure that water and sanitation service providers comply with existing rules and allow for those rules to be modified – in order to cope with unforeseen events". Malzbender *et al*. further state that a number of basic approaches to regulation are available and that different circumstances are best served by a unique blend of regulations or by hybrid regulations (2009:13).

According to Groom, Halpern and Ehrhardt (2006:29), different countries have come up with different regulations to ensure compliance with drinking water quality requirements/standards. Groom *et al*. further maintain that it is advisable to adopt an approach to implement regulatory rules that will prove to be most effective. They also point out that the country's human resources should be taken into account when choosing a regulatory mechanism.

The South African government has come up with its own unique incentive-based regulations to ensure compliance with drinking water quality. The introduction of these regulations has taken into account a number of factors to ensure that they remain effective.

South Africa did not adopt the drinking water quality regulations of other countries, but instead has developed its own regulations – based on the unique circumstances of South African municipalities. For instance, in the United Kingdom (UK), failure to comply with drinking water quality standards can result in severe penalties, such as imprisonment for those directly responsible for the water supply (Gray, 1994:30).

The situations in the UK and SA are different in many ways, such as the Inter-Governmental Relations Framework Act 13 of 2005 in South Africa, which encourages the different spheres of government to discuss their challenges – rather than taking each other to court. In the UK, water has been privatised, while in SA ensuring water provision is still the primary responsibility of the WSAs which are public institutions. These WSAs, in some instances, do not have the necessary skills and infrastructure to cope with the drinking water requirements.

It is therefore important to note that, "circumstances in the water industry around the world differ in some ways from country to country" (Stephenson, Barta & Manson, 2001:9).

South Africa's drinking water quality regulation is aimed at the restoration of public trust in South Africa's tap water. To ensure that public trust is restored, the DWA has introduced the incentive-based regulations which recognise excellence in the water services sector. Those water works achieving excellence are awarded a Blue Drop certificate. The DWA initiated the Blue Drop Certification programme in September 2008, with the objective of introducing an incentive-based set of regulations for the management of drinking water quality.

The Blue Drop programme encourages a preventative approach to the management and regulation of drinking water (DWA, 2009).

According to the DWAF (2005:4), "Access to safe drinking water is a basic human right and essential to people's health." The DWAF also points out that South Africa's quality of drinking water should comply with the South African National Standards (SANS 241) – Drinking Water Specifications.

According to the DWAF (2005:12), "The SANS 241 Drinking Water Quality Specification is the definitive reference on acceptable limits for drinking water quality parameters in South Africa; and it provides a guideline level for a range of water quality characteristics". The DWAF also points out that the SANS 241 aims to ensure that drinking water quality poses no health risk.

According to the DWAF (2005:4), research shows that usually the major problems with poor quality drinking water occur most frequently in rural areas and small towns. Various reasons for

the failure to comply with drinking water regulations include: insufficient or untrained staff, poor management, budgetary constraints, poor operations and inadequate maintenance.

1.1.1 The Nkangala District Municipality

The proposed study was conducted in six local municipalities under the jurisdiction of the Nkangala District Municipality in Mpumalanga Province. They are: Steve Tshwete, Emakhazeni, Emalahleni, Victor Khanye (formerly Delmas Local Municipality), Thembisile and Dr J.S. Moroka. (See Map 1).

(See Table 1 below in which the locations of the six local municipalities' head offices are depicted.)

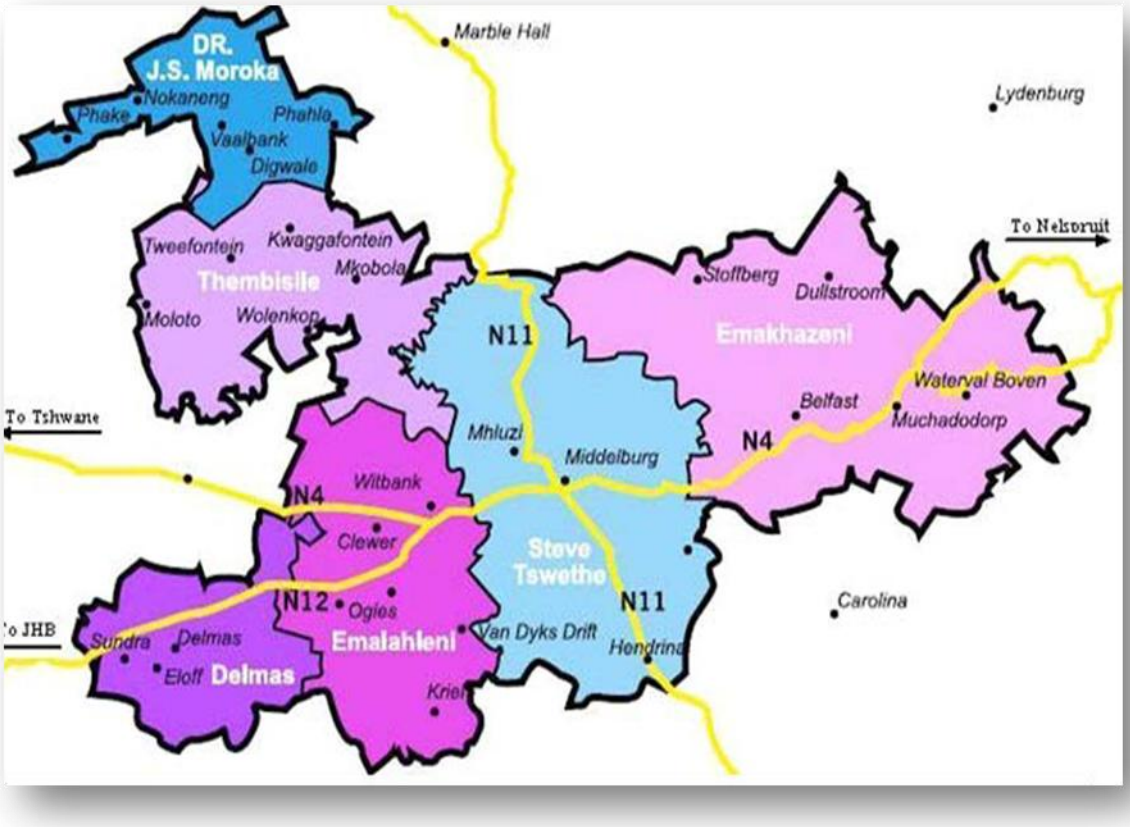
Table 1: Location of municipalities' head offices

Local Municipality	Head Office Location
Dr J.S. Moroka Local Municipality	Siyabuswa (not depicted in the map)
Emakhazeni Local Municipality	Belfast
Emalahleni Local Municipality	Witbank
Steve Tshwete Local Municipality	Middelburg
Thembisile Local Municipality	Empumalanga (Kwaggafontein C)
Victor Khanye Local Municipality	Delmas

The major activities in the Steve Tshwete, Emakhazeni and Emalahleni local municipalities are mainly coal mining, farming, electricity generation and industries. The Steve Tshwete and Dr J.S. Moroka Local Municipalities obtained Blue Drop certificates during the 2010 assessments. The Emalahleni and the Thembisile Local Municipalities obtained a very low Blue drop score of 29.7% and 37% respectively.

The Emakhazeni Municipality showed an improvement from its 2009 average score of 58,5% to 71,2% in the 2010 Blue Drop assessments (DWA, 2010:155). The Victor Khanye (Delmas) Local Municipality was one of the four Mpumalanga Municipalities which chose not to be assessed for the Blue drop programme (DWA, 2010:4).

See Map 1 for a locality map of the Nkangala District Municipality in which all six local municipalities are shown..



Map 1: Locality Map of the Nkangala District Municipality

Source: Nkangala District Municipality 2010/11

1.1.2 Problem statement

According to Welman, Kruger and Mitchell (2005:14), “A research problem refers to some difficulty that the researcher experiences in the context of either a theoretical or practical situation, and to which he or she wants to obtain a solution”.

The Blue Drop Certification programme was implemented in 2008. Since then, only 22 water supply systems in 2009 (out of 440 entries) and 38 in 2010 managed to obtain the Blue Drop Certification. The number of participating WSAs and water supply systems has clearly not yet reached 100%. A number of municipalities have chosen not be assessed.

According to the DWA (2010:4), “it is unfortunate that nine Water Service Authorities (out of 162) were found to show a disregard for drinking water quality management, when they chose not to adhere to the call to be assessed”. Four of those WSAs which chose not to respond to the call to be assessed are found in Mpumalanga Province.

According to the DWA (2009:70), “the actual compliance is reason for concern, since insufficient data prevent the Department from calculating credible compliance”. In the same year, only eight out of 21 WSAs were assessed in the province of Mpumalanga. The poor commitment shown

by the Mpumalanga Province WSAs which were not assessed left the Department concerned about the management of their drinking water and its quality. This is a cause for concern, considering that some communities do not have any proper information regarding the quality of their tap water.

The fact that some municipalities in Mpumalanga Province did not participate in the 2009 and 2010 Blue Drop assessment and that only a few have achieved the Blue Drop status since the inception of the programme, shows that there might be an attitudinal problem within some municipalities regarding the Blue Drop certification programme (DWA, 2010).

The research problem that this study seeks to address therefore is: Some municipalities chose not to participate during the 2009 and 2010 Blue Drop drinking water quality assessments. The study aims to determine the perceptions of water service employees in municipalities on the Blue Drop incentive-based regulation – in order to suggest recommendations for ensuring maximum participation in this programme.

Qualitative studies have also not yet been undertaken to determine the perceptions of WSAs water service employees, such as technical managers and/or water service managers and water purification plant superintendents/supervisors on the Blue Drop incentive-based regulation. It is important that the perceptions of these officials of the programme be investigated.

1.2 RESEARCH OBJECTIVES

The primary objective of the study is the following:

The primary objective of the study is to determine and describe the perceptions of municipalities' employees, such as technical and/or water service managers, water purification plant superintendents/supervisors and process controllers of the implementation of the Blue Drop incentive-based regulation, as implemented by the DWA.

Kreitner and Kinicki (1998:156) defined perception very broadly as follows: "Perception is a cognitive process that enables us to interpret and understand our surroundings". This implies that perception differs from person to person, and each individual will give a unique meaning to their environment due to personal factors, such as attitudes and expectations.

This study focuses on the Blue Drop programme, since its launch on 11 September 2008 – right up to the latest assessment report in 2011.

The secondary objectives of the study are the following:

- To analyse the theoretical principles of water services, the existing legislation, drinking water quality regulations and the varying approaches to this subject.
- To find out if the water service employees in municipalities are familiar with water services policies and legislation – especially the Blue Drop Certification Programme.
- To establish whether water service employees in municipalities are in favour of the implementation of the Blue Drop water quality assessment programme.
- To make key recommendations on how to encourage the participation of water service authorities in the Blue Drop Certification programme.

1.3 RESEARCH QUESTIONS

The primary research question of the study is the following:

What are the perceptions of water service employees in municipalities of the implementation of the Blue Drop incentive based-regulation, as promoted by the DWA?

The secondary questions of the study are the following:

- What are the existing theoretical principles underpinning water services, legislation and drinking water quality regulations?
- Are the water service employees in municipalities familiar with water service policies and legislation, especially the Blue Drop Certification Programme?
- Are water service employees in municipalities in favour of the implementation of the Blue Drop programme?
- What can be done to encourage the participation of WSAs in the Blue Drop water quality assessment programme?

1.4 CENTRAL THEORETICAL STATEMENTS

The assumption is that some water service authorities do not have a positive attitude towards the Blue Drop incentive-based regulation. These WSAs perceive the Blue Drop programme as a witch-hunt, since they are faced with many challenges, such as the lack of skilled personnel, poor operation and maintenance, and a dilapidated infrastructure.

Tissington *et al.* (2008:6) state that: “We fear that the new certification scheme, especially if focused merely on naming and shaming non-complying municipalities, will not address the root causes of the problem, which relate to insufficient financial and technical assistance, as well as the human capacity, at the local government level”.

According to the DWAF (2007a:5), “The drinking water reticulated in cities and bigger towns in South Africa is generally of very good quality, and could even be regarded as one of the best in the world, due to effective drinking water quality management practices in place. However, exceptions to the rules also exist, where failures are not dealt with effectively. In the rural areas and smaller towns, the situation is generally unsatisfactory, due to the unacceptable level of failures or the lack of any quality monitoring”.

The researcher is referring to the failure of WSAs to comply with drinking water quality standards, as spelt out in the SANS 241. The fact that the DWA has identified that the majority of WSAs which achieve the Blue Drop status are urban and well-established municipalities, is also a cause for concern.

“Stakeholders are of the view that all water service institutions, and even extending to other state institutions with a role in water services, should be regulated” (Malzbender et al. 2009:92).

1.5 METHODOLOGY

In order to fulfil the research objectives, the triangulation mixed-method approach (both the qualitative and quantitative approaches) was used in this study. Data were sourced from both primary and secondary sources. A literature review was conducted, a structured questionnaire(s) being used for the survey; and a semi-structured questionnaire for conducting interviews.

1.5.1 Literature review

In order to provide the necessary background to the research problem, a literature review of the legal framework affecting water services was conducted. The review included a review of the 2009 and 2010 Blue Drop Reports, Drinking Water Quality Regulations, definitions and approaches to regulations, Water Research Commission (WRC) Journals and relevant websites with information relating to the topic.

1.5.1.1 Data bases consulted

The following were consulted to ensure that information, journals, books, and government documents relating to the research topic were all available:

- The library of the North-West University Potchefstroom Campus.
- The Water Research Commission website and offices.
- The Department of Water Affairs website.

1.5.2 Empirical investigation

In this section the empirical investigation and the limitation and delimitation of the study are explained in details.

1.5.2.1 Research design

The research method to investigate the perceptions of water service managers and purification plant superintendents/supervisors in the identified municipalities regarding the introduction of the Blue Drop certification programme was **qualitative** in nature. It involved the use of a semi-structured questionnaire to conduct the interviews.

The qualitative research design ensured that the researcher captured human meanings of social life and experiences, as listed and understood by the participants (De Vos, 2011:65). This design also gave participants the opportunity to describe how the Blue Drop incentive-based regulations affect them and their municipalities.

The method of investigating the perceptions of process controllers and non-professional employees was **quantitative** in nature and involved conducting a survey. Survey questions can be used to determine attitudes, beliefs, opinions and preferences (De Vos, 2011:156). The survey method was more appropriate to use in this research since the aim was to elicit opinions and to measure the perceptions of process controllers and non-professional employees concerning the Blue Drop programme.

1.5.2.2 Population

According to Welman *et al*. (2005:52), “the population encompasses the total collection of all units of analysis about which the researcher wishes to make specific conclusions”. It is a whole set from which a sample is taken. For the purpose of this study, the population consisted of all water service employees in all the municipalities of the Mpumalanga Province of South Africa.

According to the Municipal Demarcation Board website, the Mpumalanga Province has 18 local municipalities and three district municipalities. The study focused on only six of the 18 local municipalities.

1.5.2.3 Sampling

Non-probability convenience sampling was applied to obtain a research sample. The sample was made up of technical and/or water service managers, water purification plant superintendents/supervisors, process controllers and non-professional staff members in each of the six local municipalities of the Nkangala District Municipality in the Mpumalanga Province.

1.5.2.4 Instrumentation

A structured questionnaire was developed to conduct a survey with process controllers and non-professional staff. The questionnaire consisted of closed-ended questions, in order to obtain standard answers, which would make it easy for the respondents to answer the questions – and for the researcher to compare the responses of the different participants. Closed-ended questions also made it easy to analyse these responses.

A semi-structured questionnaire was developed to conduct interviews with water service managers and water purification plant superintendents/ supervisors.

1.5.2.5 Data collection

Participants in the study included the following individuals in each municipality:

1. One Technical and/ or Water Service manager;
2. one Water Purification Works Superintendent/supervisor;
3. two process controllers; and
4. three non-professional staff members.

The above participants were from the following six local municipalities:

- Emakhazeni.
- Emalahleni.
- Dr J.S. Moroka.
- Steve Tshwete.
- Thembisile.
- Victor Khanye.

A total of six water purification plant superintendents/supervisors, six technical/water service managers, twelve process controllers and eighteen non-professional staff members were used in the data collection. The total number of participants in the study comprised forty-two (42).

The approach was for the researcher to personally conduct the survey with all the affected participants, since some of the employees in the water treatment plants might not have access to faxes and computers, to be able to return the questionnaires if self-administered.

1.5.2.6 Data Analysis

The data obtained from the individual interviews were analysed by identifying common themes that emerged from the respondents' descriptions. Sentences that speak to one theme were clustered into categories – to reflect on the meanings.

The data obtained through the survey were analysed by using descriptive statistics. According to Welman *et al*. (2005:231), "Descriptive statistics are concerned with the description and/or summary of the data obtained for a group of individual units of analysis".

The data are presented in Chapter 5 of this mini-dissertation in the form of graphs, pie charts and tables. These have been used to describe the perceptions of the water service employees of the Blue Drop programme.

1.5.2.7 Limitation and Delimitation of the Study

This research relied mainly on data collected from six local municipalities from the same district municipality. Therefore, any generalisation of research results obtained through non-probability convenience sampling has limitations. The sampling method selected here was also a threat to validity, since the results cannot be generalised to all South African municipalities.

This study focused only on the perceptions of water service employees of the six local municipalities in the Nkangala District Municipality. It was beyond the scope of this research to study the perceptions of water service employees regarding the Blue Drop Certification programme in all South African municipalities.

According to Welman *et al*. (2005:181), ethical considerations should be noted when recruiting participants, during the research, and when the research results are released.

The respondents were fully informed regarding the purpose of the interview and the study in general. It was also guaranteed that their identity would remain anonymous. The researcher

ensured that participation was voluntary, and also avoided using unethical tactics to obtain information from any of the respondents.

The following measures were taken to address the above ethical issues:

- The researcher obtained verbal permission from the concerned accounting officers to conduct the research in their municipalities.
- Participants were verbally informed that they participate in the study on a voluntary basis.
- The identity of the municipality, the water treatment works and the participants have been protected. No names are revealed in reporting the findings.

1.6 SIGNIFICANCE OF THE STUDY

The study is important for the water sector in general to have an understanding of the perceptions of WSAs' water service employees of the Blue Drop incentive-based regulations. It is also important to obtain information directly from the water service employees – who are mainly responsible for ensuring safe drinking water for their municipalities -- in their respective geographical areas.

The study was intended to give the DWA a better understanding of the way in which water service employees perceive and react to the Blue Drop incentive-based regulations. The DWA would also be able to understand how the Blue Drop incentive-based regulations have affected the performance of these water service employees. The study also seeks to contribute to the body of knowledge already in existence on the management of water services.

1.7 PROVISIONAL CHAPTER LAYOUT

The mini-dissertation is composed of six chapters, as presented below.

Chapter 1 – Orientation and Problem Statement

The background to the study and preliminary reading form part of this first chapter. This chapter also includes the problem statement, as well as the research questions and objectives. The chapter also includes the research methodology, population and sampling.

Chapter 2 – Legal Framework and Policies for Water Service Provision in South Africa

This chapter provides background information on South Africa's water service legislation, policies, constitutional provisions, and the relevant regulations. Different water service

institutions and their roles and responsibilities are also discussed in this chapter. A brief background of the six municipalities is also discussed in this chapter.

Chapter 3 – Blue Drop Incentive-based Regulations

This chapter covers the literature review, in which theories, principles, best practices and concepts relating to the provision of water services and water regulations are discussed in detail. The South African Blue Drop incentive-based regulations are also explored in more detail.

Chapter 4 – Research Methodology

This chapter focuses on research design, sampling techniques and procedures, data analysis and the quality of data -- as well as the limitations and gaps in the collected data.

Chapter 5 – The Perceptions of Municipal Water Service Officials on The Blue Drop Programme: Empirical Findings

The results obtained from the interviews are discussed in this chapter. This also involves the presentation and discussion of the research results. The research procedure and a summary of the major findings are discussed in this chapter.

Chapter 6 – Conclusions and Recommendations

Recommendations based on the findings are made and discussed in this chapter. Conclusions are drawn in relation to the research questions identified in Chapter 1 of the mini-dissertation. The implications of the study for the water sector are also discussed in this chapter.

CHAPTER 2: LEGAL FRAMEWORK AND POLICIES FOR WATER SERVICES PROVISION IN SOUTH AFRICA

2.1 INTRODUCTION

This chapter provides an overview of the relevant legislation, water services regulations and other policy documents that govern water services provision in the South African water sector. The functioning and operations of local government with regard to the provision of water are governed by a special legislative framework (Tissington *et al*., 2008:12). It is also important to mention that municipal water services management including all role-players must be familiar with policies and legislation governing the water sector in South Africa. The roles and responsibilities of the different role-players in the water sector are also discussed in this chapter.

A brief overview of the Constitutional provisions that relate to the provision of water will also be discussed. The National Water Act 36 of 1998 (NWA) which is the framework for water resources will be discussed. The discussion of the NWA will then be followed by a review of water services legislation and related policies. Finally the roles and responsibilities of the various water sector institutions will be discussed.

2.2 THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA, 1996

According to Welch (2005:59), “Access to water is a fundamental human right recognised in treaties, declarations, and international law”. The Constitution is in line with this international best practice of placing access to water as a human rights issue. Section 27 (1) of the Constitution stipulates interalia that “everyone has the right to have access to sufficient food and water”.

Section 27(2) of the Constitution mandates the South African Government to formulate policies and other measures in order to achieve the “progressive realisation of each of these rights that is sufficient food and water”. The Water Services Act 108 of 1997 obtained its mandate from section 27 of the Constitution. Schedule 4, Part B of the Constitution places the responsibility for water and sanitation services provision on local government, an independent sphere of government.

Section 24 of the Constitution stipulates interalia that “everyone has the right to an environment that is not harmful to their health or well-being”. This clause relates to the promotion of conservation of water resources for the benefit of the present and future generations. It also relates to the prevention of pollution and degradation of the natural environment.

In terms of section 155(7) of the Constitution, national government has an obligation to monitor the performance of the water sector. This role is specifically mandated to the DWA. The same obligation is also stipulated under section 62(1) of the Water Services Act. The Minister of Water and Environmental Affairs is expected to monitor compliance by water service institutions with all national standards prescribed under the Water Services Act (Tissington *et al*., 2008:15).

Even though the Constitution formally recognises the right of access to water as a basic human right and the guarantee of basic water supply, many households in South Africa still do not have access to safe drinking water (Welch, 2005:58).

2.3 NATIONAL WATER ACT 36 OF 1998

The National Water Act 36 of 1998 (NWA) promotes the efficient, sustainable and beneficial use of water. The NWA takes into account meeting basic human needs and the promotion of equitable access to water. The NWA regulates the licensing of raw water abstraction and WSAs in their roles as water users. The return of waste water to a water source is also governed by this piece of legislation.

According to the NWA, the Minister of Water Affairs is responsible for the nation’s water resources. The NWA also deals with the way the country’s water resources are used, managed, protected and conserved.

The main strategy developed under the NWA is the National Water Resources Strategy (NWRS) which aims at ensuring that water is used to support equitable and sustainable social and economic transformation and development. The NWRS is a framework for the management of water at surface water catchment level. Water resources management institutions including local government must function according to the stipulations of the NWRS (DWA, n.d.:7).

2.4 WATER SERVICES ACT 108 OF 1997

According to Tissington *et al*. (2008:12), the Water Services Act 108 of 1997 is the main legislation dealing with the accessibility and provision of water services in South Africa. The Act incorporates both drinking water and sanitation services to households and other water users within municipalities.

The Water Services Act provides for the entitlement to basic water supply and basic sanitation. Thompson (2006:693) puts it eloquently: “Basic water supply is the minimum standard prescribed by regulation of abstraction, conveyance, treatment and distribution of potable water for the reliable supply of a sufficient quantity and quality of water to households, including informal households, to support life and personal hygiene”. Water Services Regulations are informed by this legislation under section 71(1). Water services institutions such as Water Boards and WSAs are established under this Act. The roles of water services institutions are clarified in this Act. The Act also aims to assist local government to fulfil its role as a Water Services Authority.

2.5 THE STRATEGIC FRAMEWORK FOR WATER SERVICES

The Strategic Framework for Water Services (2003) stipulates targets, the approaches and guidelines to provide water and sanitation services. It deals with targets to eliminate water and sanitation backlogs in the country and also mandates the DWA to formulate strategies to deal with regulations and support to water services institutions. According to the DWAF (2003:8), “This Strategic Framework sets out the national framework for the water services sector (water supply and sanitation). The Strategic Framework will inform the development of detailed strategies to give effect to the framework. The purpose of the Strategic Framework is to put forward a vision for the water services sector in South Africa for the next ten years, and to set out the framework that will enable the sector vision to be achieved”. In short, the sector vision as stipulated in the Strategic Framework is to ensure adequate, safe, appropriate and affordable water and sanitation services. The vision further states that these services should be provided by effective, efficient and sustainable institutions (DWAF, 2003:9). The Strategic Framework also defines the role of the DWA as the national water sector regulator.

2.6 WATER SERVICES REGULATION 2834 OF 1985

Regulation 2834 is read in conjunction with section 12 A of the Water Act 54 of 1956. This water services Regulation regulates the construction, upgrading and registration of water treatment

works. In terms of this Regulation, a permit is required in order to construct or upgrade water treatment works. The DWA as the water services regulator is responsible for registration of water treatment works and issuing of permits.

According to Schedule I of these Regulations, water treatment works are classified according to the number of points awarded by the Director-General of the Department of Water Affairs in accordance with stipulated criteria. The criteria used to allocate points are as follows:

- Population supplied – no points are allocated for a population of less than one thousand. For a population which is over 50 000, the maximum points allocated are 17.
- Quality of water intake – little or no variation is allocated a maximum of 6 points and hourly variation is allocated a maximum of 30 points.
- Processes – points are allocated for pumping and chlorination, filtration, flocculation and sedimentation. The number of points ranges from 4 points for chlorination and a maximum of 36 points for special treatment.
- Design capacity (cubic metres per day) – 1 point is allocated for a capacity of up to 500 and 9 points for 25 000.

The top class is Class A which is allocated points ranging from 79 – 92 points and the lowest class is Class E which has points ranging from 14 – 21 points.

The regulation also addresses the employment of personnel in water treatment works. Schedule III of this regulation deals with the different classes of process controllers employed in water treatment works. They are classified according to their qualifications and relevant work experience. Only qualified, skilled and experienced employees are classified according to this regulation.

Schedule IV specifies the minimum number of process controllers (operators) for the operation of water treatment works. The role of process controllers is to purify raw water from the source by engaging in activities such as operating pumps, valves and other related plant machinery.

2.7 LOCAL GOVERNMENT LEGISLATION IMPACTING ON WATER SERVICES

There are two important pieces of legislation which have an impact on the provision of water services in municipalities. They are briefly discussed in the following sub-sections.

2.7.1 Local Government: Municipal Structures Act 117 of 1998

The Municipal Structures Act deals with the powers and functions of municipalities, in particular their roles as water services authorities in ensuring water provision in their area of jurisdiction.

2.7.2 Local Government: Municipal Systems Act 32 of 2000

The Municipal Systems Act distinguishes between the functions of a water services provider and a water services authority. The Act regulates provision of services either by the municipality or the appointment of external service providers under section 78 (DWA, n.d.: 4-5).

2.8 ROLES AND RESPONSIBILITIES

The Water Services Act 108 of 1997 makes provision for Water Services Institutions (WSI) and the National Water Act 36 of 1998 makes provision for Water Resource Management Institutions (WRMI). These two Acts stipulate the different roles and responsibilities of the different institutions.

2.8.1 The role of the Department of Water Affairs

The DWA is the water sector leader and regulator in South Africa (DWA, 2010:4). The DWA is responsible for the administration of all facets of the Water Services Act and the National Water Act. The DWA is responsible for ensuring that water services and water management institutions are functioning effectively. The DWA is also responsible for the development of water sector policies and for regulating water sector institutions. The Minister of the Department of Water and Environmental Affairs (DWEA) is the custodian of the country's water resources (DWA, n.d:7). In terms of Regulation 2834, the state also plays a role in the supervision of the construction, operation and maintenance of water supply systems.

According to the DWAF (2003:49), "National and provincial government are obliged to support and strengthen the capacity of municipalities and to ensure effective performance". It is also important to note that while DWA is responsible for water policy development, the Department of Co-operative Governance and Traditional Affairs (CoGTA) regulates and oversees the performance of municipalities in general (DWAF, 2003:23).

DWA and the Principles of Co-operative Governance

Provincial and national government are responsible for the setting of norms and standards for local government. They have to ensure that local government functions according to these set standards. These two spheres of government should not undermine the executive power of municipalities. The principles of co-operative governance should always be adhered to (DWAF, 2003:49).

The principles of co-operative governance oblige all three spheres of government to co-operate with one another. The co-operation involves giving support to the provinces and local government by the national government. According to the Department of Provincial and Local Government (DPLG) (2006) as quoted in Haigh, Fox, Davies-Coleman, Hughes, Atkinson and McCann (2008:65), "The concept of co-operative governance embraces the realisation that a single sphere of government cannot handle the responsibility of a developmental state… and that no one sphere can be successful without successful performance of the other spheres".

Co-operative governance and support to municipalities by provincial and national governments are important to ensure that the water services sector institutions function effectively and efficiently in the planning and managing of water services infrastructure (Haigh *et al*., 2008:65). The principles also oblige the different spheres of government to settle disputes on their own and exhaust every available mechanism before taking their disputes to a court of law (DWAF, 2003:49).

Tissington *et al.* (2008:13) put it eloquently: "The Water Services Act acknowledges that, although municipalities have the authority to administer water and sanitation services, all spheres of government have a duty within their physical and financial capabilities, to work towards this goal".

2.8.2 Water resource management institutions

A brief description of the two most important water resource management institutions is provided below. The NWA provides for the establishment of Catchment Management Agencies and Water Users Associations.

(i) Catchment Management Agencies (CMA)

These are institutions established to manage water resources at surface catchment level. South Africa has been demarcated into 19 Water Management Areas (WMA). This means the South African Government will establish a CMA for each of the 19 WMA. At the moment only two CMAs have been established and the DWA Regional Offices are fulfilling the role of CMAs in the other areas. CMAs are mainly responsible for water resource management in their WMA;

this includes the development of the Catchment Management Strategy, community participation and overseeing Water Users Associations (WUAs) (DWAF, n.d.:2).

(ii) Water Users Associations

Water Users Associations (WUAs) operate at a localised level and mainly cater for agriculture. WUAs are a form of association of water users. “The National Water Act outlines all the matters that must be addressed in the constitution of a WUA. The Act (Schedule 5) also includes a model constitution that may be used as a basis for drafting a constitution.” (DWAF, n.d.:31)

WUAs operate as co-operative institutions which undertake localised water-related activities for their own benefit. WUAs can be established as sectoral or multi-sectoral WUAs. Sectoral WUAs are formed by a group of similar users and multi-sectoral WUAs are formed by a combination of different users (DWAF, n.d.:27-28).

2.8.3 Water services institutions

The Water Services Act provides for various types of water services institutions. The roles and responsibilities of the various types of water services institutions are also set out in the Water Services Act.

(i) Water Services Authorities (WSAs)

WSAs are municipalities which have executive authority for water services in their respective municipal areas. WSAs are responsible for delivery of water and sanitation in their area of jurisdiction. This responsibility is set out in the Municipal Structures Act 117 of 1998 under the division of functions and powers between district and local municipalities. A WSA can either be a metropolitan, a district or a local municipality.

In terms of section 78 of the Municipal Systems Act 32 of 2000, a WSA is required to determine a mechanism by assessing its internal capability to provide water services in its area of jurisdiction. The results of the assessment will determine if the municipality has the capacity and skills to provide water services. In a case where capacity is lacking, a WSA can enter into a contract with an external water services provider to carry out the water services provision functions (DWAF, 2007b:93-94).

According to Thompson (2006:712), “Each water services authority has the duty to all consumers or potential consumers in its area of jurisdiction to progressively ensure efficient, affordable, economical and sustainable access to water services”. WSAs must ensure that water provision in their area of jurisdiction conforms to national norms and standards (DWAF,

2003:51). According to the DWAF (2003:51), “Water services authorities are ultimately accountable to their citizens for the effective delivery of services to meet their citizens’ needs.”

(ii) Water Services Providers (WSPs)

A WSA can enter into a contract with an external WSP or it can carry out the water services provision itself. The role of the WSP is to provide water and sanitation services to consumers. A WSP can be a water board, a private institution, a community-based organisation or a non-governmental organisation. For an external WSP to operate in a municipal area it is required by law to enter into a service level agreement with the WSA. The contract between the WSA and WSP determines the provision of functions by the WSP. WSPs are also required to provide information concerning water provision when required to do so (DWA, n.d.:32). A WSP is also required to report to the relevant WSA regarding its operations in the municipal area.

(iii) *Water Boards*

Chapter VI of the Water Services Act deals with the establishment and disestablishment of water boards. The Minister of Water and Environmental Affairs is responsible for the establishment of water boards. According to the Water Services Act 108 of 1997, “The primary activity of a water board is to provide water services to other water services institutions within its service area”.

Water boards are allowed to carry out other activities on condition that these activities do not obstruct the water board in performing its primary function. Other activities that a water board can carry out include catchment management services, water conservation related activities, management and support services and the supply of raw water. Water boards are not private sector institutions, but are established by the Minister as public institutions.

2.9 SUMMARY

It is important for water service officials in municipalities to be familiar with water sector legislation, regulations and roles and responsibilities of the various water sector institutions. Well-informed water services officials, particularly managers, can go a long way in ensuring that their drinking water quality complies with the set standards. These laws and regulations impose obligations on municipalities to ensure that they provide safe drinking water to their consumers and other users.

The legislation and policies discussed in this chapter are aimed at ensuring that all South African citizens have access to safe drinking water. They are aimed at ensuring an effective and efficient management of drinking water quality in municipal areas. Drinking water challenges are

on the increase in the country, it is therefore up to the relevant water sector institutions to work together to provide acceptable drinking water quality.

In the next chapter, the theories, principles, best practices, regulations and concepts related to water service provision are discussed.

CHAPTER 3: BLUE DROP INCENTIVE-BASED REGULATION

3.1 INTRODUCTION

This chapter will expand on the theoretical perspectives briefly discussed in Chapter 1 of this mini-dissertation. In this chapter the researcher will explore the definition of regulation and drinking water quality regulatory arrangements in South Africa. Various approaches to regulations, challenges to these approaches and drinking water quality will also be discussed. The main focus will be on the implementation of the Blue Drop Incentive-Based Regulation in South Africa. An overview of the drinking water quality, the implementation of the Blue Drop Programme and perceptions of various stakeholders about the programme are also discussed in this chapter.

As mentioned in Chapter 1 of this mini-dissertation, it is important to note that South Africa presented its Blue Drop Programme as an incentive-based regulation. This chapter will therefore look at the details of an incentive-based regulation in general and the Blue Drop Programme in particular.

3.2 REGULATION

In this section the focus is on the definition of regulation, the development of a good regulatory framework and the aim of introducing and implementation of regulations.

3.2.1 Definition of regulation

According to Baldwin and Cave (1999:2), “Regulation is often thought of as an activity that restricts behaviour and prevents the occurrence of certain undesirable activities (a ‘red light’ concept) but the influence of regulation may also be facilitative (‘green light’)”. Franceys and Gerlach (2008:23) define regulation as a different form of government intervention aimed at encouraging or discouraging certain types of behaviour by society at large. According to Tremolet and Hunt (2006:27), “Regulation is needed when market mechanisms for a good or service are not working properly to deliver society’s objectives in that market, which means that the government has to regulate to correct the effect of those market features”. The regulation process involves the monitoring of actions of regulated institutions in order to ensure compliance with set standards. Drinking water quality serves as a good example of an activity that calls for monitoring on a regular basis (Krause, 2009:42-43).

3.2.2 Developing a good regulatory framework

According to Franceys and Gerlach (2008:233-234), “A good legal framework is one that has essential components and that is developed to suit local circumstances (political, social, cultural, physical, environmental and economic). In other words, an effective regulatory framework considers the ‘institutional endowment’ of any country and respects the constitutional context as well as existing administrative capacities”.

Groom *et al.* (2006:18) suggest that governments should first assess whether a particular regulation will achieve the intended objective before its implementation. The authors cited the case of Azerbaijan, a country that developed and implemented regulations that were not effective in meeting their intended objectives.

Each individual country should develop and implement policies and regulatory models that are appropriate for that particular country. This should be informed by factors such as commitment to regulation and institutional capacity (Eberhard, 2007:31). The performance and capacity of the institution should also be taken into account when conceptualising and designing a regulatory model (Eberhard, 2007:25). In the case of South Africa, any regulatory approach should consider the fact that water provision is the constitutional responsibility of local government. Therefore, regulatory mechanisms and instruments should be consistent with these institutions. Tremolet (2006:12) is of the view that quality regulation should be applied in a flexible way and be adapted to the circumstances of that particular area and particular customers.

Franceys and Gerlach (2008:234) recognise that a regulation or policy framework cannot always be implemented successfully in one go, but takes time to achieve success. An effective regulation does not necessarily have to be complex and too detailed, but it should be simple, practical and manageable (Franceys & Gerlach, 2008:233).

Eberhard (2007:6) concurs with the above authors and puts it eloquently as follows: “It takes time to build and entrench governance, management and organisational systems and practices, in addition to the imperative of building new professional capacity.”

3.2.3 Why the need to regulate?

According to Baldwin and Cave (1999:2), “Public interest theories centre on the idea that those seeking to institute or develop regulation do so in pursuit of public interest related objectives (rather than group, sector, or individual self interests)”.

The regulation is developed with the aim of achieving certain results that are desired by the public in cases where such results are not achieved under normal circumstances (Baldwin & Cave, 1999:19).

DWAF (2008a:6) identified the following key tasks of a regulator:

- Set and/or interprete rules/standards and where relevant, grant approvals.
- Make determinants, enforce decisions and intervene.
- Monitoring compliance and performance.

It should be noted that a regulation will not be effective if there is none of necessary political will and required social values (Franceys & Gerlach, 2008:234).

Tremolet (2006:3) advocates ensuring that the poor have access to water services and that the main focus of a regulatory framework should be to improve the nature of this access in terms of availability (among others).

South Africa has had several drinking water quality failures such as the Cholera outbreak in Delmas in the Mpumalanga Province in 2007. Such drinking water quality failures cannot be ignored and also played a role in influencing the implementation of the Blue Drop Incentive-based regulation by the DWA.

3.3 APPROACHES TO WATER REGULATION

It is important to note that water regulations differ from country to country. According to Tremolet and Hunt (2006:32), water services providers in Djibouti regulate themselves. The authors also note that roles and responsibilities fulfilled by regulators in various countries differ for various reasons such as whether institutions responsible for water service provision are in the public or private sector. For instance, in the UK, municipalities do not play a direct role in water services provision. In the UK, water services are regulated by independent agencies such as the water services regulation authority's Office of Water Services (OFWAT) and the Drinking Water Inspectorate. The OFWAT is the economic regulator of the water and waste water industry in the UK. The Drinking Water Inspectorate regulates drinking water quality by ensuring that water provided to consumers meets the drinking water quality requirements set by the law (Drinking Water Inspectorate). According to the DWA (n.d:1-2), South Africa recognises the compliance monitoring (Norms and Standards); punitive regulation (Enforcement); risk-based targeted regulation and the incentive-based regulation (Blue and Green Drop Certification) approaches.

In order for one to understand where the Blue Drop incentive-based regulation comes from, it is important that the command and control, incentive-based and self-regulation approaches be briefly discussed as identified by Malzbender *et al*. (2009:13) and also identified by Baldwin and Cave (1999:34).

3.3.1 Command and control

According to Baldwin and Cave (1999:34), the command and control regulation involves the setting of standards by the regulating authority; if the set standards are not complied with by those who are regulated, they are then followed up by legal action such as laying criminal charges. This approach involves setting of rules in the form of regulations which are strictly enforced by government to ensure compliance.

Baldwin and Caves (1999:34) identified the following features of the command and control approach:

- It is used to forbid certain types of behaviours or actions and to demand some constructive actions.
- It involves licensing in one way or another.
- It enforces standards by using the force of the law. Activities that are not in line with the fixed standards are not allowed.
- Parties who engage themselves in unacceptable conduct can face penalties imposed by the regulator by acting forcefully and taking a clear stand.
- On the other hand, this approach is expensive to implement, which involves employing monitoring staff. It involves setting complicated and inflexible rules.

Krause (2009:62) is of the opinion that public sector institutions in the water sector are best regulated through the command and control approach.

3.3.2 Incentive-based

This approach involves setting up incentives for the WSP or WSA to achieve specific outputs. According to Baldwin and Cave (1999:34), the incentive-based regulation is not restrictive and rule bound as is the command and control approach. Instead, those parties who do not comply with set standards can be influenced to act in the interest of the public. This can be done through the use of either penalties for non-compliance or through rewards for compliance. Malzbender *et al.* (2009:vii) note that in most developing countries regulators resort to fewer penalties for non-compliance and instead make use of less punitive measures.

This approach can also work well in influencing responsible parties to be more effective, whilst those who are irresponsible, who need to be regulated, can ignore set standards. The authors also note that this approach is not advisable in areas facing a regulatory crisis (Baldwin & Cave (1999:34).

The DWA (n.d:1-3) asserts that: “Incentive-based regulation is thus an alternate form of regulation and should not be perceived as a weakened form of enforcement, but is considered to be an enabling regulation.”

3.3.3 Self-regulation

According to the self-regulation approach, a WSA provides services without being regulated from outside the WSA. Djibouti was cited above as an example of a country that follows the self-regulation approach. This approach poses a big challenge for a country such as South Africa where WSAs do not have the necessary capacity to manage their drinking water quality effectively. Tissington *et al* (2008:62) express their opinion on the application of self-regulation in South Africa in the following terms: “Indeed, reactionary approaches by municipalities to the monitoring of deteriorating and aging infrastructure, and the testing of water quality, are a major cause of water quality scares and disease outbreaks in South Africa”.

WSAs in South Africa also fulfil the role of a local regulator of water services provision. In an instance where the WSA is also the WSP, then this amounts to self-regulation. In this case the WSA is accountable to the citizens in its area of jurisdiction. It is only in cases where an external WSP has been contracted that the role of the WSA as a local regulator changes. The relationship with an external WSP is regulated by means of a service delivery agreement.

In its role as a local or self-regulator, the WSA is responsible for the development of local policies, norms and standards and by-laws in its area of jurisdiction. These should be in line with national legislation, policies and norms and standards (DWAF, 2003:51).

3.4 CHALLENGES RELATED TO REGULATIONS

Franceys and Gerlach (2008:43) state that the major challenge for developing and implementing regulations in developing countries is the lack of regulatory capacity. Many of these countries have never been exposed to a regulatory environment. It is also important to note that many governments are not committed to ensuring compliance with a particular regulation (Krause, 2009:56).

Eberhard (2007:10) points out that it becomes a challenge when governments develop regulations to regulate government institutions and utilities. There are instances in which government departments or state institutions undermine regulators (Eberhard, 2007:4). The author further states that in most cases, regulators in developing countries are still new, with no track record. Difficulties concerning giving out punishment for poor performance and non-compliance are a major problem for regulating government institutions (Eberhard, 2007:12).

Tremolet (2006:2) points out that those institutions responsible for regulation have difficulty in showing that they are legitimate institutions established to bring about change by acting in the interest of consumers especially the poor people who cannot afford to pay private water services providers or for bottled water.

In South Africa, government departments are expected to exhaust all means of co-operative governance and produce the necessary evidence before taking legal action against any government institution and sphere of government (DWAF, 2007a:67). This therefore implies that even if there is a command and control regulation in place, one sphere of government will not be able to impose penalties for non-compliance.

Baldwin and Cave (1999:20) raise a concern about the influence of certain parties on the implementation of regulation: “Thus, it is argued that regulatory policies and institutions often become (or, in some versions, begin life) subject to the influence of powerful regulated parties, or even politician or sector consumers, so that regulation serves the interest of these parties or sector rather than those of the wider public”.

3.5 DRINKING WATER QUALITY IN SOUTH AFRICA

3.5.1 Drinking water quality defined

According to Kolanisi (2005:18), “The main idea related to the quality of water is the eradication of impurities and to produce water which is healthy and fit for consumption”.

That author further identifies three properties of drinking water as follows:

- Microbiological – includes bacteria of water quality.
- Chemicals – such as metals and salts.
- Physical – is visible and can be evaluated through the eyes, smell and taste.

All these properties determine the water quality and whether it is safe for human consumption. Water treatment processes involve the removal of harmful micro-organisms from raw water to ensure that it meets with the most important requirement for drinking water, namely that it must be safe to drink (Schutte, 2006:3).
South African water services providers are expected to supply water that is consistent with regulated standards specified in the Compulsory National Standards for Quality of Potable Water as pointed out in Chapter 1 (DWAF 2007a:5).

According to Schutte (2006:3), "Water quality is only meaningful when evaluated in relation to the use of the water. The reason is that water of a certain quality may be fit for a specific use, but completely unfit for another use". This therefore means that drinking water should be evaluated against regulated standards set for drinking water quality.

3.5.2 Drinking water quality challenges in South Africa

According to DWAF (2007a:5), cities and bigger towns in South Africa generally provide good water quality as a result of good drinking water quality management practices. On the other hand, a situation assessment undertaken by the DWAF pointed out certain drinking water quality challenges mostly in smaller municipalities (DWAF, 2007a:6).

These challenges are listed as follows:

- Lack of adequate human resources.
- Insufficient funding made available for drinking water quality management.
- Lack of knowledge of drinking water quality requirements.
- Inadequate access to credible laboratories.

As a result of the perceived lack of resources and capacity in water services institutions to deal with drinking water quality management, the DWA decided to develop a strategy to manage and regulate drinking water quality. The strategy was also developed to address the lack of understanding by WSAs of their responsibilities and governance requirements (DWAF, 2007a:56).

Tissington *et al*. (2008:61) are of the view that "Media reports of baby deaths and cholera outbreaks in poor and rural areas speak to the fact that a large proportion of the population does not have adequate access to sufficient clean and safe drinking water and sanitation facilities, and that not enough is being done by local municipalities, water services providers and the DWAF to address the crisis". The deaths referred to above happened in the Ukhahlamba

District Municipality in the Eastern Cape Province where about a hundred children died from allegedly contaminated drinking water (Tissington *et al*., 2008:63).

The main cause of drinking water quality failures to comply with drinking water quality standards and the outbreak of diseases are ascribed to the lack of innovation by municipalities with regard to management of water quality in their municipal areas (Tissington *et al*., 2008:62). There is a shortage of experienced staff and technically skilled personnel in many municipalities and water services providers (DWAF, 2005:4).

Given the above and other challenges not mentioned here, it was therefore necessary for the DWA to initiate measures to regulate drinking water quality in municipalities in particular. In the past, the Department has been severely criticised for not doing enough to regulate drinking water quality. It is also important to note that those severely impacted by the poor quality water services are the poor people who are mainly based in former black residential areas (townships) and former homelands (Tremolet & Halpern, 2006:8).

Although the Constitution formally recognises the right to water supply, a large number of communities do not have access to safe drinking water and in some cases the water is not easily accessible (Welch, 2005:58).

3.5.3 Towards drinking water quality compliance

Drinking water quality can be successfully managed if there is commitment and support from all those who are involved in the provision of water (DWAF, 2007a:8). The commitment also involves ensuring that water works employees have the appropriate training and skills to manage and operate water supply systems. The lives of millions of South Africans depend on how WSAs manage drinking water quality (DWAF, 2007a:47). Municipalities will be required by the DWA to ensure that their water treatment supervisors and process controllers have the necessary licences for management of the drinking water quality systems (DWAF, 2007a:48).

According to the DWAF (2007a:13), WSAs monitor the performance of WSPs and water services intermediaries in their area of jurisdiction. This is done to ensure that the quality of drinking water is in line with norms and standards for drinking water quality. WSAs must ensure that water supplied by WSPs to its consumers is safe and that the WSP treats and reticulates the water according to acceptable standards (DWAF, 2007a:61).

Municipalities should ensure transparency in dealing with the management of drinking water quality. This includes providing reliable information about the management of their drinking

water quality when required to do so in terms of the Water Services Act. The Act makes it an offence to fail or refuse to provide information (Mackintosh, Manxodidi, Wensley & Uys, n.d.:4).

It is important that the state plays its role as a regulator in ensuring compliance with set standards of drinking water quality. This is important because contaminated and unsafe drinking water is a threat to life (DWAF, 2008a:15). The successful management of drinking water quality will depend on the commitment of all water sector role players especially municipalities.

3.6 WHY INTRODUCE THE BLUE DROP INCENTIVE-BASED REGULATION PROGRAMME?

According to the DWAF (2008a:42), "One of the stated objects of the Water Services Act 108 of 1997, is to provide for a regulatory framework for water services institutions and water services intermediaries". The DWA brought in water services regulations in order to protect consumers from water services providers who might not act in the interest of the public. As early as 2005, the DWA acknowledged that regulating South African drinking water quality was a major priority (DWAF, 2005:15).

According to the DWAF (2008a:4), "Consumers need to be protected from service providers taking advantage of their position to act in their own interest, and not in the interest of the public or consumer". It has happened in the past that WSAs do not comply with drinking water quality requirements and this has led to deaths such as in the Delmas case in Mpumalanga. If WSAs are left on their own, the interests of the public might not be served (DWAF, 2008a:4). "The 2005 and 2007 drinking water quality failures in Delmas also emphasised the shortcomings of the traditional drinking water quality regulatory approaches" (DWA, n.d:1-4).

The introduction and implementation of an incentive-based regulation system will help to ensure that municipalities improve their performance in managing their drinking water quality. The programme will also ensure that credible information about drinking water quality is published for access by the public (DWAF, 2005:xv).

The following objectives of the Blue Drop certification programme were identified by the DWA:

- Introducing incentive-based regulation of the drinking water quality management function.
- Introducing key requirements for effective and efficient management of drinking water quality by water services institutions.
- Providing information to the public on drinking water quality performance per supply system (to prevent generalisation).

- Facilitating a closer working relationship between WSAs and WSPs where relevant.

(DWA, 2009:2)

The DWA will consider punitive action if a municipality does not rectify identified non-compliant activities and it is proved that the capability to do so is there. The DWA (n.d:1-3) states that "The Enforcement Protocol will also be used to deal with cases where little to no cooperation is obtained from the municipality towards the improvement of identified shortcomings". The DWA is committed to implementing the incentive-based regulation programme regardless of the above. Water services institutions that comply with drinking water quality standards will be encouraged to continue doing so by using incentives (DWAF, 2005:61).

The Department acknowledged before the implementation of the Blue Drop Incentive-based programme that the level of confidence on the part of the public regarding the quality of drinking water in South Africa was not at the desired level, and therefore a need existed for the regulation of drinking water quality management (DWAF, 2007a:5). The DWA therefore initiated the Blue Drop programme as mandated by the Water Services Act. It has considered various approaches to such control and finally decided on incentive-based regulations, informed by the unique circumstances of South Africa. The Blue Drop programme is regarded as a unique initiative in the water sector internationally (Water Rhapsody, 2010).

The researcher is of the opinion that municipalities and other stakeholders in the water sector should understand the Blue Drop programme as an attempt by the DWA to ensure improvement in drinking water quality to benefit mainly the majority of South African citizens, but particularly the poor.

3.7 HOW THE PROGRAMME IS IMPLEMENTED

A town achieving the Blue Drop status will receive a sign or a flag which will serve as a sign that the drinking water quality in that particular municipality is of good quality and can be consumed and used with confidence. A municipality should receive a score of 95% and above based on the set criteria to obtain the Blue Drop status (DWAF, 2008b:3).

The assessment of WSAs is done continuously by the DWA specialised unit. The DWA has trained assessors who conduct the assessments nationally and are divided into panels each focusing on a certain number of municipalities. The Department also arranges information sessions with municipalities to discuss the requirements of the Blue Drop certification programme (Water Rhapsody, 2010).

The assessment focuses on each water services system and results are given per system (DWAF, 2008b:3). Each WSA that has been assessed is given a draft report by the assessment team in order to validate the result or object if it does not agree with the results. The report is given to WSAs at least 30 days before it is made public by the Minister of Water and Environmental Affairs. Scores of a water system that are above 80% are supposed to be assessed by an independent Advisory Committee to validate the score. WSAs which achieve the Blue Drop status are formally acknowledged by the Minister of Water and Environmental Affairs (DWAF, 2008b:9). The programme's results are communicated to the public on an ongoing basis to ensure that the public is well informed of the status of their drinking water quality. The public will be aware in the event of poor management of their drinking water.
The DWA does not suddenly stop monitoring drinking water quality once a Blue Drop certification has been granted to a water services system. A water services system is assessed on an annual basis and, if it qualifies, it then receives a certificate of reconfirmation of the Blue Drop status. The Minister of Water and Environmental Affairs will withdraw the Blue Drop status of a particular system if there is a decline in drinking water quality compliance. However, the Blue Drop status is not taken away due to a single drinking water failure (DWAF, 2008b:10).

If municipalities fail to achieve the Blue Drop status, it does not necessarily mean they do not comply with drinking water quality standards (The Water Wheel, 2009:22). The section below provides a picture of how WSAs are assessed in order to qualify for the Blue Drop certificate.

3.8 BLUE DROP REQUIREMENTS AND CRITERIA

As mentioned in the previous section, in order for WSAs to be awarded the Blue Drop status they are required to comply 95% in terms of the criteria used in the assessment. It is also compulsory for all WSAs to take part in the Blue Drop assessments (DWAF, 2008b:9). On the other hand, WSAs are required by legislation to have drinking water quality monitoring programmes in their area of jurisdiction to ensure compliance with drinking water quality standards (DWA, 2009:2).

WSAs are expected to meet the following criteria for all their drinking water systems:

- Water safety and security plans must be in place and be reviewed at least every three years.
- Process controllers must be registered with the DWA.
- A drinking water quality monitoring programme must be available.
- Drinking water quality sample analysis should be done in an accredited laboratory.

- Submission of drinking water quality results to the DWA must be done as stipulated by the Department.
- Drinking water quality compliance must be accordance with SANS 241 latest version.
- Management of drinking water quality performance – WSAs' response to resolution and communication of drinking water quality failures must be guided by an incident management protocol.
- Drinking water quality asset management should be carried out to ensure the production of safe drinking water.
- Publication of drinking water quality performance – drinking water quality performance must be reported against the latest version of the SANS 241.

  (DWAF, 2008b:4-5)

3.9 PROGRESS SINCE THE INTRODUCTION OF THE BLUE DROP REGULATION PROGRAMME

3.9.1 Improved response by WSAs

The DWA (2010:1) noted that there had been a huge improvement by WSAs in the way they manage their drinking water quality since the implementation of the Blue Drop incentive-based Regulation programme. In the second year of the implementation of the programme the number of drinking water systems that were assessed increased by almost double the number of systems assessed during the first year in 2009. During the same period there was an increase in the number of water services systems that received the Blue Drop certificates.

According to the figures in Table 3.1, the number of municipalities assessed increased from 107 in 2009 to 162 in 2011 and water supply systems from 402 in 2009 to 914 in 2011. The National Blue Drop average score improved from 51.4% in 2009 to 72.9% in 2011. The general performance trends showed an improvement in all the performance categories. The DWA (2009:3) stated that "This serves as an indication that the introduction of this incentive-based regulation approach stimulated renewed energy in the sector towards compliance". The DWA was impressed with the way WSAs responded to the first year of the implementation of the Blue Drop programme.

Table 3.1 provides a comparative analysis of the Blue Drop assessment results from 2009 to 2011:

Table 3.1: Blue Drop 2009 - 2011 comparative analysis

Performance Category	2009	2010	2011	Performance Trend
Number of assessed municipalities	107	153	162	Improvement
Number of Water Supply Systems Assessed	402	787	914	Improvement
National Blue Drop Score	51.4%	67.2%	72.9%	Improvement
Number of Blue Drop Awards	22	38	66	Improvement

Source: Adapted from the DWA (2011:13)

3.9.2 The first year of assessment

The first Blue Drop assessments were conducted in 2009 and the provincial averages are depicted in Table 3.2. The Table depicts the Blue Drop averages, provincial drinking water compliance and the number of WSAs that did not provide DWA with the required information for the assessments.

Table 3.2: 2009 Provincial average Blue Drop scores

Province	Provincial Average Blue Drop Scores (of WSAs assessed)	Provincial Average Drinking water quality compliance	No. of WSAs that failed (or were unable) to present required information for assessment (0% Blue Drop score)
Gauteng	74,4%	96,2%	3
KwaZulu-Natal	73%	82%	1
Western Cape	60,3%	91%	3
Eastern Cape	54,3%	91,6%	6
Mpumalanga	51%	84,58%	11
Limpopo	40,8%	<86%	5
Free State	40,3%	95,5%	12
North West	40%	71,5%	5
Northern Cape	28,3%	<93%	8

Source: The Water Wheel July/August 2009

The 2009 provincial averages serve as an indication to the DWA that a lot of effort and investment by municipalities and the DWA were needed in order to instil public confidence in the drinking water quality of South African municipalities (The Water Wheel, 2009:23). This is evident from the fact that the Northern Cape Province only managed to obtain an average Blue Drop score of 28, 3%.

According to the 2009 Blue Drop report, a number of municipalities failed to present information for the Blue Drop assessments. The Mpumalanga Province was the second highest in terms of municipalities that did not present information for the Blue Drop assessment during the 2009 assessments. A total of eleven (11) Mpumalanga municipalities did not submit information for the 2009 assessment.

Despite all the above challenges, the results of the microbiological, chemical and physical compliance (average of 93%) in the various provinces showed that the South African tap water in most areas is still safe to drink (The Water Wheel, 2009:21).

3.9.3 The second year of assessment

The 2010 Blue Drop assessments realised an improved commitment to the Blue Drop programme from WSAs. This was proved by the increase in the number of WSAs assessed from only 107 in 2009 to 153 in 2010. Table 3.3 depicts the 2010 Blue Drop average scores with emphasis placed on microbiological, chemical and physical compliance with drinking water standards.

Table 3.3: 2010 Provincial average Blue Drop scores

Province	Blue Drop Scores	Microbiological Compliance	Chemical Compliance	Physical Compliance
Western Cape	92.45%	98.20%	96.20%	99.00%
Gauteng	85.54%	99.50%	99.70%	99.60%
Eastern Cape	79.40%	97.30%	99.20%	99.00%
North West	66.01%	97.00%	99.30%	99.30%
KwaZulu-Natal	65.91%	97.30%	98.90%	96.50%
Mpumalanga	65.42%	89.00%	97.40%	98.90%
Limpopo	54.95%	92.90%	97.90%	98.90%
Free State	48.50%	97.40%	99.60%	98.80%
Northern Cape	46.87%	93.10%	99.30%	98.90%

Source: DWA (2010:5)

The 2010 Blue Drop results show a significant improvement in the Blue Drop scores for all the provinces. The Gauteng and Western Cape provinces are still in the top three as in the 2009

assessments and Mpumalanga, while having improved from 51% Blue Drop score in 2009 to 65.42% in 2010, has been overtaken by the North West Province. The 2010 microbiological compliance results are generally of an acceptable standard. It is also important to note that the microbiological score of Mpumalanga Province is the lowest compared with other provinces at 89%. According to the DWA (2010:149), the targeted microbiological quality standard is 97%, in other words, all systems should strive to achieve a microbiological compliance score of 97% and above. In 2010 there was significant improvement with 55% of all assessed municipalities nationally receiving a score of higher than 50% (DWA 2010).

Figure 3.1 provides a national Blue Drop performance summary. In terms of the figure, only 13% of municipalities achieved an excellent Blue Drop score and 45 % are in need of attention (21% need attention and 24% need urgent attention). It is also important to note that the 2009 Blue Drop report was only based on microbiological compliance. The microbiological parameter is the major yardstick for drinking water quality performance. The 2010 report was inclusive of both the physical and chemical compliance (DWA, 2010:2).

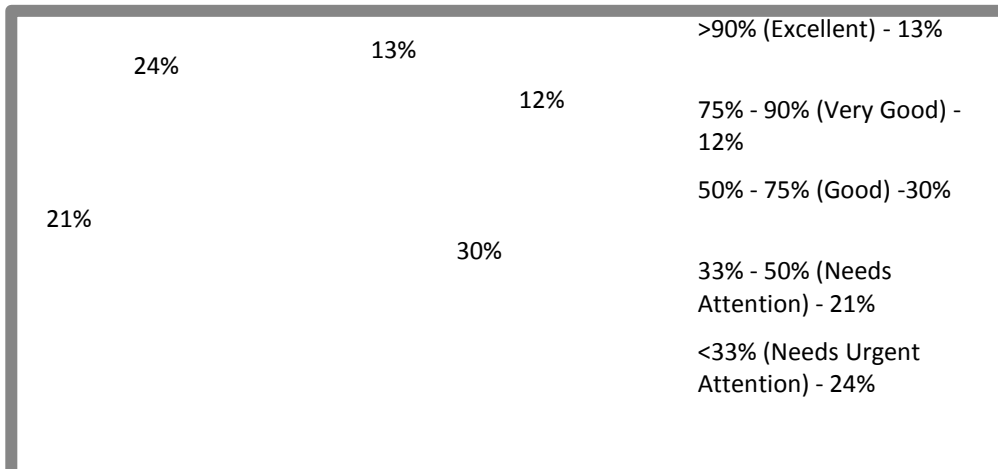


Fig. 3.1: National 2010 Municipal Blue Drop Performance

Source: DWA (2010:2)

3.9.4 The third year of assessment

One hundred and sixty-two South African municipalities and 914 water supply systems were assessed for the Blue Drop certification programme in 2011 (DWA, 2011:13). Table 3.3 provides a summary of the 2011 Blue Drop assessment results. A total of 66 Blue Drop certificates were awarded in 2011 at the 3rd Municipal Water Quality Conference on 30 June 2011. The Gauteng and Western Cape provinces are again among the top three performers in

2011. The Western Cape Province managed to scoop 29 Blue Drop awards while the Northern Cape Province received nothing.

According to the DWA (2011:193), all municipalities (100%) were assessed in Mpumalanga during the 2011 Blue Drop assessment cycle and the province managed to receive eight Blue Drop certificates compared with only three certificates in 2009. The Steve Tshwete Local Municipality was the best performer in the province during the 2011 Blue Drop assessments, achieving a Blue Drop score of 96,60% (DWA, 2011:191). It is also important to note that the lowest Blue Drop score in the province was at 05,05% achieved by the Mkhondo Local Municipality (DWA, 2011:214).

Table 3.4: 2011 Blue Drop Provincial Scores

Province	Blue Drop Score	No. of Blue Drop Awards	Systems that achieve above 50% Blue Drop Score
Gauteng	95.10%	7	87.5%
Western Cape	94.09%	29	77.2%
KwaZulu-Natal	80.49%	7	73.8%
Eastern Cape	77.33%	4	50.9%
Free State	64.01%	3	38.2%
Limpopo	64.00%	5	45.3%
North West	62.25%	3	25.6%
Northern Cape	62.07%	0	51.0%
Mpumalanga	56.50%	8	55.0%

Source: Adapted from DWA (2011:14)

3.10 CRITIQUE OF THE BLUE DROP CERTIFICATION PROGRAMME

Tissington *et al*. (2008:61) are of the opinion that the Blue Drop certification programme will be biased in favour of well-performing municipalities and assure rich water consumers about their drinking water quality. On the other hand, municipalities that are not performing well will be named and shamed irrespective of the reasons behind their poor performance and non-compliance with set drinking water quality standards.

The authors' criticisms are unfounded since up till 2011 the Blue Drop programme has not negatively criticised or embarrassed under-performing municipalities. Instead, the DWA has

worked closely with them to ensure that they improve performance. On the other hand, the authors do not suggest any other alternative regulatory mechanism. The authors have already indicated that they are not in favour of the Blue Drop programme and also doubt the accuracy of the data provided by municipalities (Tissington *et al.,* 2008:62). They also question how municipalities which are facing staffing challenges such as lack of technicians are expected to manage their drinking water quality effectively and efficiently. In such cases the capacity to report accurately and to respond effectively to signs of water quality problems is non-existent.

It should also be noted that the capacity to manage drinking water quality differs from municipality to municipality. Some do have the necessary capacity and some do not have it at all and will not be able to meet the Blue Drop requirements. A case in point cited in the Water Rhapsody (2010), refers to municipalities which do not receive revenue from consumers and rely only on national government grants in order to provide services (and the grant is frequently not sufficient).

It is unfair to compare the performance of larger metropolitan areas and smaller and poor municipalities. Many smaller municipalities, which seldom have the capacity to purify their water, are responsible for treatment of their drinking water as compared with larger metropolitan areas that contract water boards to purify their drinking water. The quality of the raw water in a particular area is also a challenge since some sources such as the Hartbeespoort Dam are heavily polluted and others are comparatively less polluted. The Blue Drop programme should therefore not overlook the quality of raw water in a particular municipal area (Water Rhapsody, 2010).

3.11 OPTIMISTIC VIEWS ON THE BLUE DROP PROGRAMME

Tissington *et al*. (2008:62) hope that the Blue Drop incentive-based Regulation becomes a success, especially with the DWA assuming its role as a national regulator of water services. The authors consider this programme as a good start for an effective drinking water quality enforcement system. Tremolet and Halpern (2006:10) also view the implementation of the incentive-based regulation in a positive light. The authors are not in favour of applying penalties for non-compliance in situations where municipalities do not have the necessary resources to comply with set standards, as these standards might be too high to be met by poor and rural municipalities.

Tremolet (2006:27) summarised the importance of the South African drinking water quality regulations as follows:

- They promote transparency since communities will now have access to information about their drinking water quality. This is important since water has an impact on the welfare and health of communities.
- The regulations will also induce municipalities to work towards complying with drinking water quality standards, especially those which have had difficulty in complying before.

The programme will help to measure performance and identify problematic municipalities and also plan and implement the necessary interventions. Municipalities such as the City of Tshwane Metropolitan Municipality and the EThekwini Metropolitan Municipality are supportive of the initiative and believe it has played an important role in ensuring accountability of water services providers. These Municipalities also believe that the programme has encouraged municipalities to prioritise all areas of drinking water quality such as monitoring and compliance with the drinking water quality standards (Water Rhapsody, 2010).

According to the former Minister of the Department of Water Affairs and Forestry as quoted in the Water Wheel (2009:23), “The incentive-based regulatory approach is a first for South Africa. We are still in our infancy with this approach and the concept must be further developed towards perfection”.

According to the DWA (n.d.:1-5), the Blue Drop Programme has resulted in improved management of drinking water quality in South Africa. The following improvements among others were singled out by the Department:

- There was also an improvement in micro-biological and chemical compliance in 2010 compared with the 2009 results.
- The programme has also compelled decision-makers in local government to shift their focus to dealing with drinking water management decisively.

3.12 SUMMARY

Through the Blue Drop Incentive-based Regulation, the DWA is acknowledging drinking water quality in WSAs. The objective of the incentive-based regulation programme is to ensure the improvement of drinking water quality. The programme is also seen as a preventative approach in terms of managing and regulating drinking water, especially since the majority of South Africans depend on tap water for their livelihoods.

The Minister of Water and Environmental Affairs has also acknowledged that the incentive-based regulatory approach is still new in the South Africa water sector. Though new, the Blue

Drop Certification Programme has played an important role in driving municipalities to improve their performance in drinking water quality management as indicated the various Blue Drop Reports. This is evident from the improvement in micro-biological and chemical compliance in 2010 compared with the 2009 results.

In the next chapter the research methodology used in this study will be discussed.

CHAPTER 4 - RESEARCH METHODOLOGY

4.1 INTRODUCTION

The significance of an acceptable scientific approach in any research endeavour cannot be overestimated. This chapter will focus on the research methodology that was used to determine the perceptions of municipal water services officials about the Blue Drop Programme. The research process used in this project attempts to ensure valid scientific arguments and findings. The research design which involves a combination of the quantitative and qualitative research methods is discussed in this chapter. This will be followed by discussions of the population and sample. The data collection procedures are also discussed with a focus on the literature review, semi-structured interviews and the survey questionnaire. The strengths and limitations of the study are outlined and the data analysis also discussed.

4.2 RESEARCH DESIGN

The methods used to conduct this study are qualitative and quantitative (Mixed Method). The researcher decided to combine these methods in order to have a one-on-one interview with the management of water services in municipalities. The number of these respondents is quite limited as there is only one water service/technical manager per municipality. This also gave the researcher an opportunity to visit the identified treatment works in order to guide the data collection and the completion of survey questionnaires at the same time.

4.2.1 Qualitative design

De Vos (2011:308) states that “The qualitative researcher is concerned with understanding (verstehen) rather than explanation, with naturalistic observation rather than controlled measurement, with the subjective exploration of reality from the perspective of an insider as opposed to that of an outsider predominant in the quantitative paradigm”. When using this approach, the researcher was involved in a process of trying to collect valid data from the participants in order to analyse and synthesise the data collected. The qualitative approach is mainly unstructured and allows flexibility in the entire research process (Kumar, 2005:12 as quoted in De Vos, 2011:65).

The choice of this method was specifically to cater for the small number of respondents who are mainly technical/water services managers and water treatment works

supervisors/superintendents in the respective six local municipalities of the Nkangala District Municipality. This also helped the researcher to gain insights into the effects of the Blue Drop Programme on the municipal officials and their institutions in the respective municipal areas. The researcher was also able to judge the effectiveness of the Blue Drop Programme, as described by the people who have firsthand experience of the programme.

“In the entire qualitative research process, the researcher keeps a focus on learning the meaning that the participants hold about the problem or issue, not the meaning that the researcher brings to the research or writer from the literature” (Creswell, 2007:37-39, as quoted in De Vos ,2011:65). Therefore, the aim of using the qualitative method is to understand the life of the water services officials as affected by the Blue Drop programme and the meaning they attach to this programme.

4.2.2 Quantitative design

Punch (2005:3) as quoted by Blaxter, Hughes and Tight (2010:65) states that “Quantitative research is empirical research where data is in the form of numbers”. The approach aims to generate laws that are applied to the general population. It is based on objective measurements and is not influenced by feelings and opinions of individuals (Welman *et al*., 2005:6). This approach has various mechanisms that help researchers to avoid baseless conclusions. Quantitative research tends to involve large numbers of participants and the analysis of data is based on statistics (Welman *et al*., 2005:9). This method involves the use of surveys in which attitudes, beliefs and opinions can be tested. When applying the quantitative method, the researcher uses written questionnaires and response options that have been predetermined (De Vos, 2011:156).

4.3 POPULATION AND SAMPLE

4.3.1 Population

Welman *et al.* (2005:53) describe a population “as a set of cases from which a sample is taken”. The authors further explain that the term population refers not only to people, but also includes among other groups, human products, events and conditions. In this study the population refers to all municipal water services officials in all municipalities in South Africa. These are specifically water services/technical managers, water treatment works process controllers and their assistants.

4.3.2 Sample

According to De Vos (2011:223), a sample is made up of constituents of a population which are deemed to be part of the study; the portion of the population taken represents the targeted population. Non-probability convenient sampling was applied to obtain the qualitative and quantitative research samples in order to undertake this particular study. According to Welman *et al.* (2005:69), this sampling method involves selecting cases that are easy to obtain.

4.3.2.1 Qualitative sample

Interviews were conducted with eight research participants; these included municipal technical directors, water services managers and water treatment works supervisors/superintendents. All the interviewees came from the six local municipalities of the Nkangala District Municipality.

Only two technical/water services manager were not interviewed since they were on leave at the time of the visits to their respective municipalities. Two supervisors were also not available to be interviewed because in one municipality water is provided by an external water services provider to its residents and there is no supervisor employed. In the other case the researcher was informed that the municipality is using package plants to purify water from boreholes and that there were no process controllers and supervisors involved.

The aim was to interview at least one water treatment works supervisor/superintendent per municipality considering that most municipalities have more than one treatment works. An attempt was made to request the water services manager of one of the above mentioned municipalities to either conduct a telephone interview or to respond to the interview schedule in writing. The researcher's email was never replied to or acknowledged.

4.3.2.2 Quantitative sample

The number of participants who were targeted for this survey was 30 officials from water treatment works. The number in the sample of the survey participants who completed the questionnaire in all the municipalities is as follows:

- Fourteen process controllers and one supervisor completed the questionnaires.
- Eight non-professional staff at the water treatment works also completed the questionnaire.
- In two municipalities there were no process controllers to complete the questionnaires. In one municipality the water is provided by external water services providers, namely the J.S. Moroka Local Municipality which participated in both the survey and the interviews. In

another municipality it was indicated that they use package plants to purify water from boreholes and the building of a new plant has just been completed. Even though these municipalities did not have process controllers to participate in the survey, their water services managers participated in the semi-structured interviews.

4.4 DATA COLLECTION

In this study the data collection techniques used in the collection of data included the quantitative (questionnaires) and the qualitative (semi-structured face-to-face interviews). The target group for these two different data collection methods was also different. The secondary data of the study were collected through different documents relevant to the study.

The researcher requested approval from all the municipal accounting officers (municipal managers) in order to conduct the study in their various municipalities. The request was made in writing accompanied by a formal letter from the university. A copy of the letter is attached as Annexure A.

The above mentioned data collection methods used in the study are briefly discussed in the sections below.

4.4.1 Literature review

A literature review about incentive-based regulations, drinking water quality and the Blue Drop programme was conducted. Such a review is important in terms of providing the researcher with important background information about the research topic (Welman *et al*., 2005:39). The authors also point out that a literature review can also assist the researcher with ideas on how to proceed with the study. It also assists in determining if research has been conducted in the past on the Blue Drop programme. According to De Vos (2011:134-135), a literature review helps the researcher to gain a clearer understanding of the problem to be studied, provides a framework for the study and supplies the researcher with knowledge of the phenomena under review.

A literature review was conducted to provide background on:

- Regulations – definitions and approaches,
- drinking water quality,
- the Blue Drop programme; and
- the legislative framework and policies of the water sector in South Africa.

Details of the literature review are contained in Chapters 2 and 3 of this mini-dissertation.

4.4.2 Semi-structured interviews

Interviews involve the exchange of information between the interviewer and the interviewee (De Vos, 2011:342). Semi-structured interviews are based on a set of predetermined questions. The questions in the interview schedule serve as a guide for the interview (De Vos, 2011:352). This approach also provides the researcher and the research participants with some form of flexibility (De Vos, 2011: 351). Semi-structured interviews allow the researcher to probe in cases where more clarity is required or where answers are incomplete (Welman *et al*., 2005:167). One disadvantage of interviews is that the researcher's questions might not extract the responses expected from respondents (De Vos, 2011: 360).

Interviews were held with a total of four technical/water services managers and a total of four plant superintendents/supervisors. Fifteen to thirty minute in-depth interviews were conducted with twelve respondents from the six local municipalities between 3 and 19 August 2011 in the offices and water treatment works of the various municipalities. The participants were assured that their identities would remain anonymous and that their participation in this study was voluntary. Some of the interviewees were tape recorded in order to assist with transcription and to ensure accurate recording. There were some participants who were not comfortable being recorded and in such cases the researcher had to ensure that the notes taken were as accurate as possible.

Questions that were posed to the participants are related to the objective of the study identified in Chapter 1 of this mini-dissertation. The interview schedule is attached as Annexure B.

4.4.3 The survey questionnaire

According to Aldridge and Levine (2005:5) as quoted in Blaxter *et al*. (2010:78), "the strategy involved in a survey is that we collect the same information about all the cases in a sample. Usually, the cases are individual people, and among other things we ask all of them the same question". Surveys are excellent mechanisms used among others to collect data in a large population about people's attitude concerning issues such as the Blue Drop programme; they can also be used for descriptive, explanatory, and exploratory purposes (Babbie, 2008:270). Babbie (2008:272) defines a questionnaire as "A document containing questions and other types of items designed to solicit information appropriate for analysis. Questionnaires are used primarily in survey research but also in experiments, field research, and other modes of observation".

The researcher used a structured questionnaire with closed-ended questions to obtain data from twenty-three process controllers and non-professional staff members at water treatment works in the participating municipalities. Questionnaires also help researchers to obtain facts and opinions from informed people about a particular phenomenon (De Vos, 2011:186).

According to Babbie (2008:272) close-ended questions are frequently used in survey research because the responses obtained are uniform and are also easy to process. The author further states that close-ended questions also offer the respondents a list of possible answers from which to select.

Closed-ended questions have the following advantage:

- The results of the study can be made available quickly.
- Questions are answered within the same framework.
- Responses are easy to compare with one another.
- Answers are coded and statistically analysed (De Vos, 2011:198).

Only three of the twenty-three questionnaires were completed in the absence of the researcher due to the fact that the participants were not at the station at the time the researcher visited their municipality. The rest of the questionnaires were completed in the presence of the researcher and this helped to raise response rates because of the personal contact. The issues of literacy, visual capacity and writing competence are also relevant to the hand-delivered questionnaire (De Vos, 2011:188). Some of the participants were not literate and this made it difficult for them to complete the questionnaire.

The research participants were guaranteed anonymity and that their names would not be mentioned in the report. It is also important to note that officials stationed at water treatment facilities do not have access to email and fax facilities. It was therefore a serious challenge to send and receive questionnaires from these participants.

The questionnaire is divided into three sections; with Section A dealing with biographical information, Section B focusing on opinions about the Blue Drop programme and Section C focusing on familiarity with the water sector legal framework.

To detect possible flaws in the questionnaire it was used during a contact session at the North-West University as a sample questionnaire during the research methodology contact session. The questionnaire was further analysed by the Statistical Consultation Services of the North-West University. Both these processes helped the researcher to rephrase questions and to

construct and put clear questions. The questionnaire was also analysed by the study supervisor. The survey questionnaire is attached as Annexure C.

4.5 STRENGTHS AND LIMITATIONS OF THE STUDY

4.5.1 Credibility of the research

According to Welman *et al*. (2005:142), "validity is the extent to which the research findings accurately represent what is really happening in the situation". Factors such as faulty research procedures and measurement procedures that are faulty can lead to questionable validity of research results (Welman *et al*., 2005:142). In order to mitigate questionable results the researcher has done the following:

- Developed appropriate data collecting instruments as indicated in Chapter 1 of this mini-dissertation.
- The sample used in the study was also appropriate as pointed out in the first chapter.
- The analysis of the research results was done according to the type of instruments used in the study.
- The views of the participants were captured as accurately as possible.
- Documentation, such as completed survey questionnaires and interview notes and recordings, has been safeguarded.

4.5.2 Limitations and gaps

The main limitation of this study is that it cannot be generalised to a larger population of municipal water services officials, but it can provide the water sector with an opportunity to learn about perceptions of municipal officials regarding the Blue Drop programme in order to look at other similar cases in the future. The use of two separate data gathering instruments intensified the worthiness of the study.

Only twenty-three out of the initially planned thirty survey questionnaires were completed, while only eight participants in all the six identified municipalities were available to participate in the semi-structured interviews.

4.6 DATA ANALYSIS

The analysis of data was done separately for both the qualitative and quantitative methods. “Data analysis is the process of bringing order, structure and meaning to the mass of data collected” De Vos (2011:397).

4.6.1 Quantitative data analysis

According to De Vos (2011:249), the analysis of quantitative data involves the converting of data into numbers which are then subjected to statistical analysis. The researcher used descriptive statistics to analyse quantitative data and to explain and find meaning. According to De Vos (2011:251), “Descriptive statistics are procedures that describe numerical data in that they assist in organising, summarising and interpreting sample data”.

The data collected in this research is presented in the next chapter in the form of graphs, pie charts and tables.

4.6.2 Qualitative data analysis

According to Babbie (2007:378) as quoted in De Vos (2011:399), qualitative data analysis is the “non-numerical examination and interpretation of observations, for the purpose of discovering underlying meanings and patterns of relationships.”.Qualitative data gathered through the semi-structured interviews were analysed by identifying common themes that emerge from the participants’ descriptions. The data were organised according to each of the questions used in the interview schedule. Consistencies and differences in the participants’ responses were identified and grouped together. Sentences and themes that speak to one theme were clustered into categories to reflect one meaning.

The researcher followed the steps identified by Taylor-Powell & Renner (2003:2-5) in analysing the qualitative data:

- Get to know and understand the data by reading and re-reading.
- Focus the analysis on how participants responded to each interview question.
- Categorise the information by identifying themes and patterns and organise them into coherent categories.
- Identify patterns and connections within and between categories by capturing similarities and differences in the participants’ responses.
- Interpret the data by using the themes and connections to explain the findings.

4.7 SUMMARY

The processes followed in conducting the study were discussed in this chapter. The research design was highlighted with the focus on the qualitative and quantitative methods. Furthermore, the population and samples used for both qualitative and quantitative data gathering methods were also discussed. The various data collection methods used in the study were also explored and data analysis methods were discussed with qualitative analysis explained separately from the quantitative analysis. The strengths and limitations of the study were also identified in this chapter. The next chapter will focus on the discussion and analysis of the research findings.

CHAPTER 5: THE PERCEPTIONS OF MUNICIPAL WATER SERVICE OFFICIALS ON THE BLUE DROP PROGRAMME: EMPIRICAL FINDINGS

5.1 INTRODUCTION

In the previous chapter, the research methodology applied in this study and the data analysis was discussed. This chapter focuses on the presentation, interpretation and discussion of the results of the empirical study.

The primary objective of the study was to determine the perceptions of municipal employees about the Blue Drop incentive-based regulation programme by the DWA. The analysis and discussion of the results will focus on the above primary objective with reference to the following secondary objectives:

- To find out if the water services employees in municipalities are familiar with water services policies and legislation, especially the Blue Drop Certification Programme.
- To establish if water services employees in municipalities are in favour of the implementation of the Blue Drop water quality assessment programme.

Now that the responses of both the qualitative and quantitative data collection tools have been analysed, the results can now be presented. The results will be presented separately starting with the results of the qualitative data investigation followed by the quantitative data results. This is done to ensure that the perceptions of management and supervisors (qualitatively collected data) are spelt out clearly separately and those of process controllers and their non-professional assistants (quantitatively collected data) are also given the necessary attention independently.

5.2 RESEARCH FINDINGS

5.2.1 Qualitative research findings

Semi-structured interviews were conducted with water services managers/technical directors and water treatment works supervisors/superintendents. The responses presented below have been analysed and consolidated as discussed in the previous chapter. Eight of the twelve originally identified participants participated in the interviews**.** Four of the eight interviewees were water treatment works supervisors and the other four were from middle to senior management in the water services division. Those not interviewed were either on leave or there were no supervisors available to be interviewed in those municipalities.

5.2.1.1 Perceptions about the Blue Drop Programme

In this section the perceptions of water services managers, technical directors and supervisors about the Blue Drop programme are presented. The participants' responses have been consolidated by the researcher.

Question 1.1: What do you think of the Blue Drop Certification Programme?

There was a general consensus among all the interviewees that the Blue Drop programme is a good initiative for the water sector in South Africa. Interviewees expressed feelings such as being happy to have such a programme and that it is a positive intervention. Five interviewees see the programme as a good initiative that raises awareness in municipalities about the importance of good management of drinking water quality and that it has so far improved compliance with drinking water quality standards. Three indicated that it serves as an incentive for municipalities to do the right thing in managing drinking water quality and helps to protect communities from drinking unsafe water. Communities are now made aware of the status of their drinking water quality, and the programme is promoting transparency and better communication in municipalities. One interviewee mentioned that the programme has improved the operation and maintenance of water treatment works infrastructure in municipalities.

Question 1.2: How do you think it will change the management of water services in your municipality? Do you think the programme has already brought about any changes?

The general response among those interviewed is that for a positive change in water services to occur, senior management in municipalities should be involved in drinking water quality management. In response to the second part of the question, there were mixed responses from interviewees. The majority indicated that the programme has brought changes in their municipalities. Three interviewees are of the opinion that the programme has improved communication between water services senior officials and their subordinates. One interviewee indicated that she is now noticing political interventions in the management of drinking water quality in her municipality, something that was not happening before. One interviewee pointed out that management has even decided to appoint qualified staff in the water treatment work and this has brought improvement in the water treatment works. One interviewee indicated that the impact of the programme in his municipality is not yet evident. Another interviewee raised a concern that the Blue Drop assessments place too much emphasis on administrative elements rather than on the actual biological and chemical compliance with drinking water quality

standards. Another interviewee cited the lack of financial resources to employ staff as having an impact in his municipality on the achievement of Blue Drop status.

Question 1.3: Do you think it is important to be regulated through the Blue Drop Programme? Why?

There was consensus that it is important to be regulated through the Blue Drop programme. Interviewees felt it is the right approach and helps to protect communities by ensuring safe drinking water. One interviewee said that competition between municipalities is a good thing since it brings about the zeal to achieve and it also serves as a motivator. In one case the senior manager is reported to have even visited the treatment works, something that had never happened before. The programme encourages municipalities to be honest in managing their drinking water quality and also that residents now have access to information about the status of their drinking water quality. The programme encourages a uniform approach nationally in the management of drinking water.

Question 1.4: What do you think is the best way to regulate drinking water quality in municipalities?

There was a feeling that the best way is to involve senior managers in municipalities in the management of drinking water quality. Training of water treatment workers was also raised as an important aspect that will ensure that regulation succeeds. The general point of view among the rest of the interviewees is that the Blue Drop programme is an acceptable form of regulation for drinking water quality and that it will need to be improved and adjusted as time goes.

Question 1.5: What do you think of the way in which the Department of Water Affairs assessors conduct their assessment in water treatment works?

There were different responses to this question, such as those who felt that the assessors are doing a good job when conducting assessments. The assessors provide advice, municipal employees learn from them and are intensively involved in what they do and are straightforward. Assessors are free and fair in their approach and discuss challenges with treatment works employees. One expressed satisfaction that the Blue Drop results of his municipality are improving every year.

On the other hand, there are those who pointed out that they have never seen or met the assessors because they were either on leave or working a different shift. One interviewee felt that at the beginning they were confused with the assessment processes. One interviewee

raised a concern about assessment of municipalities that are provided with water by external WSPs. The concern is that this is not the reflection of the municipality, but of the external provider's results.

Question 1.6: What is your opinion of municipalities which do not comply with drinking water quality requirements?

District municipalities should each have an accredited laboratory for use by the local municipalities. The poor operation and maintenance of water treatment works infrastructure was raised as a major concern by most interviewees. Constant changes in management and leadership also have an impact on the morale and performance of employees. Most municipalities are faced with a lack of capacity and experienced staff. Municipalities need to appoint experienced and knowledgeable people, people who have a passion for the management of drinking water. Problems with how municipalities are managed and water services in particular were raised. One interviewee cited the poor relationship between traditional authorities and municipalities as also impacting negatively on issues such as planning. Employees should be free to raise challenges without fear in politically sensitive environments.

Municipalities which do not comply are not doing things the right way and this means there is still a long way to go. Those municipalities which do not comply with drinking water quality standards should be labelled and also need the intervention of the Department of Co-operative Governance and Traditional Affairs and the DWA. Budgetary constraints and lack of payment for services were cited as major problems affecting the performance of municipalities. In some municipalities, communities still believe every service provided by a municipality is for free. Communities need to start paying for services they receive from municipalities.

5.2.1.2 Understanding of water sector legal framework

The following findings relate to the interviewees understanding of the water sector legal framework and their opinions on the Blue Drop Incentive-based regulation.

Question 2.1: What is your understanding of drinking water quality regulations?

The above question elicited mixed responses among the interviewees. Two interviewees indicated that they are not familiar with water services regulations, but have heard about SANS 241 and the regulation for classification of water treatment works and process controllers. The rest of the interviewees pointed out that they know SANS 241 and are familiar with its contents. One even indicated that the SANS 241 is regarded as the "bible" of the water laboratory. They are also familiar with the requirements for process controllers and water treatment works to be

classified. One pointed out that his understanding of the regulations is that they provide guidelines. Others said they do not know the names of legislation and regulations, but know how water treatment works and process controllers are classified and the processes involved in water treatment.

Question 2.2: Do you keep copies of water related legislation, policies and regulations? If yes, which ones?

Four interviewees indicated that they keep copies of water sector regulations, policies and legislation in order to comply with the Blue Drop assessment and mostly referred to SANS 241. One said he keeps copies of these documents for reference purposes. Two said they do not have copies and in some instances copies are kept in senior management offices.

Those who keep copies cited the following:

- Water Services Act 108 of 1997;
- National Water Act 36 of 1998;
- Strategic Framework for Water Services;
- Water Services Development Plan;
- Blue Drop Handbook, and;
- Blue Drop Assessment documents.

Question 2.3: Are you familiar with the content of the above documents?

One interviewee indicated that she is familiar with the legislation and usually quotes it when writing reports to senior management. Another said he studied water sector laws and policies during his water care postgraduate studies at university. Familiarity with legislation and regulations is a major concern since some of the participants could not differentiate between regulations, policies, legislation and ordinary documents with the DWA logo. From the responses it was clear that most interviewees are not familiar with water sector legislation, policies and regulations.

Question 2.4: Do you have any other advice or opinions regarding the Blue Drop Incentive-based Regulation?

Municipal dynamics should be taken into account when conducting Blue Drop assessments and assessors should be accommodative. The following came out as advice regarding the Blue Drop Incentive-based Regulation:

- Process controllers should also be allowed to attend water-related conferences.
- It is important that process controllers are familiarised with Blue Drop assessment criteria.
- The DWA regional offices should pay visits to treatment works on a more regular basis.
- The assessment should not place too much emphasis on administrative issues such as water safety plans, but should focus more on the drinking water chemical and biological compliance.
- The DWA should help establish drinking water quality forums in municipalities.
- Communication between the DWA regional offices and municipalities should be improved.
- Process controllers should be provided with Blue Drop results of their respective municipalities.
- Municipalities need to ensure that their infrastructure and equipment are properly maintained.

One interviewee said “You can have a good water safety plan and produce bad quality water.” This was in support of the statement above that the Blue Drop programme places too much emphasis on administrative matters.

5.2.2 Quantitative research findings

The structured questionnaire was completed by the participants anonymously and was administered in the presence of the researcher with the exception of only three questionnaires. Twenty-three of the 30 planned survey participants completed their questionnaires. The following analysis and discussions of the quantitative study are based on the questions asked.

5.2.2.1 Section A – Biographical information of the research participants

This section of the qualitative findings focused on the biographical information of the respondents. These participants were mainly process controllers and non-professional staff working in water treatment works in the identified municipalities.

Interpretation of the biographical information

From the statistics in Figure 4.1 it is evident that the majority of respondents are males representing 87% and only 13% were females. These figures represent the workforce employed in water treatment works in the six municipalities concerned. All respondents (100%) indicated that they are permanently employed. The level of education depicts a picture of 18% who have primary school education, 52% who have high school education, 18% graduates, 4% do not have any formal qualifications and 13% have done other courses.

1. Gender of respondents

Male	87%
Female	13%

2. Status of Employment

Permanent	100%
Temporary	0
Part Time	0
Other	0

3. Level of Education

Post-Graduate	0%
Graduate	13%
High School	52%
Primary Schooling	18%
No Formal Schooling	4%
Other	13%

4. Current Work Level

Manager	0%
Supervisor/Superintendent	4%
Process Control	61%
Non-professional	35%
Other	0%

5. Work experience (In years)

0-5	6-10	11-15	16-20	21 and above	No responses
18%	26%	13%	4%	17%	22%

6. Age in years

16-25	26-35	36-45	46-55	56 and above	No responses
4%	17%	44%	22%	4%	9%

7. Home Language

Afrikaans	English	Ndebele	N Sotho	SiSwati	Tsonga	Zulu	Other
0%	0%	22%	31%	13%	0%	30%	4%

8. Participants per Municipality

Dr.JS Moroka	Emakhazeni	Emalahleni	Steve Tshwete	Thembisile Hani	Victor Khanye
13%	22%	35%	30%	0%	0%

Figure 4.1: The respondents' biographical information

The analysis of the work experience shows that 18% of the respondents have less than 5 years work experience, while 26% fall within the range of 6-10 years work experience, 17% are in the range of 21 years experience and above. The majority are employed as process controllers at 61%, with 35% non-professional staff and 4% supervisor/superintendent. The ages of between 16-35 years only account for 21% of the respondents, while the 36-55 year age group makes up 66% of the respondents and only 4% are at the age of 56 years and above. Nine percent did not complete this part of the questionnaire. African languages are dominant with 96% indicating them as their home language and none for Afrikaans and English. Those who participated in this survey were mainly from four of the six identified municipalities. As indicated in the previous chapter, one of the municipalities is provided with water by its neighbouring municipality and does not have its own water treatment works and therefore does not employ process controllers. The other municipalities indicated that they did not have process controllers in their

employ at the time of the study and mainly rely on borehole water which is treated at a package plant. The water services managers of both municipalities participated in the semi-structured interviews and their recordings are available.

5.2.2.2 Section B – Opinions about the Blue Drop Certification Programme

All questions in this section are aimed at addressing the third secondary objective of the study, namely to establish if water services employees in municipalities are in favour of the implementation of the Blue Drop programme. The responses that follow are based on the questionnaire attached as Annexure C.

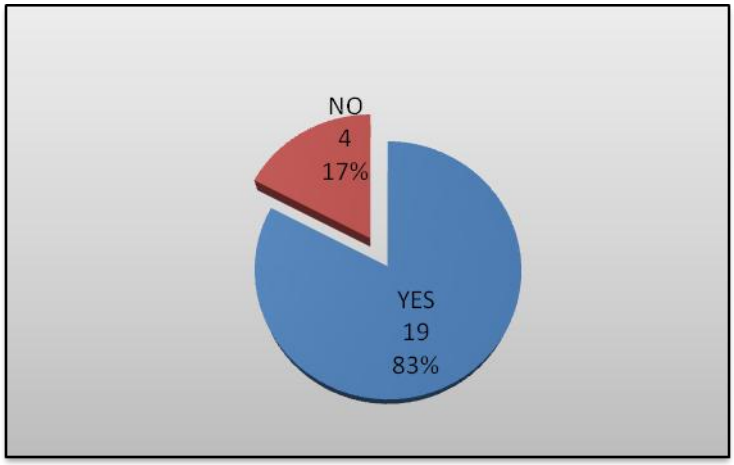


Figure 4.2: Respondents' Awareness of the Blue Drop Programme

The 23 respondents were asked to indicate if they were aware of the Blue Drop incentive-based regulation and 83% indicated that they are aware and only 17% indicated that they are not aware of the programme. It is clear from the responses that municipalities are informing their employees about the programme and that the DWA is also communicating the message to the majority of employees. The fact that 17% of employees working at a water treatment plant are not aware of the programme is a cause for concern considering that the certification programme has been running for three years (2009-2011).

Three of the Blue Drop programme's objectives were selected as part of the questionnaire to determine the perceptions of municipal employees about the Blue Drop programme. Respondents were asked to indicate if they were strongly in favour, in favour of, neutral, against and strongly against any of these objectives. The responses from the respondents are discussed in the following section and are also reflected in Figure 4.3.

Objective 1: **Promote transparency and accountability (responsibility)**

In response to this objective, 78% respondents indicated that they are strongly in favour, 18% are in favour of this objective and 4% indicated that they are neutral.

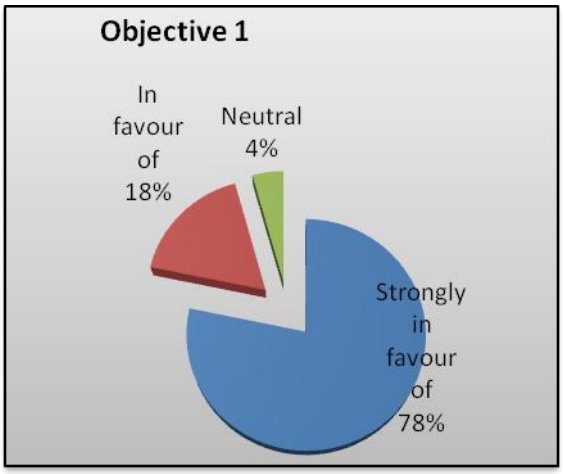


Figure 4.3: Opinion on Blue Drop objective 1

Objective 2: Provide reliable and consistent information to the public

The majority of respondents (75%) indicated that they are strongly in favour, while 17% indicated that they are in favour of this objective. Four percent indicated that they are neutral and another 4% were against.

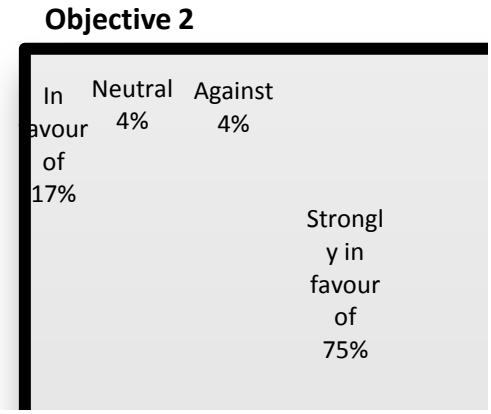


Figure 4.4: Opinion on the Blue Drop objective 2

Objective 3: Facilitate closer relationship between water services authorities and water services providers

It is clear from the responses in Figure 4.5 that all participants are in favour of this objective seeing that 83% indicated that they are strongly in favour and 17% in favour of the objective.

It is evident from the responses that the overwhelming majority of respondents are in favour of all the selected Blue Drop objectives.

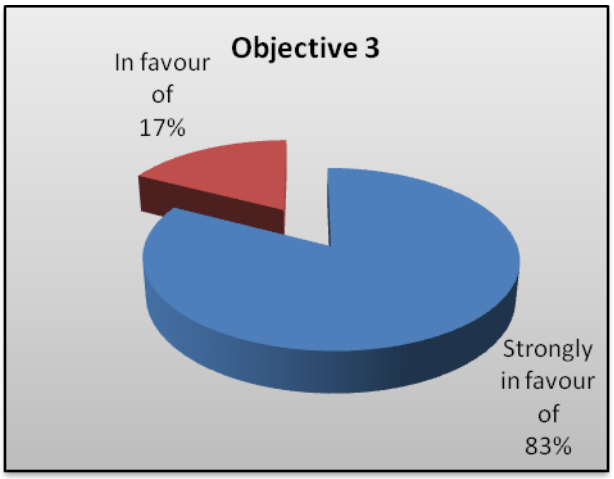


Figure 4.5: Opinion on the Blue Drop objective 3

In response to the statement that the Blue Drop Incentive-based Regulation is necessary to ensure safe drinking water quality, the responses are as follows:

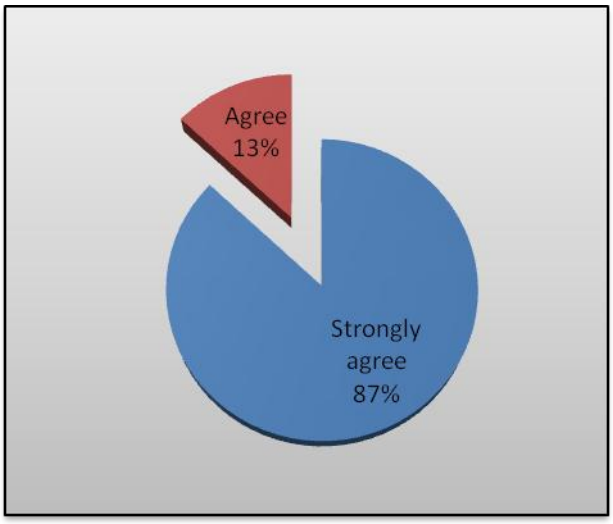


Figure 4.6: Blue Drop programme and safe drinking water

The responses in Figure 4.6 show that 87% of the respondents strongly agree and the remaining 13% agree with the statement that the Blue Drop programme is necessary to ensure safe drinking water.

The statement that “the Blue Drop programme has improved performance in the management of drinking water quality” was aimed at determining if employees have noticed any difference in the management of drinking water in their municipalities since the implementation of the Blue Drop Programme in 2009. The responses to this statement are reflected in Figure 4.7 on page 61:

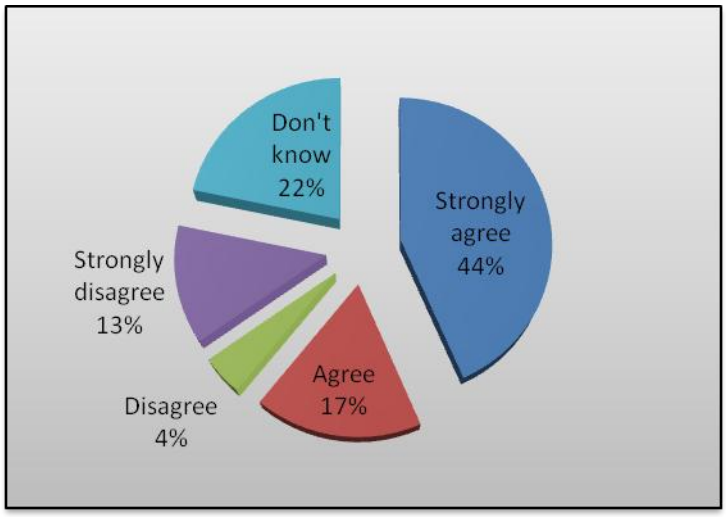


Figure 4.7: Blue Drop and improved management of drinking water

As reflected in Figure 4.7, only 44% of the respondents strongly agree with the statement and another 17% agree, while 4% disagree, 13% strongly disagree and 22% do not know if the programme has brought any improvement to the way their drinking water is managed.

In response to the statement that a programme similar to the Blue Drop should be introduced for other municipal functions, 57% of respondents strongly agree with the statement and only 4% disagree while the remaining 39% do not know. Responses to this statement are clearly depicted in the Figure 4.8.

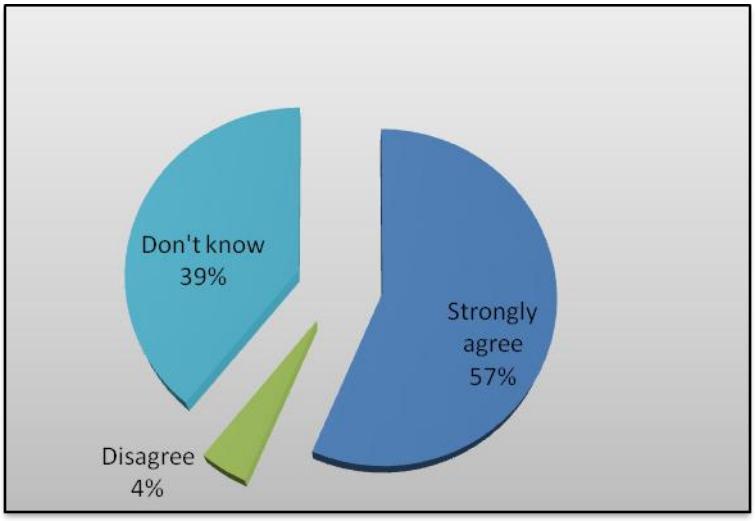


Figure 4.8: Programmes similar to Blue Drop for other municipal functions

The breakdown of the results shows that 44% of the respondents strongly agree that the Blue Drop assessment team is doing a good job and 22% also agree. The remaining 30% indicated

that they do not know and only 4% indicated that they are against the statement that the Blue Drop assessment team is doing a good job as reflected in Figure 4.9.

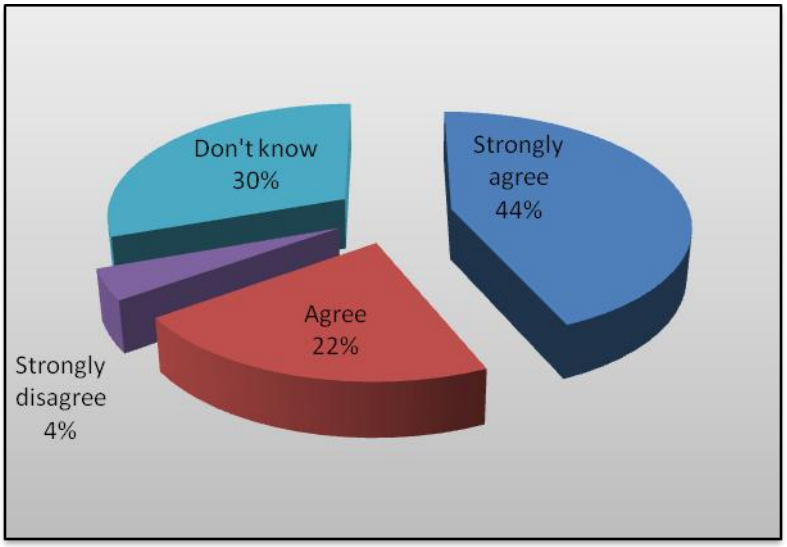


Figure 4.9: Opinion on the Blue Drop assessment team

The responses in Figure 4.10 below are in response to the statement that training regarding the Blue Drop Incentive-based Regulation assessments was given at the respondents' municipalities. It is worth noting that 39% respondents indicated that they strongly disagree with the statement and another 22% also disagree which means they have never received training on the Blue Drop programme. Only 22% strongly agreed and 17% agreed that they receive training on the programme.

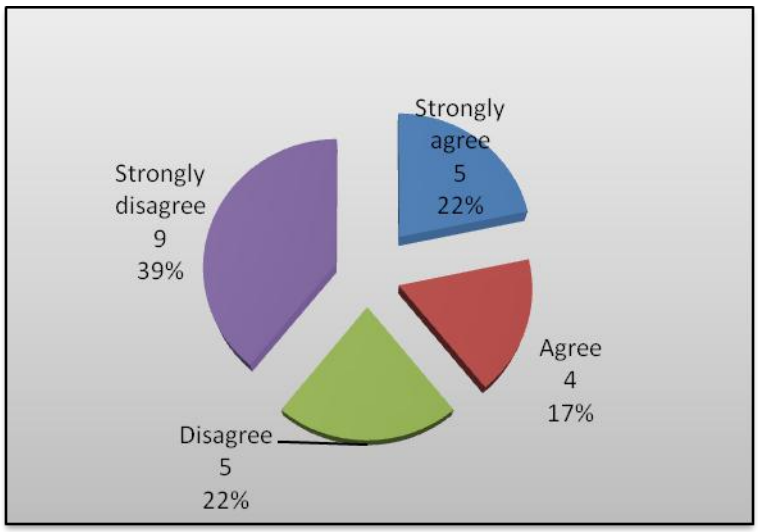


Figure 4.10: Blue Drop training provided by municipalities

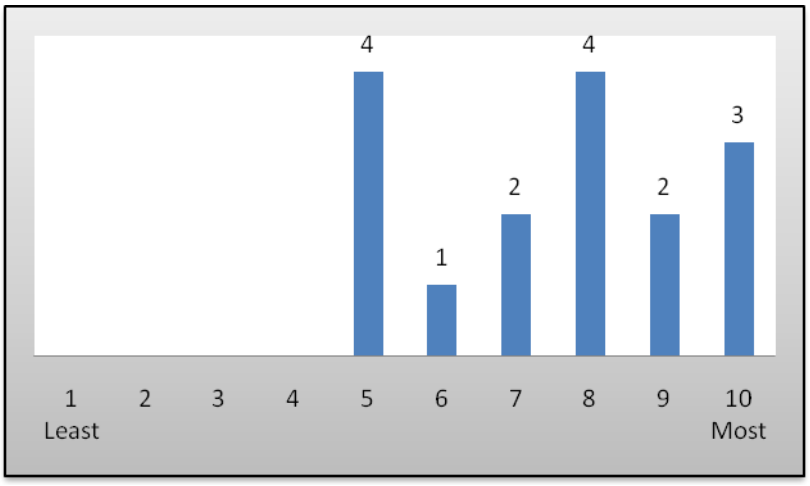


Figure 4.11: Rating of Blue Drop assessors

Figure 4.11 reflects responses to the question put forward to determine how much the respondents value the assessment done by the Blue Drop Assessors. Of the 16 respondents who responded to this question, 11 of them gave a rating of between 7 and 10. This means the majority of the respondents value the assessments done by the assessors highly. It is also important to note that none of the respondents gave a rating of less than 5. This question was aimed at determining whether respondents value the work done by assessors.

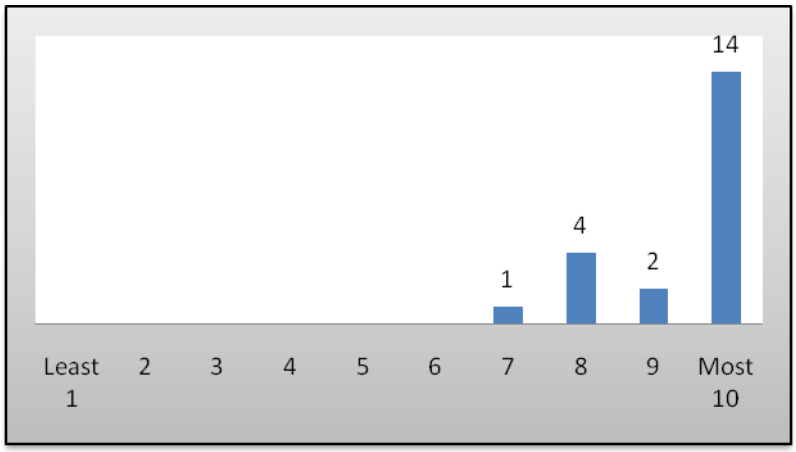


Figure 4.12: Importance of assessing municipalities

In response to the question of how important it is for the respondents' municipality to be assessed, 67% or 14 of the 21 respondents to this question gave the highest rating of 10 and the remaining 7 (33%) gave a rating of between 7 and 9 for the importance of their municipalities to be assessed. This implies that participants do realise the value of the assessment done by the DWA as reflected in Figure 4.12.

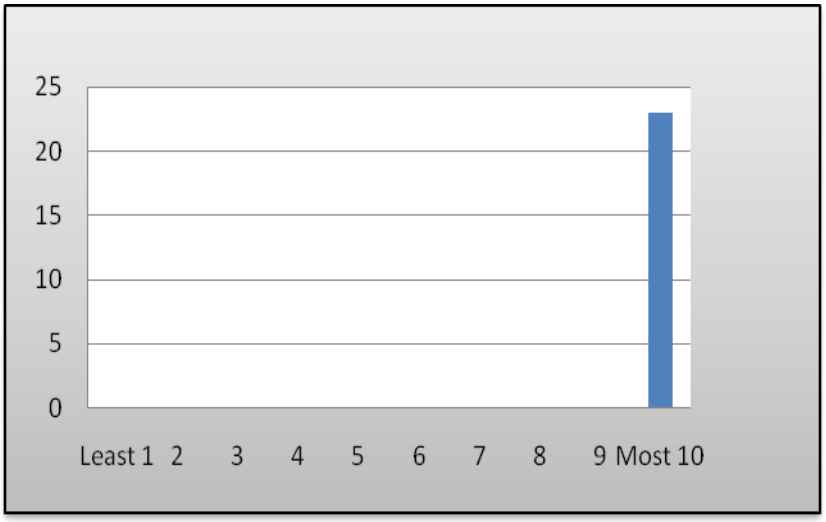


Figure 4.13: Importance of good drinking water quality

Respondents were asked to rate the importance of having good drinking water quality. All respondents (100%) gave ratings of 10 for the importance of having good drinking water quality on a scale of 1-10 as reflected in Figure 4.13.

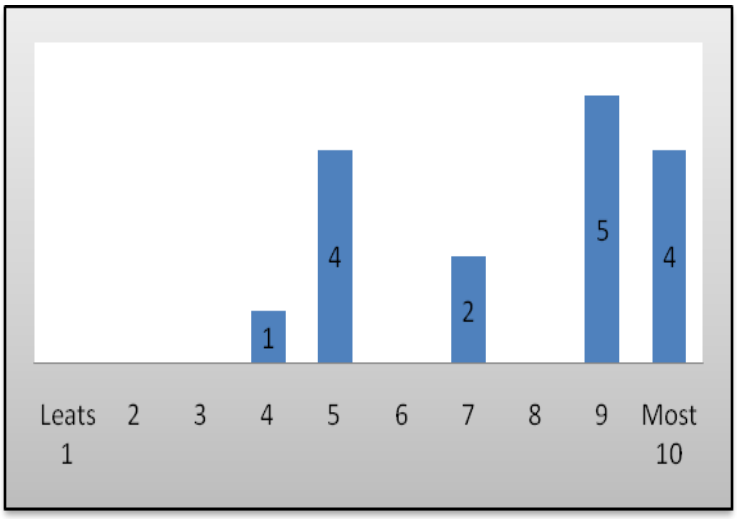


Figure 4.14: Ratings of the Blue Drop assessment processes

Respondents were expected to rate their approval of the way the Blue Drop assessment is being done. The rating was aimed at determining the way the Blue Drop assessment is being conducted. From the results shown in Figure 4.14 it is clear that most (69%) respondents gave a rating of between 7and 10 in approval of the way the Blue Drop assessments are being done.

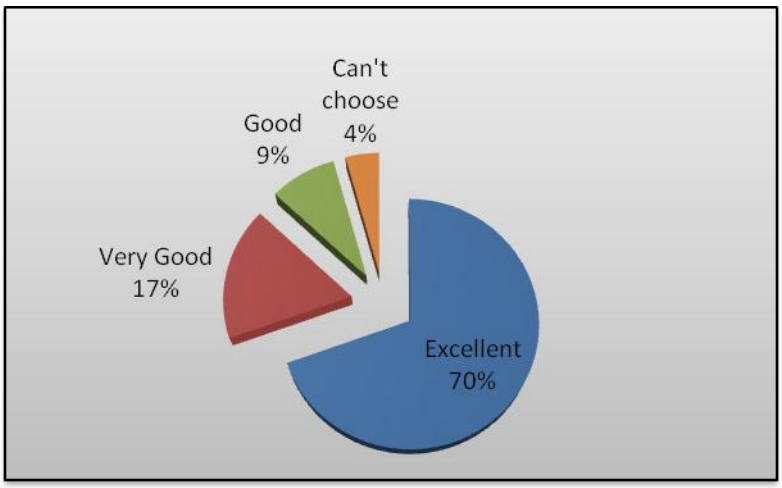


Figure: 4.15: Blue Drop benefits for communities

A statement was put forward for respondents to determine if they see the Blue Drop programme as being of benefit to communities and how they value those benefits now and in future. As depicted in Figure 4.15, 70% of the respondents indicated that the benefits for the community are excellent, 17% said very good, 9% indicated that the benefits are good and 4% indicated they cannot choose. Not even one respondent gave a negative response.

5.2.2.3 Section C – Familiarity with water services legislation

In this section the respondents' familiarity with water sector legislation and regulations is presented and discussed.

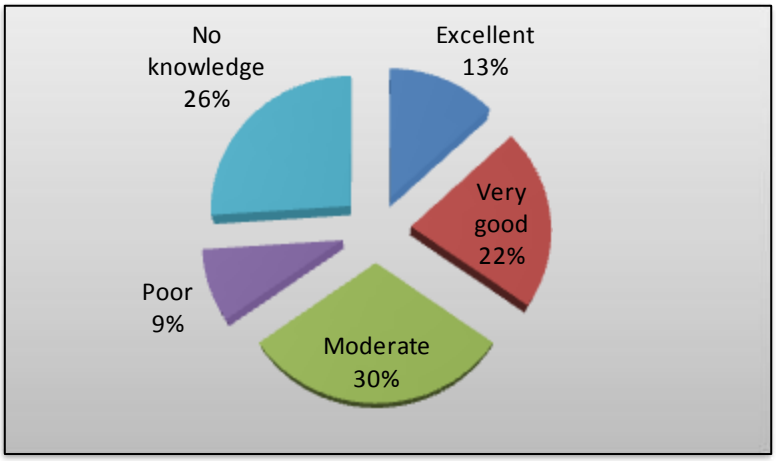


Figure 4.16: Knowledge of water sector legislation

Respondents were asked to rate their knowledge of the water sector legislation. In this case the researcher wanted to determine the extent to which respondents are familiar with water sector legislation. The responses are reflected in Figure 4.16. It is important to note that those who are confident about their knowledge of such legislation and who gave a rating of excellent and very

good make up 35% only. The other 65% has little or no understanding of water sector legislation.

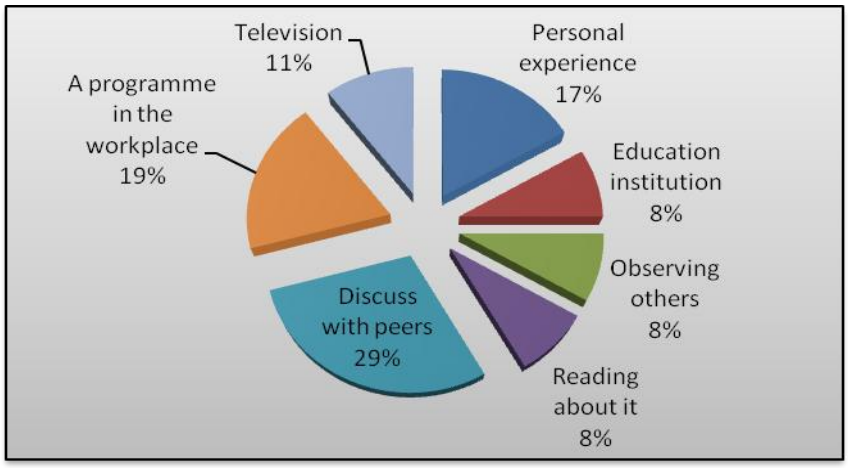


Figure 4.17: Source of knowledge of water sector legislation

Respondents were asked to indicate the information source on which their knowledge of water sector legislation is based. Figure 4.17 above provides a summary of responses from respondents indicating sources of knowledge of the water sector legislative framework on which they base their knowledge. It is important to note that the majority of respondents cited their source of water sector legislation knowledge on discussion with peers. Also note that this whole group hardly use the internet as a source of knowledge for the water sector legal framework in particular.

The following results (Figures 4.18 – 4.22) are based on a summated ordinal scale of 1-10 to determine importance, knowledge and understanding of the respondents. The higher numbers exhibit more of the attributes mentioned above than the lower numbers, that is the number 1=Least and 10=Most.

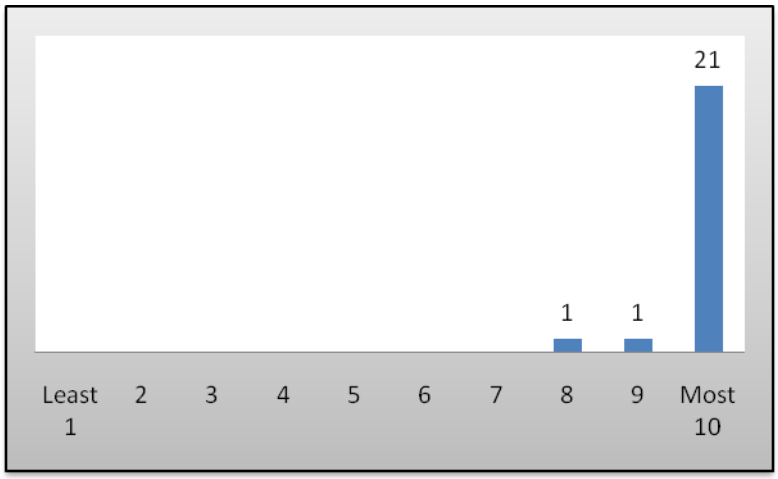


Figure 4.18: Importance of understanding water-related regulations

Respondents were asked to indicate the importance for them to understand water-related regulations. Figure 4.18 reveals that 21 of the 23 respondents indicated that it is very important for them to understand water-related regulations. All the respondents including the other two are of the view that it is important to understand water related regulations although these two respondents gave a rating of 8 and 9 respectively.

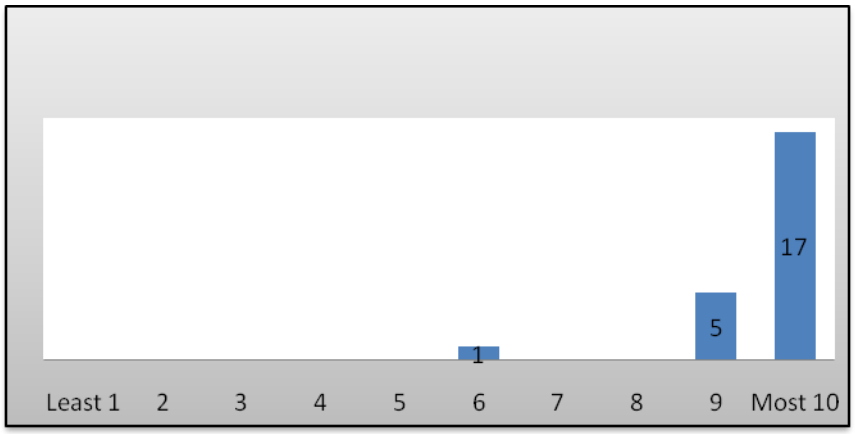


Figure 4.19: Necessity of training on water sector regulations

Respondents were asked to rate the necessity of having training on water services regulations. Of the 23 respondents, 17 rated the necessity to have training on water sector regulation as 10 out 10. Another five respondents gave a rating of 9 and only one respondent gave a rating of 6. The results indicate that there is a need for training interventions on water sector regulations. The results are reflected in the Figure 4.19.

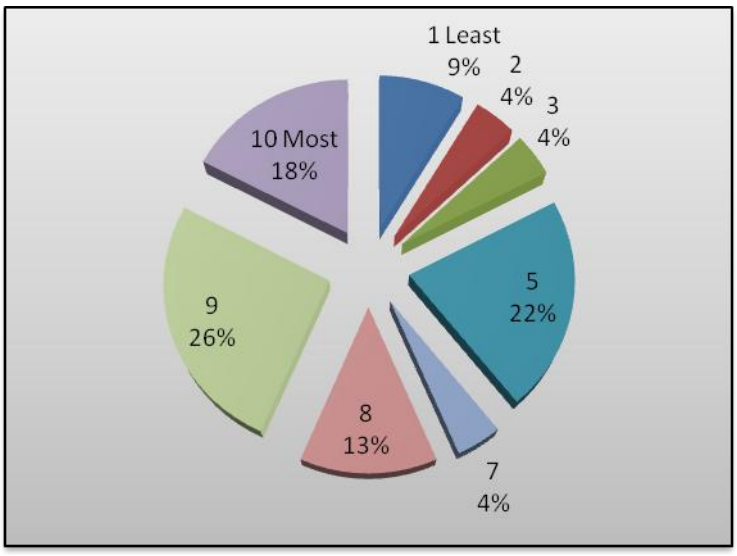


Figure 4.20: Knowledge of Blue Drop assessment criteria

Responses as to how well respondents know the Blue Drop assessment criteria are reflected in Figure 4.20. By analysing Figure 4.20, it becomes evident that there still are a sizeable number

of respondents who are not familiar with Blue Drop assessment criteria. Those who gave a rating of between 1 and 5 amount to 39% and those who gave a rating of between 7 and 10 make up the rest of the 61%. It is therefore necessary to let water services employees understand the Blue Drop assessment criteria since they are expected to comply with drinking water quality standards.

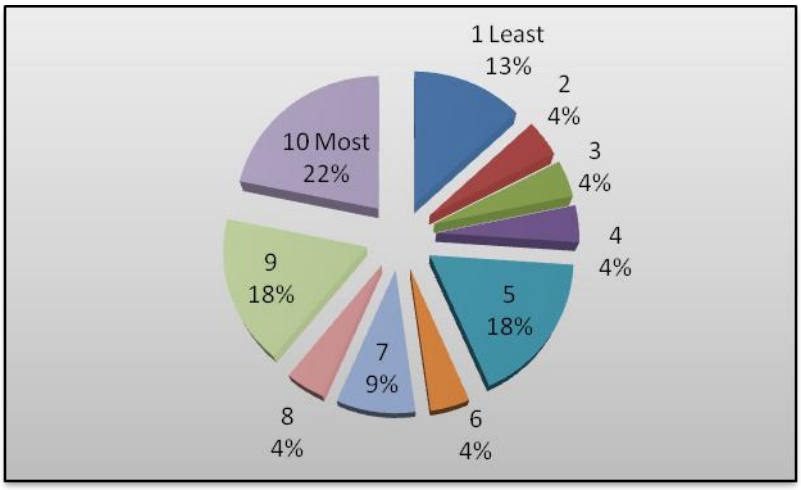


Figure 4.21: Understanding of water sector regulations

Figure 4.21 above reflects the responses regarding respondents' understanding of water sector regulations. Fifty-seven percent of the respondents gave a rating of between 6 and 10 and the other 43% gave a rating ranging between 1 and 5. There results show that it is a concern that such a high number of people working with water are not familiar with regulations that govern their daily activities.

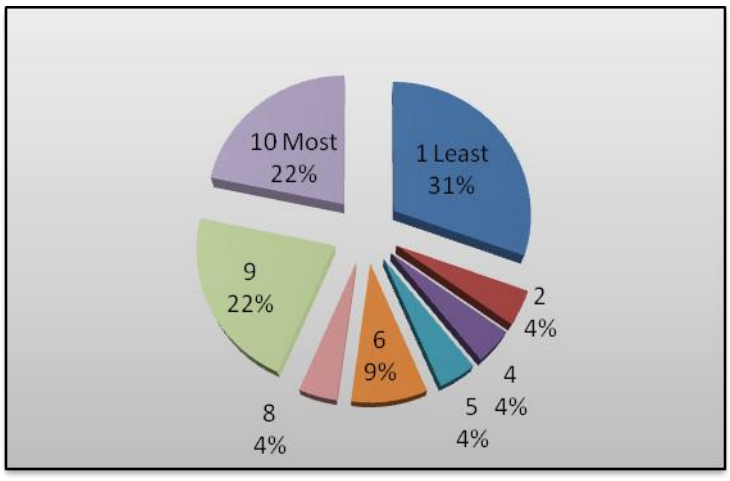


Figure 4.22: Understanding of Own Municipality's 2010 Blue Drop Results

Respondents were asked to rate their knowledge of their own municipalities' 2010 Blue Drop results. Figure 4.22 shows that 31% of the respondents gave a rating of 1 on the scale of 10. This means that 31% of water services employees in municipalities have no knowledge of their

municipalities' Blue Drop results for 2010 while they are employed to process the treatment of drinking water. Another 44% gave a rating of between 9 and 10 implying that they are familiar with their municipalities' Blue Drop results for 2010.

5.3 SUMMARY

The first part of this chapter dealt with the presentation and discussion of the results obtained from the interviews conducted during the empirical study. The findings derived from the interviews show that the Blue Drop programme is generally accepted by the research participants as a good initiative. Participants also highlighted the importance of management involvement in the management of drinking water quality. Training of process controllers was also raised as an important aspect to ensure safe drinking water.

This section also looked at the interviewees' understanding of the water sector legal framework to which there were mixed responses. Participants also provided their general opinions and advice regarding the implementation of the Blue Drop programme.

The second part of the chapter dealt with the results obtained from the survey questionnaire. There was a discussion of the biographical information of the respondents which shows that the water treatment works are still dominated by males and all permanently employed. It was also clear that the majority had been employed for a period of above five years. Opinions of the respondents on the Blue Drop programme were also presented in this section using descriptive statistics. The general picture is that the respondents are in favour of the implementation of the programme. The participants' familiarity with the water sector legal framework and opinions on the Blue Drop were also discussed. It was evident from the responses that there are still people employed in water treatment works who do not have knowledge of water sector legislation, policies and regulations.

The next chapter will focus on the conclusions and recommendations derived from the study and the value of the study for the water sector.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 INTRODUCTION

The focus of the previous chapter was on the presentation and discussion of the research findings. In this chapter conclusions and recommendations with reference to the research questions will be put forward. The primary objective stated in Chapter 1 was to determine the perceptions of water service employees in municipalities of the implementation of the Blue Drop Incentive-based regulation programme, as promoted by the DWA.

The conclusions will be presented with specific reference to the following secondary questions:

- What are the existing theoretical principles underpinning water services, legislation and drinking water quality regulations?
- Are the water service employees in municipalities familiar with water service policies and legislation, especially the Blue Drop Certification Programme?
- Are water service employees in municipalities in favour of the implementation of the Blue Drop Programme?
- What can be done to encourage the participation of WSAs in the Blue Drop water quality assessment programme?

The conclusions refer back to the literature review and will then be followed by discussions of conclusions drawn from the interviews and the survey. This will then be followed by recommendations and implications of the study for the water sector.

6.2 CONCLUSION

In this section the conclusions derived from the research are discussed in detail under subsections related to the research questionnaires.

6.2.1 The existing theoretical principles underpinning water services, legislation and drinking water quality regulations

This objective was addressed in Chapters 2 and 3 of the study. The legislative framework of the water sector was discussed in Chapter 2. Theories, principles, best practices, water services related concepts and regulations were discussed in Chapter 3. The literature review was conducted to understand the legal framework which governs the water sector in South Africa and concepts related to drinking water quality and regulations.

6.2.2 Municipal water service employees' familiarity with water service policies and legislation, especially the Blue Drop Certification Programme

a) From the interviews one can conclude that there are still a number of water service employees in municipalities who are not familiar with drinking water regulations and even some who cannot differentiate between an Act of Parliament and a Regulation. The statistics obtained from the survey indicated that a large number (65%) of employees in water treatment works have moderate or no knowledge of water sector legislation. Only a few are familiar with the legal framework content relevant to their work. It is clear that much still needs to be done to increase the level of understanding about the water sector legal framework. The number of process controllers and their assistants who have little or no knowledge of water sector legislation is a cause for concern.

b) It is also clear from the interview results that not all the water services officials keep copies of water sector regulations, policies and legislation and only a few who keep copies are able to name them. From the research results it is also evident that the process controllers and their assistants do not make use of the Internet as a source of knowledge to read water sector legislation and policies. One can therefore conclude that they hardly utilise the Internet to view Blue Drop information on the DWA website. A sizeable number of these employees rely on their fellow peers and their workplace as a source of knowledge for legislation and policies. Very few cited educational institutions as their source of knowledge from which the researcher can conclude that they either do not attend relevant courses or do not have relevant educational background.

c) It is also clear from the findings that process controllers and their assistants appreciate the importance of understanding water sector regulations. The necessity of training interventions on water sector regulations was also indicated as a need by the process controllers and their assistants. One can conclude that these employees are not exposed to learning environments dealing with the water sector legislative framework in South Africa.

d) Quite a sizeable number of the process controllers and their assistants are not familiar with the Blue Drop assessment criteria. The researcher can conclude that they were either not made aware of these criteria by their municipalities or by the DWA Blue Drop assessors. The other reason could be that they were uninformed or that their level of education has an effect on their understanding. The fact that 61% of the water treatment works employees indicated that they are familiar with these criteria serves as proof that either the DWA or their municipalities have made an effort to communicate the criteria to their employees.

e) From the findings it is clear that, in some municipalities, information about the Blue Drop assessment results does not filter down to water treatment works employees. It is also apparent that there are those who do not know the Blue Drop assessment results of their municipalities. One can therefore conclude that management in some municipalities keep this information to themselves and do not share it with their subordinates.

6.2.3 Municipalities' water service employees perceptions on the implementation of the Blue Drop Assessment programme

a) The research results show that supervisors and management of the participating municipalities welcome the implementation of the Blue Drop assessment initiative. They perceive it as a catalyst to improve the management of drinking water and maintenance of water service infrastructure. From the survey results it is also clear that the majority of participants are in favour of the Blue Drop incentive-based Regulation. All of the respondents (100%) support the programme since they perceive it as a mechanism to improve the management of drinking water quality and ultimately to ensure safe drinking water. There is also room for improvement in the way the programme is being implemented, but for now it is regarded as the best mechanism to regulate drinking water quality. The researcher can conclude that for these employees, an intervention such as the Blue Drop programme is long overdue.

The research findings indicate that 83% of the water treatment works employees are aware of the Blue Drop assessment programme. One can conclude that not enough has been done to make all water treatment works employees aware about the programme and that there is still some work to be done to ensure that the remaining 17% are also made aware of the programme.

b) The research results show that respondents need the support and involvement of senior management in the management of drinking water. It is therefore safe to conclude that in some municipalities drinking water management is not afforded the attention it deserves by senior managers. It seems that senior management is not fulfilling its oversight role in ensuring safe water in some of these municipalities' geographical areas of responsibility. From the interviews it became clear that the Blue Drop assessment initiative has in some cases motivated management and political leadership to stand up and give the water treatment occupation the attention it deserves. The interview results indicate that the involvement of senior management in the management of drinking water is essential to ensure compliance with set standards. It is clear from the interviews that there is a high staff turnover at management level and this has a negative impact on the management of water services by municipalities and the morale of their employees.

Lack of financial resources in the rural and poor municipalities has been cited as a contributing factor to poor management of drinking water quality.

c) The other deduction from the research results is that there has in the past been poor or a lack of communication between water services officials and management, since most of the interviewees pointed out that the Blue Drop assessment programme has improved communication between management and their subordinates.

d) The Blue Drop assessment programme also encourages uniformity in the way drinking water is managed by municipalities in their responsibility areas all over the country. The researcher determined that 61% of the respondents had seen improvement in the management of water services in their municipal areas since the implementation of the programme. The other 39% have not seen any improvement in their municipalities ever since the implementation of the Blue Drop incentive-based regulations. It is therefore clear that the DWA and other stakeholders have some work to do in ensuring that some of these municipalities work towards complying with drinking water quality regulations.

e) It is clear from the research that training or information sessions on the Blue Drop assessments were not provided to all employees or were not held in some municipalities at all. Sixty-one percent of the respondents indicated that they have never received training related to the Blue Drop programme.

f) The interview results indicate that the employees are satisfied with the way the Blue Drop Assessors conduct the assessments. It is clear that some of these employees have never met or seen the assessors ever since the inception of the programme in 2009. The other possibility is that the employees might be uninformed and not know that the people visiting their treatment works are Blue Drop assessors. The reason for this could be that the assessors might not be introducing themselves as Blue Drop assessors to everyone. From the interviews it was also clear that external water services providers should be assessed in their own right as water service providers (WSPs) rather than in the name of municipalities. The reason cited is that the results obtained by an external water services provider are not a reflection of that particular municipality's performance, but of the WSP itself.

The study also found that the water service officials appreciate the work done by the Blue Drop assessors. This is an indication that the Blue Drop assessment programme has been embraced by these employees working in water treatment works. Respondents also support the idea of having the Blue Drop assessment done in their municipal areas.

One can therefore conclude that there has been a gap in terms of regulating the water services function of local government by the DWA. Every respondent realises the importance of having good drinking water quality. This implies that they will welcome any initiative that aims to ensure good drinking water quality in their respective municipal areas. From the finding is clear that the respondents are in agreement that the Blue Drop incentive-based Regulations benefit communities exceptionally.

g) It became clear from the interviews that the operation and maintenance of water treatment infrastructure is poor in some municipalities. The lack of laboratories to test water quality in municipalities was also raised as a concern.

h) Interestingly, the employees interviewed realise the need for their municipalities to appoint skilled and experienced personnel to manage and work in water services units of their respective municipalities. According to the participants, inadequate operation and maintenance of water treatment works infrastructure is also the result of a lack of qualified personnel, budgetary constraints and poor budgeting by municipalities. The non-payment of municipal services by residents also impacts negatively on the operation and maintenance of water treatment infrastructure. In some of these municipalities the collection of revenue is quite a big challenge for various reasons such as the high unemployment rate and the belief by former homelands rural communities that municipal services are provided by Government for free. It is clear that interventions by the DWA and the COGTA are also important for municipalities which fail to comply with drinking water quality standards.

i) From the findings it is evident that some participants feel that the Blue Drop Incentive-based Regulation should accommodate the differences between municipalities and their dynamics and avoid the 'one size fits-all approach'. The employees also recommended that drinking water quality forums be established and that the Blue Drop assessment should focus more on chemical and biological drinking water compliance and less on administrative issues such as water safety plans.

j) The nation should be cautious in celebrating the implementation of the Blue Drop programme because it is still in its infancy stage and has not yet matured enough to be celebrated. Only when all municipalities manage their drinking water quality effectively will it be called a success (Water Rhapsody, 2010).

k) The researcher's opinion is that the programme is playing an important role in raising awareness about drinking water quality management issues among water sector role-players and the public at large since the results are made public through the media.

6.3 RECOMMENDATIONS

Although the research findings clearly demonstrate a positive attitude by water service employees who participated in this research towards the Blue Drop assessment programme, there are certain areas that may require attention from the relevant government departments and municipalities. The recommendations that follow are based on the findings of the empirical study.

6.3.1 Familiarity with water sector legislative framework

- It should be taken into consideration that the water treatment works employees pointed out the need to be trained in the content and implementation of the public water sector legal framework. The study has shown that there are a number of these employees who are not familiar with water sector regulations governing drinking water. It is important that water services employees in municipalities should be familiar with the parts of legislation, regulations and policies that govern their functioning. They do not necessarily have to know all the details but only relevant sections. Posters depicting relevant parts of regulations affecting process controllers and their assistants in particular should be developed by the DWA and be made available in all water treatment works. Induction on the nature and extent of the public water sector legal framework should be developed and conducted by the DWA regional offices in all water treatment works. Courses designed for process controllers can be tailor-made to include an element of the water sector legal framework.
- It was also clear from the study results that most of the process controllers and their assistants mainly rely on their peers as a source of knowledge for understanding of the public water sector legal framework. Computer literacy should be encouraged for these employees especially those who are able to read and write. This is because not a single employee indicated the use of a computer as a source of knowledge for water sector legislation. The focus of a computer literacy programme should be on accessing the relevant water sector information such as the legal framework and Blue Drop results and latest developments.
- The fact that a number of water treatment works employees are not familiar with the Blue Drop assessment criteria is a cause for concern. It is important that every water treatment works employee involved in the treatment of water should be familiar with Blue Drop assessment criteria since they are involved in working towards achieving Blue Drop status. If they are know these criteria they will quickly realise whether their treatment works are not performing according to the set criteria. The DWA should initiate a programme targeted at process controllers and their assistants to raise awareness on Blue Drop assessment criteria and about the programme in general. The awareness programme can take the form of developing posters and pocket size books that can be distributed during assessments.

6.3.2 Perceptions of water services employees of the Blue Drop Programme

- The research results clearly show that there are process controllers and assistants who do not know their municipality's 2010 Blue Drop assessment results. The matter should be addressed by the DWA by ensuring that the results filter down to the water treatment works employees. Process controllers play an important role in the achievement of a Blue Drop status and therefore cannot be ignored when results are made public by the Minister of Water and Environmental Affairs. The DWA regional offices can play an important role in ensuring that the results are communicated to all municipal employees and water services employees in particular. The information to process controllers should include details of what went well and what went wrong in their respective potable water treatment works. This will make them feel part of the solution when implementing corrective measures and even when celebrating the achievements of their potable water treatment works.
- While 83% of water treatment works employees including process controllers are aware of the Blue Drop assessment programme, it is a cause for concern that after three years of the implementation of the programme there are still employees in the water treatment works who indicated that they are not aware of the programme. DWA regional and district water summits should be used as platforms to popularise the importance of regulatory compliance and the Blue Drop assessment programme in particular.
- Only 61% of water treatment works employees who participated in the study indicated that they have seen an improvement in the management of water services by their municipalities since the implementation of the Blue Drop assessment programme. Thirty-nine percent indicated that they have not seen any improvement. An evaluation of the Blue Drop assessment programme should be undertaken to determine its effectiveness in improving drinking water quality management. This should involve determining the exact challenges of municipalities that have not improved their performance in the management of drinking water and coming up with recommendations for possible intervention strategies. During the evaluation of the programme it is also important to gather opinions from water services employees in municipalities about the implementation of the programme. This will assist the DWA to respond appropriately to concerns raised about its implementation. An example is the concern that was raised during this study that the dynamics of various municipalities should be taken into account during assessments.
- The challenges facing poor and rural municipalities should be taken into account when implementing or assessing these municipalities. In other words, the programme must be flexible and not apply the same rules to urban and rural municipalities. For instance the poor and rural municipalities can compete amongst themselves and later "graduate" to the 'A' division. The weakness of this approach suggested above, however, is that it might lead to mediocrity and may contradict the objectives of the Blue Drop programme.

- If the programme is not designed to cater for poor and rural municipalities, then these municipalities may not be able to achieve Blue Drop status with the current approach of conducting assessments, considering the reality they are facing. The Blue Drop programme should be conscious of the circumstances of poor municipalities and their challenges, and how they can be assisted to also improve their Blue Drop status.
- It is also important for all water treatment works employees to be made aware when Blue Drop assessors are visiting water purification plants to conduct assessments. Assessors should also take this opportunity to address treatment works employees and can also use the opportunity to distribute the promotional materials of the programme.
- A concern was raised that Blue Drop assessment results obtained as a result of an external WSP's involvement are not a true reflection of the municipality. Raising such a concern shows that some supervisors and managers are not familiar with all or some of the constitutional roles and responsibilities of WSAs and WSPs. This should be linked to training and awareness exercises on the nature and extent of the water sector legal framework.
- The issue of access to or lack of accredited laboratories raised as a concern in the study should be progressively addressed by the DWA and district municipalities.
- The root causes of high staff turnover at managerial level in municipalities should be addressed by the COGTA and the political parties involved in those municipalities. Poor operation and maintenance of water services infrastructure can partly be attributed to managers who lack the necessary experience to manage water services.
- The 2011 Blue Drop assessment results discussed in Chapter 3 above show that water treatment systems that achieved a Blue Drop assessment score above 50% constitute only 55% in the Mpumalanga Province. Serious interventions are needed if these kinds of results persist. This should receive the necessary attention from the various stakeholders involved in local government. Experts can be deployed within poor or rural municipalities to assist with technical expertise and these be funded by the DWA and COGTA. Establishment of drinking water quality forums at municipal district level should also be explored to determine if they can add any value in the management of drinking water.
- Budgeting by municipalities for the water service function also came up as an issue that contributes to poor operation and maintenance of water services infrastructure. The water function should be treated as a business in municipalities and be accorded the status it deserves. Funds allocated by the DWA and National Treasury for water infrastructure should be utilised for the assigned purpose. The responsible Departments should ensure that municipalities account for the use of such funds and corrective measures should be considered where the funds are not properly accounted for.
- The shortage of skills in general also contributes to poor management of drinking water quality and this applies to all types of municipalities including metropolitan municipalities

(Water Rhapsody, 2010). The empirical study findings indicate that there is a need for municipalities to appoint skilled and experienced personnel, both at operational and management level. An experienced and skilled workforce is essential for effective management of water services functions by municipalities in their respective municipalities. It is important to employ managers who have the necessary qualifications, skills and experience. A municipality can have skilled and experienced process controllers in water treatment works, but if the management does not possess the required expertise and knowledge then the chances of effective water service management are unlikely. Mentoring programmes for currently serving and inexperienced water services managers should be considered.

- Politicians responsible for technical services which include water service should be duty-bound to undergo a compulsory induction on drinking water management in order to understand the operation and maintenance of water infrastructure and water-related legal frameworks. This should involve site visits to water treatment works and waste water treatment works.
- Skills development programmes should be implemented on an ongoing basis. The effectiveness of training programmes should be evaluated in order to inform future interventions and take corrective measures where necessary.
- The performance assessment of water or technical managers should be linked to the achievement of the Blue Drop status. This will ensure that the municipality also provides the necessary resources to work towards the achievement of this status. The performance assessment of political leadership in relation to drinking water should also be explored.

6.4 IMPLICATIONS OF THE STUDY FOR THE WATER SECTOR

- The findings in this study reflect the perceptions of water service employees in the Nkangala District Municipality on the Blue Drop Incentive-based Regulations. These findings cannot therefore be generalised to reflect the perceptions of all water service employees of all South African municipalities.
- The researcher recommends that a study be conducted nationally with a representative sample to determine the perceptions of water service employees in municipal areas on the Blue Drop Incentive-based Regulations. The study or studies can deal with management separately from the other employees in order to come up with appropriate interventions for the different levels of employees. A study to determine the perceptions and understanding of the Blue Drop assessment by communities can also be undertaken.
- Further studies could be undertaken to look at the impact of the implementation of the Blue Drop assessment programme on the management of drinking water quality and whether it

has led to improved operation and maintenance of water services infrastructure in municipalities countrywide.

- The study shows that water services officials in municipalities appreciate the regulatory role played by the DWA in drinking water quality management. The DWA should therefore ensure that it deals decisively with municipalities which do not comply with drinking water quality standards in cases where non-compliance persists.
- Presentation of these research findings on various platforms can serve as a basis to stimulate discussions on the topic. This can be done in municipalities and provincial gatherings and conferences. This will also help to increase knowledge and understanding about the Blue Drop Incentive-based Regulation to all employees in municipalities.

6.5 CONCLUDING REMARKS

The aim of this study was to determine how water service officials in the Nkangala District Municipality perceive the Blue Drop Incentive-based Regulations. The study revealed that the Blue Drop Incentive-based Regulation is an acceptable form of drinking water quality regulation for municipalities. The study also revealed that there is still room for improving the programme, since it is still at its infancy stage.

A number of municipalities are not doing well with regard to the management of their drinking water as reflected in the 2009 - 2011 Blue Drop reports. Many process controllers and their assistants are not familiar with Blue Drop assessment criteria and their municipalities' assessment results. It is therefore important that these issues receive the attention they deserve from the various stakeholders. Change in the management of drinking water in some municipalities is necessary in order to ensure continued provision of safe drinking water. Ensuring the provision of safe drinking water is in the interest of the communities who have entrusted municipalities to serve them. The Blue Drop assessment programme serves as a motivator for municipalities to improve performance in drinking water management and even for the DWA to fulfil its regulatory function in other areas where the regulatory function is still weak.

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ANNEXURES

Annexure A

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25 July 2011

TO WHOM IT MAY CONCERN

RE: RESEARCH PROJECT: MR DK MTSWENI (STUDENT NUMBER: 22469583)

Mr Mtsweni is currently enrolled in his second year of the Master's degree in Development and Management, at the Potchefstroom Campus of the North-West University. The title of his dissertation is: ***Perceptions of Municipal Water Services Officials with regard to the Blue Drop Programme: The Case of Nkangala District Municipality***.

In order to obtain information regarding water services employees' perceptions of the Blue Drop Programme, Mr Mtsweni is required to *conduct interviews and surveys with water services employees in your municipality.*

The employees will participate in the survey and interviews on a voluntary basis and the identity of participants and the municipality will be protected. The information collected will not be used to evaluate the municipality in terms of their performance in comparison with others.
I humbly request that you grant Mr Mtsweni the necessary permission to conduct the above-mentioned research.

Should you need more information, you are welcome to contact me

Yours sincerely

Prof E Nealer: Supervisor
Senior Lecturer/Study Leader: Public Management and Governance

Annexure B

Interview Schedule for Technical/Water Services Managers and Water Treatment Works Supervisors/Superintendents

The Perceptions of Municipal Water Service Officials of the Blue Drop Programme

1. Perception of the Blue Drop Programme

1.1. What do you think of the Blue Drop Certification Programme?

1.2. How do you think the programme will change the management of water services in your municipality? Do you think the programme has already brought about any changes?

1.3. Do you think it is important to be regulated through the Blue Drop Programme? Why?

1.4. What do you think is the best way to regulate drinking water quality in municipalities?

1.5. What do you think of the way in which the Department of Water Affairs assessors conduct their assessment in water treatment works?

1.6. What is your opinion of municipalities which do not comply with drinking water quality requirements?

2. Understanding of Water Sector Legal Framework

2.1. What is your understanding of drinking water quality regulations?

2.2. Do you keep copies of water related legislation, policies and regulations? If yes, which ones?

2.3. Are you familiar with the content of the above documents?

2.4. Do you have any other advice or opinions regarding the Blue Drop Incentive-based Regulation?

Annexure C

Survey Questionnaire for Process Controllers & Non-Professional Staff

The Perceptions of Municipal Water Service Officials of the Blue Drop Programme

Section A – Biographical Information

Mark with an X in the space provided:

1. Gender of respondents

Male	1
Female	2

2. Status of Employment

Permanent	1
Temporary	2
Part Time	3
Other	4

If other, please specify:----------

3. Level of Education

Post-Graduate	1
Graduate	2
High School	3
Primary Schooling	4
No Formal Schooling	5
Other	6

If other, please specify:----------

4. Work experience (In years) ----------

5. Current Work Level

Manager	1
Supervisor/Superintendent	2
Process Control	3
Non-professional	4
Other	5

If other, please specify:----------

6. Age (In years) _____

7. Name of Municipality_____

8. Home Language _____

Section B – Opinions about the Blue Drop Certification Programme

Mark with an X in the space provided:

1. Are you aware of the Blue Drop Incentive-based Regulation?

YES	1
NO	2

Here are some of the Blue Drop Programme's objectives. Choose one number for each objective to show whether you are in favour of it or against it.

Strongly in favour of	1
Agree In favour of	2
Neutral	3
Against	4
Strongly Against	5

Mark with an X in the space provided referring to the scale provided above

2. Promote transparency and subsequent accountability (responsibility)	**1**	**2**	**3**	**4**	**5**
3. Provide reliable and consistent information to the public	**1**	**2**	**3**	**4**	**5**
4. Facilitate closer relationship between water services authorities and water services providers (where applicable)	**1**	**2**	**3**	**4**	**5**

Strongly Agree (SA)	1
Agree (A)	2
Disagree (D)	3
Strongly Disagree (SD)	4
Don't know (DK)	5

Mark the appropriate block with an X Referring to the scale in the Table above

	SA	**A**	**D**	**SD**	**DK**
5. The Blue Drop Incentive-based Regulation is necessary to ensure safe drinking water	1	2	3	4	5
6. The Blue Drop programme has improved performance in the management of drinking water quality	**1**	**2**	**3**	**4**	**5**
7. A similar programme should be introduced for other municipality functions	**1**	**2**	**3**	**4**	**5**
8. The Blue Drop assessment team is doing a good job?	**1**	**2**	**3**	**4**	**5**
9. Training regarding the Blue Drop Incentive-based Regulation assessments were given at my Municipality	**1**	**2**	**3**	**4**	**5**

Least (L) Most (M)

1	2	3	4	5	6	7	8	9	10

Mark with an X in the space provided with reference to the scale provided above

	L									M
10. How much do you value the assessment done by the Blue Drop Assessors?	1	2	3	4	5	6	7	8	9	10
11. How important it is for your municipality to be assessed?	1	2	3	4	5	6	7	8	9	10
12. Rate the importance of having good drinking water quality	1	2	3	4	5	6	7	8	9	10
13. Rate your approval of the way the Blue Drop assessment is being done	1	2	3	4	5	6	7	8	9	10

14. Municipalities are managing their drinking water quality better since the implementation of the Blue Drop programme in 2009.

Circle one number:

Strongly agree	1
Agree	2
Don't know	3
Disagree	4
Strongly disagree	5

15. The whole community benefit by the Blue Drop regulation is...

Circle one number:

Excellent	1
Very good	2
Good	3
Not very good	4
Not good at all	5
Can't choose	6

Section C - Familiarity with water services legislation

Mark with an X in the space provided:

16. Rate your knowledge of the water sector legislation according to the following scale.

Excellent	
Very good	
Moderate	
Poor	
No knowledge	

17. Indicate the information source your knowledge of water sector legislation is based upon:

(Please check all that apply).

	Yes	**No**
Personal experience		
Education institution		
Observing others		
Reading about it		
Discuss with peers		
A programme in the workplace		
Television		
Radio		
Internet		
Other:		

If other, please specify _____

Least (L) Most (M)

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Mark with an X in the space provided with reference to the scale provided above

	L									**M**
18. How important is it for you to understand water related regulations?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	10
19. Rate the necessity of having training on water services regulations	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	10
20. How well do you know the Blue Drop assessment criteria?	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	10
21. Rate you understanding of water services regulations	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	10
22. Rate your understanding of the Blue Drop results of your municipality for 2010	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**