# Stakeholder Accountability in Water Demand Management in Southeast Botswana

**By**

**Boitumelo-Mfula, Tumisang S.**

A Research Project Proposal Submitted for the Partial Fulfilment of the Requirements for the Masters Degree in Integrated Water Resources Management



Supervisor: Mr. Lewis Jonker
Department of Earth Sciences
University of the Western Cape
Cape Town, South Africa

November, 2006.

**DECLARATION**

I declare that this mini-thesis is my own work and that all sources used or quoted have been indicated and acknowledged by means of complete references; and that this work has not been submitted before for any other degree at any other university.

Tumisang Boitumelo-Mfula November 2006

Signed: ……

**KEYWORDS**

Accountability

Botswana

Coordination

Freshwater

Implementation

Monitoring

Policy

Stakeholder

Water Conservation

Water Demand Management

Water scarcity

**ABSTRACT**

Botswana's population and water demand are growing at a high rate particularly in the dry south eastern part of the country. In 1999, a Water Conservation Policy and Strategy framework document was formulated to guide a transition from a supply driven water management approach to water demand management. The implementation of the framework recommendations started in 2002. Although Botswana is said to be one of the countries in the region with a good choice of policy and analytical frameworks, it is also said to lack the capacity to effectively implement them. Through a qualitative approach, this study investigated whether there was a disparity between the framework policy and strategy recommendations and their actual implementation. The study used documentary sources and open-ended interviews to establish information from the three water supply authorities with particular interest in Southeast Botswana. The key areas of interest to the study were Mogobane, Otse, Ramotswa and Tlokweng villages, as well as, Lobatse town and Gaborone city. The findings of the study revealed that although some of the recommendations had been implemented, their implementation was not in the recommended order and manner. As a result, coordination of the water conservation and demand management programme is difficult to achieve and as is achieving the horizontal accountability of stakeholders as part of monitoring the programme's progress. Further to the findings, the study recommends restructuring of the programme's administrative structure to empower all stakeholders and enforce empowerment and ownership of the programme. In addition, the study also recommends that the Water Conservation Policy and Strategy framework document be communicated to all stakeholders at all levels (particularly the public) in order to create the necessary transparency, understanding and

accountability enforcement that is needed when the document is fully developed into an enacted policy document.

**ACKNOWLEDGEMNETS**

My sincere gratitude goes to my supervisor Mr. Lewis Jonker for his support and guidance in this work. My appreciation also goes to my friends and colleagues Peter Karanja, Hashim Mohamed, Dumisani Ntombela, Rudo Ngara and Zakariya Mohammed for their valuable feedback and critique.

I am also grateful to the Department of Water Affairs and the Ministry of Minerals Energy and Water Resources for their continuous support throughout my study. My thanks also go to the Water Utilities Corporation, Ministry of Local Government's Department of District Council Water Unit and Southeast District Council Water Unit for their support in data provision.

I would also like to thank 'WATERnet,' my sponsors, whose financial support has made it possible for me to pursue this masters' degree.

My deepest appreciation goes to my husband, Lukonde Mfula, family and friends whose support in all aspects made it possible for me to come this far. I am mostly indebted to you all and especially my daughters Bwalya and Kasompe Mfula.

**ACRONYMS**

| | |
|---|---|
| BMC | Botswana Meat Commission |
| BNWMP | Botswana National Water Master Plan |
| CBNRM | Community Based Natural Resources Management |
| CSO | Central Statistics Office |
| DCWU | District Council Water Unit |
| DWA | Department of Water Affairs |
| IUCN | The World Conservation Union |
| IWRM | Integrated Water Resources Management |
| MLG | Ministry of Local Government |
| MMEWR | Ministry of Minerals Energy and Water Resources |
| MoF&DP | Ministry of Finance and Development Planning |
| NDP | National Development Plan |
| NWMP | National Water Master Plan |
| SEDCWU | Southeast District Council Water Unit |
| SIRWA | Structurally Induced Relative Water Abundance |
| WC&DM | Water Conservation and Demand Management |
| WCPSF | Water Conservation Policy and Strategy Framework |
| WCU | Water Conservation Unit |
| WUC | Water Utilities Corporation |

**TABLE OF CONTENTS**

**LIST OF FIGURES**

# CHAPTER 1

# BACKGROUND AND INTRODUCTION

## 1.1 Background

Botswana is a semi-arid, landlocked country in southern Africa. The landscape is largely flat and lower lying than the surrounding countries. Most of the reliable water resources are located in the north-western, northern, north-eastern, and central-eastern areas of the country (Meteorological Services Botswana 2003). Population density is highest along the eastern and southeastern parts of the country, yet the rivers located here are ephemeral (Kgathi 1999 in du Plesis & Rowntree 2003).

The government formulated a National Water Master Plan (NWMP) to guide development planning in the water sector, as well as to address the unbalanced water availability and population distribution scenario. Following the plan would ensure an equitable distribution of water to the entire population. In order to deal with an increase in water demand against already depleted and commissioned water resources, the government initiated the adoption of a demand management approach to the resources. The approach became a requirement as the government entered into various treaties that call for a structured approach to water conservation and demand management (DWA 1999). In 1999, a Water Conservation Policy and Strategy framework document was formulated to guide the implementation of a national water conservation and demand management programme. The Danish government facilitated the implementation of the programme; this was initiated as a project and commenced in 2002. Upon completion, the project was officially handed over to the Botswana government during the first quarter of 2005. The long-term success of the programme, as outlined in the framework document, lies in the existence of a well-coordinated structure and progress feedback mechanism.

## 1.2 Problem statement

Botswana's National Water Master Plan (NWMP) is based on a supply-side management approach. Although Botswana is a relatively dry country, it has established a Structurally Induced Relative Water Abundance (SIRWA) through infrastructural initiatives such as the Letsibogo Dam and the North-South Carrier. The positive effect of the SIRWA is reflected in Botswana's water access statistics which are currently 100% in urban areas and 90% in rural areas. Global figures are 95% and 71% with Sub-Saharan rates at 82% and 47% for urban and rural water access respectively (Earthtrends 2003). However, the improved water supply has lead to a high of water demand lifestyle often associated with inefficient water use (MoFDP 2003; SMEC 2005).



As stated previously, a move from a supply-sided approach to that of demand management requires that a well-coordinated institutional structure and accountability mechanism be in place. The Water Conservation Policy and Strategy framework document recommends the following:

- establishment of a Water Conservation Unit which will serve as a focal point for water conservation and demand management;
- creation of an enabling environment through policy, drafting of regulations and their enactment;
- coordination and monitoring of the water conservation programme; and
- capacity building of stakeholders.

Adherence to these recommendations would guide the successful implementation of a water conservation and demand management programme whilst ensuring accountability of all stakeholders.

The problem, however, is that Botswana has failed to adhere to its policies and analytical frameworks aimed at developing an implementation programme (Kaunda 2005; Swatuk 2005; Toteng 2001).

Given the above, there was a need for a study that would investigate the implementation of the Water Conservation Programme's alignment with the Water Conservation Policy and Strategy Framework. This study, therefore, aims to investigate the Water Conservation Policy and Strategy framework vis-à-vis its actual implementation in south-eastern Botswana; it will focus on the implementation of the coordination and monitoring task, with particular attention on the latter.



**1.3 Aims and objectives**

The aim of the study was to investigate a potential disparity between the water conservation policy and strategy framework in Botswana, and the actual implementation thereof. This would be achieved by investigating flaws in the implementation of the administrative structure of the Water Conservation Programme, and in the implementation of the accountability recommendations for the coordination and monitoring of the programme.

The objectives of the study are to:

1. Investigate the nature implementation of the water conservation programme in southeastern Botswana.
    a. Establish the nature of the water conservation programme's administrative structure
    b. Assess stakeholder actions in the implementation of the water conservation programme.

2. Establish the water authorities' interpretation of the Water Conservation Policy and Strategy Framework document recommendations as they relate to stakeholder accountability.

3. Establish if any decisions have been made to ensure stakeholder accountability in water demand management.



4. Identify flaws in the implementation of the WCP&S framework document recommendations for the programme coordination and monitoring aspects as they relate to stakeholder accountability.

5. Ascertain from the stakeholders', the best solution to ensure stakeholder accountability in the programme.

**1.4 Research questions**

The study addressed how the Water Conservation programme is being implemented, while attempting to answer the following questions:

1. What is the administrative structure of the Water Conservation Programme?
2. How are the recommendations for the programme coordination and monitoring being implemented?
3. How is stakeholder accountability anticipated to increase through the current implementation?
4. How are the needs and requirements of the stakeholders identified and satisfied as part of capacity building?

### 1.5 Justification and significance

Botswana is a water scarce country whose long-term water availability has to be ensured through effective water demand management initiatives. Pilot projects in water conservation and demand management initiatives have been undertaken in southeastern Botswana due to its increasing water demand. Although progress evaluations were undertaken for the project phase, the motivation for this study is that an academic evaluation on the implementation of the programme by water supply authorities is lacking.



The significance of this study is therefore twofold. The first lies in the practical application of information that the study will provide. The knowledge gained from this study will constitute an invaluable base for policy review and formulation in the promotion of water conservation and demand management, and particularly with regard to stakeholder accountability. Specifically, the information obtained could be used to work towards building on dominant stakeholder accountability.

Secondly, the study will contribute to the theoretical knowledge base available on Botswana's water conservation and demand management. Although some programme evaluation was carried

out on the impact and progress of some components of the Water Conservation Programme (such as the Education and Awareness) during the first three years of implementation, no academic evaluation on the general implementation of the programme has been undertaken. Information that provides a comprehensive understanding of the responsibility of various stakeholders (including the public) in ensuring the success of the programme is limited.

### 1.6 Scope and limits of the study

The study focused on the three water authorities responsible for potable water supply in major villages, urban areas, and small villages respectively. While the Department of Water Affairs as the lead agency is responsible for water policy, legislation, planning and development, the Water Utilities Corporation is the bulk supplier of surface water and manages commissioned dams and related infrastructure. The District Council Units, on the other hand, manage commissioned water supply infrastructure at the village level. The identified departments are also responsible for surface water supply and management in southeast Botswana, namely the Department of Water Affairs, the Water Utilities Corporation, and the Southeast District Council Water Unit.



When the power attribute and its associated legitimacy are used to determine the internal stakeholders in Botswana's water management, three groups are arrived at using Mitchell's typology (Toteng 2004). The groups are the dominant, discretionary, and dormant stakeholders. This study focused on the dominant stakeholders that comprise the three water supply authorities in Botswana and specifically the south eastern Botswana.

All of the members of the chosen stakeholder group have decision-making power towards the planning, management and implementation of the WC&DM programme. In light of the above,

this study focused on the representative senior officers from the three water supply authorities and the implementation of the coordination and monitoring aspects of the water conservation and demand management programme.

Previous studies focused on the capital city of Gaborone, the water users and the water sector in general. No academic study has focused on the three water supply authorities and their implementation of the water conservation and demand management programme in southeast Botswana.

### 1.7 Methodology

The study employed a qualitative approach to information gathering from documentary sources and interviews with senior officers from the respective water authority departments on the implementation of the programme. The findings have been presented using a descriptive approach guided by the research objectives and key concepts. The findings were analysed through identification of established trends and patterns, and categorised according to the key themes under the concepts of coordination and accountability. The conclusions and recommendations were drawn from the findings as they relate to the objectives and research questions.



### 1.8 Organization of the work

Chapter One provides a background and introduction to the study. Chapter Two reviews literature relating to stakeholder accountability in water conservation and demand management in southern Africa, and more specifically Botswana. The key concepts discussed include: strategic management in management theory, stakeholder accountability, coordination and monitoring,

adaptive capacity, water demand management and integrated water resources management. Chapter Three discusses research design and methodology and tools employed for data analysis. It elaborates on the qualitative method applied, and the techniques used in addressing the study objectives. Chapter Four presents the findings, discusses and relates them to the reviewed literature. Chapter Five concludes the discussion and provides recommendations.

# CHAPTER 2

# LITERATURE REVIEW

## 2.1 Introduction

This chapter reviews literature on stakeholder accountability in water conservation and demand management globally and then specifically in southeast Botswana. The review is guided by the management theory as it applies to strategic management, and more specifically integrated water resources management. As part of the "water demand management component" of Integrated Water Resources Management (IWRM), the review also includes the adaptive capacity theory. The key concepts are therefore: water demand management; stakeholder accountability; adaptive capacity theory; coordination and monitoring.



Water management in semi-arid urban areas in Africa is a neglected area, particularly in Botswana (Toteng 2004). Toteng (2004) observes that the focus is mostly on improving water supply efficiency rather than incorporating the different stakeholders (such as the private sector) to improve water demand management initiatives. However, the accountability of the different water suppliers – as the public sector - (Nze & Nkamnebe 2003; Ackerman 2004) and their cooperation are fundamental to the success of water demand reduction programmes (Dziegielewski & Baumann 1992). As with the general concept of water demand reduction, the concept of horizontal accountability in water management in Africa, and particularly in Botswana, is not well documented. Furthermore, literature on water resource availability and use - where all stakeholder groups are incorporated, and their specific responsibilities outlined in the horizontal accountability process - is limited.

Although the concept of accountability does feature in the literature, its scope is restricted to the role of reporting and responsibility of the state, the latter being the lead agency responsible for water supply (Ackerman 2004; Toteng 2004). Vertical accountability (cf. Ackerman 2004) focuses on officials being accountable to civil society (Bolton 2003; Wilkins 2002; Herzlinger 1996) and quite understandably so, as the organisations are funded by the taxpayers (Bolton 2003). The interest of this study, however, is on the horizontal accountability (Ackerman 2004) that requires the internal public sector stakeholders - that is, authorities in Botswana's water supply management - to report to the Water Conservation Unit. The focus is on the accountability (reporting responsibility) of public sector agencies to a particular government agency.

Lello (1993) defines accountability as follows:

> It … involves **reportin**g to other people voluntarily or compulsorily. It means having a conscience or moral **responsibility** about what you are doing. It means being **answerable** to other people both junior and senior to yourself. It implies dependence on both ideas, and on others. It is part of the **essential administrative** cement in a democratic society. (Lello, 1979, p10 in Lello1993, p1) [Bold, mine]



As observed in the above definition, the concept of accountability includes aspects of reporting, responsibility and answerability, which as part of processes of evaluation and monitoring, require targets and forecasts to be made in order to determine whether progress (or lack of) has been made.

Although Lello writes from an education perspective, his definition fits the requirements of this study because the Water Conservation Policy and Strategy (WCP&S) framework emphasises

education and awareness. Furthermore, the definition was found to be in line with descriptions used in other accountability and management literature (Boland & Schultze 1996; Hoskin 1996).

For the purpose of this thesis, accountability means a demonstration of responsibility towards a thing(s) or somebody through actions and/or performance and a reporting process (Lello 1979 in Lello 1993; Boland & Schultze 1996). The accountability process further involves control by the head or lead administrative agency (Thompson 1997; Schedler 1999 in Ackerman 2004). In strategic programme implementation (at a micro-level), the accountability of internal stakeholders is crucial to ensuring overall effectiveness of good governance and the management process. Management generally involves the achievement of objectives through efficient and effective resources utilization (Lussier 1997), and has five interrelated functions namely, planning, organising, leading, coordinating and controlling (Lussier 1997).



Gormley and Balla (2004) describe four types of accountability processes, namely: bureaucratic, legal, professional, and political. In bureaucratic accountability, effective agency control is internally based on a hierarchical system of supervisory relations and control, whereas in a legal accountability system, the relations are based on contracts and there is effective external control. Professional accountability is reliant on the respect of expertise, and the internal structures tend to produce low levels of control. Political accountability promotes the identification and satisfaction of those being served as a way of managing expectations; the control of the agency is external and restricted (Ackerman 2004). The above accountability facets clarify the level of effective control by the coordinating unit over the programme's dominant water supply stakeholders (and other implementing agencies). The levels of effective control in turn affect the performance that can be expected from stakeholders who are accountable to the coordinating unit with regard to the

implementation progress of their Botswana water conservation and demand management programme. Although Bolton (2003, pg. 24) indicates that accountability is "justifying what has been done," it forms an integral part of performance measurement and management (Lussier 1997; Radif 1999; Ritzer 1992; Sullivan 2002; Therkildsen 2001; Young 2000).

### 2.2. Water Demand Management

The World Conservation Union indicates that water demand management (WDM) involves-

> […] the development and implementation of strategies aimed at influencing water demand in order to achieve water consumption levels that are consistent with the equitable, efficient and sustainable use of the finite water resource, (IUCN 2005, p. 6).

Similarly, for the Botswana government, WDM entails-

> Controlling consumption by consumers [sic]. Interventions that will reduce demand for water by consumers or cause unnecessary flow of water from the delivery system, through wastage, misuse or leakage, to be reduced... (DWA 2004a, p. 9)



The department further outlines that water conservation involves-

> the "interventions that will cause water to be withheld from unnecessarily being put into supply and retained in reserve..." (DWA, 2004a: 9).

Even though there are various definitions for most developmental concepts, the underlying meaning remains the same and relates to the reduction of use. The two definitions used by the department are closely related to that of the IUCN (2005, p.6) on water demand management.

This implies that the country's water conservation and demand management programme is based on the IUCN guidelines, which in turn are based on the Global Water Partnership's (GWP) integrated water resources management (IWRM) framework.

Manzungu and Machiridza (2005) argue that IUCN Water Demand Management guidelines for water suppliers show a narrow perspective, and hence are problematic. The guidelines primarily focus on rural water suppliers, hence urban water demand management remains a challenge. Similarly, Toteng (2004) observed that the environmental management issues in and around Gaborone city are neglected.

### 2.3.1 Water Scarcity

Water demand management materialised as an approach to managing the limited resources - i.e. water scarcity (Sullivan 2002; Stikker 1998; WCED 1987). Falkenmark's rule of thumb to classifying water availability for a region or country is as follows:

- water scarce- when available water supplies are less than 1000 cubic metres per person per annum;
- water stressed- when supplies are between 1000 and 1700 cubic metres per person per annum;
- water sufficient- if its water supplies are above 1700 cubic metres per person per annum, although the preferred amount should be between 5000 and 10000 cubic metres (Falkenmark & Rockström 2004).

In 1999, UNEP categorised Botswana to be amongst the three countries in southern Africa that were already experiencing 'water stress'. Namibia and South Africa were the other two countries identified as having freshwater resources of between 1000 and 1700$m^3$ per person per year (UNEP 1999). Sullivan (2002) discusses several Water Poverty Index calculation methods that can be used to establish whether an area is water stressed, based on availability and access.

Moyo *et al*. (1993, p.33) estimated that about 80% of the population in Botswana is concentrated on 10% of the land (in the eastern part of the country).

Concern over problems related to water scarcity, whether as a result of pollution or drought, is made critical by the fact that there is no substitute for water (Stikker 1998; Sullivan 2002). In addition, such environmental issues that contribute to social issues that threaten human security (such as poverty) have increased dramatically over the past few decades despite plans to curb them at an international level (Savenije & van der Zaag 2001; Stikker 1998; Sullivan 2002; UNDP 2005).



Three types of water scarcity can be related to water demand management, water use and stakeholder action accounts. These include: physical or real natural resource scarcity (first order), social scarcity (second order), and manufactured scarcity (third order). Literature on water management in Botswana specifies that the country is primarily challenged due to climatological factors; and therefore considered a ‘first order’ or ‘real’ type of scarcity (Rowntree & du Plesis 2003; Swatuk & Rahm 2004; Toteng 2004). Real natural resource (water) scarcity, such as drought, may be attributed to factors such as geographical conditions and seasonal climatic cycles (Cech 2003; Falkenmark & Rockström 2004; Rockström 2001; Stikker 1998). Water scarcity in

Botswana can also be attributed to several other factors such as a rapidly increasing population which translates into an increase in the water demand, low and erratic rainfall, high evaporation rates, as well as high costs associated with the exploitation of existing surface water resources (du Plessis & Rowntree 2003; NCSA 2002). Toteng (2004) illustrated that water demand was growing at a higher rate in Gaborone and its periphery in southeast Botswana. With the continued increase in population growth and water demand, it can be expected that some of the available sources of water may become depleted (Sullivan 2002). For the same reason, in instances where the abstraction rate exceeds the recharge rate, it is usually a matter of time before a certain level of water stress results.

It is, however, important to realise that freshwater scarcity does not only result from 'a linear relationship between growing population and use per capita', but also from other factors related to water availability versus water needs - cultural, technical, political and institutional in nature (Stikker 1998).



### 2.3.2 Integrated approach to water scarcity

Water scarcity, then, should also be defined in terms of physical, economical and social requirements (Wolfe & Brooks 2003) where physical relates to climatic conditions. Similarly, Appelgren and Klohn (1998) support an integrated approach that covers the social, economic and environmental dimensions. These researchers base their arguments on the notion that development strategies and the use of macro-economic policies – including trade policies and fiscal money – of a country, tend to affect its water demand and investment. From a social adaptive capacity perspective, scientists tend to focus on assessments that use standard

hydrological and economic indicators, omitting the more important social dimensions (Appelgren and Klohn 1998).

Appelgren and Klohn (1998) argue that integrating social awareness into the resource management approach makes it easier for the social components of water scarcity to be addressed. However, as a move towards demand management, an integrated institutional approach is necessary to address the strain (of water scarcity) from the increasing population and water demand. Falkenmark (2001) emphasised that the developed institutions need to be strong enough to have the capacity to support unpopular decisions. The evaluation process of a development strategy, as part of a management process, needs to accommodate continuous learning, correction, and adjustments in order to be effective (cf. Allen 1997 and DWA 1999). Effectiveness and efficiency in public resources management are a driving force for accountability (Bolton 2003; Humphrey *et al.* 1993; Klumpes 2001; Nze & Nkamnebe 2003).



Dziegielewski and Baumann (1992) note that demand reduction programmes are not reliable because of their dependence on the cooperation of individual water users'. Gaps in knowledge often impede demand reduction programmes as well as projecting conservation savings in the long-term water supply plan; knowledge gaps result from the fact that little research has been undertaken on water demand modelling and the scientific evaluation of demand reduction programmes.

### 2.3.3 Water Consumption and Social Adaptations

A society that hardly faces a lack of water may come to internalize availability trends to imply that there is an abundance of water. Such a mentality could result in a shift in lifestyle adaptations

from those based on conserving the resource. Botswana, as a semi-arid developing country, has created a SIRWA as illustrated by the statistics on access to water (Earthtrends 2003).

The effect of demand on lifestyle adaptations, as societies become urbanized and in some cases industrialized, is often referred to as social scarcity (Ohlsson 2000). Aguillera-Klink *et al.* (2000) elaborates that such a type of scarcity is socially constructed through people's actions, which lead to over-exploitation. Consequently, in order to reverse the above mentioned trend, demand management initiatives need to ensure 'action' by the water users. Therefore, all stakeholders -the water users and relevant managers in the respective areas - need to collaborate and demonstrate some accountability of their use and management of water (Sullivan 2002).

Sullivan (2000) further argues that economic growth and its associated developments may lead to water stress as water demand increases. Water scarcity may impede the economic development of a country, therefore, sustainable water resources management is critical especially for arid and semi arid regions (Al-Weshah 2002)**.** However, Turton (2003) argues that water scarcity need not be a constraint to economic development, if second order resources are made sufficiently available.



### 2.3.4 Water Conflicts

Ohlsson (2000) notes that while water scarcity is a driving force for a change in water resource management, it can also lead to competition/ conflict or social tensions amongst populations and societies. As described by Pereira *et al.* (2002), conflicts are usually based on sectoral divisions such as agriculture versus industry, and urban versus rural areas and their water uses. Similarly, Stikker (1998) notes that conflicts at a sectoral level may rise as competition for the limited

resources intensifies. At the level of institutions, states, and the local communities, lack of social adaptive capacity often forms the basis of such conflicts (Appelgren & Klohn 1998). Social adaptive capacity often refers to a lack of understanding of the 'new' system and processes by the communities in conjunction with the lack of capacity of the implementers.

In order to alleviate conflict through capacity building, information exchange is necessary to improve understanding and ownership (Radif 1999; Sullivan 2002; Young 2000). Accounts are therefore an important aspect of accountability as they enable people to reflect and share information on their actions (Ritzer 1992). In addition, interpersonal, informational and decisional roles are critical to management (Lussier 1997). While strategic management falls within the top management level, middle and first line management are respectively categorised as tactical and operational.



Strategic management theory also indicates that the success and sustainability of a management process relies on building on feedback acquired through an evaluation process (Thompson 1997; Tibela 2005). Similarly, in stakeholder theory, an implementing organisation needs to take into account the concerns of all groups and individuals that can affect or be affected by the organisation's initiatives to achieve its purpose (Polonsky 1995). A stakeholder generally refers to 'an interested and/or affected party in the management of resources' (Mitchell *et al.* 1997; Sutherland & Canwell 2004; Thompson 1997). Mitchell *et al.* (1997) argues that in the stakeholder theory, stakeholder classification is critical and that stakeholder relations would differ depending on the circumstances. They propose that incorporating the attributes of stakeholder *power* and *urgency* with *legitimacy* will enable effective and efficient management in changing times. The power attribute relates to stakeholders' power to influence the firm's management and

its objective realization. The legitimacy attribute, on the one hand, has more to do with rightfulness of a stakeholder's relationship with a firm or organization. While, on the other hand, the urgency attribute refers to the stakeholder's claim (hold) on the firm and urgency with which such a claim would need to be addressed. Although the stakeholder theory originates from the field of business management, it has been widely used in natural resources. Natural resources management literature goes further to recognised the 'natural' environment as a stakeholder (Sullivan 2002; Zehnder *et al.* 2003).

Young (2000, p.118) states that,

> […] speaking across difference in a context of public accountability often reduces mutual ignorance about one another's situation, or misunderstanding of one another's values, intentions, and perceptions, and gives everyone the enlarged thought necessary to come to more reasonable and fairer solutions to problems.



Furthermore, multi-stakeholder processes need to formally feed into decision-making forums in order to avoid the risk of being perceived as irrelevant to policy-makers and stakeholders (Fraser *et al.* 2005), and vice versa. In addition, the success of any development programme relies on progressive flexible feedback that allows problems to be addressed even in changing times (Dougill & Reed 2004). A successful water demand management programme, therefore, needs a comprehensive Management Information System (MIS) and Water Demand Management strategy (Gumbo & van der Zaag 2003). The above argument is based on the notion that where MIS prevails, it would be easier to share information between stakeholders.

## 2.4 The link between Accountability and Action competence

Focusing on results rather than on activities is a key principle of accountability in a management process that strives for efficiency and improved performance (Bolton 2003; Klatt, Murphy & Irvine 1999; Nze & Nkamnebe 2003). For the same reason, Jensen and Schnack (1997) point out that the concept of action competence, which is associated with environmental education, is not so much about the activities but rather actions that result in long-term solutions to the problem. In a water conservation and demand management programme, a reduction in the amount of water consumed and/or supplied against projections may, therefore, be an indicator of competitive action by the respective stakeholder groups. Furthermore, accounts on stakeholder action would reflect the stakeholders' level of knowledge and interpretation of the purposes of the water conservation programme and its administrative structure (Sullivan 2002).



Jensen (2002) further argues that, while knowledge is important, what matters most is what we do with it. The actions that are taken by the stakeholders, therefore, need to be demonstrative of a pro-environmental behaviour (Jensen 2002; Sullivan 2002). Botswana's water scarcity situation is such that while stakeholders may be aware of the water situation, they all need to take deliberate action towards the situation (Toteng 2004) by acting in their respective areas of operation to implement water demand management.

In the public sector accountability process, an overall performance measurement system may be established through the "careful" selection of comparators (Bolton 2003). Similarly, Sutherland and Canwell (2004) highlight that tools and activities can be used to identify and describe an organisation's stakeholders based on their attributes, inter-relationships, interests in certain areas, as well as their interests and influences on a certain resource. Mitchell *et al.* (1997) argue that

based on the attributes of the stakeholder's influence and decision-making power on the aspects of an institution or organisation's objectives, a stakeholder typology may be arrived at. Toteng (2004) indicates that when the legitimacy and power attributes in the above typology are applied to Botswana's water management sector, three stakeholder categories are arrived at: the dominant, the discretionary, and the dormant stakeholders. The first category comprises the three water supply authorities, while the second category is constituted of the non-governmental organizations' advocacy stakeholder group, and, the third category comprises the water user stakeholder.

The above argument is compounded by Ohlssen and Turton (2000), who argue for the need for high levels of social resources. They note that social resource capacity can be a major bottleneck in the adaptation to water scarcity and identify three phases in the adaptation process, namely: government's attempt to get more water; societies' realization of the need to conserve water, so as to get most use out of every drop; and societies' realisation that they need to 'do better things with the water they have, in order to get more value out of every drop.'



### 2.5.1 Partnership in water demand management

A way of dealing with and possibly alleviating the sectoral conflicts may be to ensure "private participation" in order to foster a sense of ownership (Stikker 1998). Private participation implies the active involvement of individuals and other social bodies apart from those directly mandated to manage the supply and availability of water. Castro and Nielsen (2001) believe that although co-management has its benefits, it can lead to conflicts in co-management regimes due to limited local participation in decision-making.

According to Toteng (2004), some members of the private sector water user group in Gaborone had taken action to implement the water conservation and demand management programme. It was established that while this was the case, the water user group had reported a lack of involvement by the water supplier in decision making processes and accounting forums. Such an omission had negative consequences that stemmed from the lack of sharing of experiences. The participation of society and the presence of such forums would strengthen the governance and accountability processes (cf. Paul 1992 in Ackerman 2004). Also, the Hague Declaration calls for ministerial support for devolution of governance, enhancing the role of local authorities, industries, NGOs and individual citizens in water regulation, monitoring and planning (Gardiner 2002). In addition, a common understanding is a critical component in involving the public and as a tool for the decision-making and implementation process of water demand management (Radif 1999).



### 2.5.2 Collective Action

Collective action is important in achieving goals where human resources are limited for a project or programme (Mathie & Cunningham 2003). Such an approach would enable individual organisations lacking the necessary resources, to independently improve their well being and work together to achieve their goal (Mathie & Cunningham 2003). Although the approach is commonly used in Asset Based Community Development (ABCD) programmes, it may also be applied in the natural resources management programmes. This is particularly significant in water demand management initiatives since they cut across the different sectors. Furthermore, the management of a public resource such as water needs to go beyond the sole accountability of a lead agency, as a stakeholder, in order to bring about a change and the desired goal in resource demand.

### 2.6.1 The challenges of Integrated Water Resources Management in southern Africa

From the adoption and signing of international agreements and legislature such as the Rio Declaration of 1992 (Agenda 21), Dublin Principles of 1992, the Hague Declaration and the Kyoto Protocol, frameworks such as the Integrated Water Resources Management (IWRM) were developed. The IWRM framework, which guides water resources management for the equitable, efficient and effective water resources use and management, strives to ensure sustainability (Sullivan 2003) and co-governance (Gardiner 2002). IWRM calls for active stakeholder participation as a general process to promoting ownership and accountability (Radif 1999; Savenije & van der Zaag 2001).



While WDM is generally a challenge to policy makers, natural resources management in southern Africa is particularly a challenge according to scholars (for example Bernard & Khumalo 2004; Sullivan 2002). The scholars point out that developers, such as engineers, often follow "Western notions" of natural resources management which lack synchronicity with local knowledge and general livelihoods. They elaborate that traditional governance systems tend to be more effective and have greater continuity with the past than 'modern' natural resource management strategies that are based on scientific information and Western notions. Similarly, Swatuk (2005) indicates that the implementation of integrated water resources management (IWRM) is a Eurocentric notion whose implementation in southern Africa is largely faced with political challenges and resistance due to its political implications on existing local institutions. However, to discard the entire system, may have even more detrimental outcomes.

The most suitable institutional frameworks for natural resources management are those that recognise and incorporate traditional institutions as critical in natural resources management (Agrawal & Gibson 1999). Agrawal and Gibson (1999) also argue that the traditional institutions are more adapted to the local setting and to what people believe in. Botswana has limited available literature on water governance. However, after reviewing natural resources management in Botswana, Chanda and Phuthego (2004) propose that development strategies should consider and empower the local people by integrating some positive aspects from "local expertise" (indigenous knowledge) and "modern natural resources management expertise". The researchers point out that such an approach would be better in promoting sustainable resource utilisation and management. Chanda and Phuthego (2004), indicate further that active role-playing by respective developmental and/or institutional groupings play a key role in ensuring accountability and sustainability in natural resources management.



However, it needs to be noted that an integrated management approach such as the one described above, may only work in the management of certain natural resources. As observed by Allan (2002), the diversity of environmental issues and factors that influence them, and their resolution, can lead to poor cooperation and involvement especially where initiatives are external in origin.

There is a collective argument that a successful strategy implementation programme leading to "powerful accountability mechanisms" needs an appropriate structure that gains the 'head' control (Ackerman 2004; Boland & Schultze 1996; Gormley & Balla 2004; Thompson 1997). Similarly, the Water Conservation Policy and Strategy framework document aims to facilitate the introduction of widespread water conservation practices and measures at both the national and local level. The framework document further indicates that in order for its objective to be met, the

water sector needs to be well structured and have a coordinating lead agency located with the Department of Water Affairs (DWA 1999).

The first task of the established Water Conservation Unit was to 'carry forward the current strategy framework to a fully accepted and approved policy with an agreed agenda for its implementation' (DWA 1999). Hence, the policy document will serve to provide an enabling environment. The framework further recommends that in order for this to be achieved, the Water Conservation Unit should oversee the preparation of a water conservation strategy action plan as well as 'be the central coordinating body in spearheading and monitoring its implementation.' DWA (1999) further recommends that the Water Conservation Unit, as a cross-sectoral coordinator should be located at a level within the administrative structure where it can facilitate a functioning and reporting responsibility to the Director of Water Affairs.



Tapela (2002) observed that the creation of new institutions to cover other existing institutions with varying jurisdictions, poses challenges to the implementation of IWRM programmes in southern Africa as they are not readily accepted and owned. New agencies of horizontal accountability, such as those of IWRM programme implementation, often face 'structural and contextual problems' (Ackerman 2004). The structural problems include the impossibility of monitoring the numerous public sector actions and inactions, and political isolation by the accounting agencies due to jurisdiction independence (Maor 2004 in Ackerman 2004, p.449). The contextual problems, relate to inadequate funding, limited enforcement capacity, not holding the accounting agencies accountable and the general weakness of policy and legislature to sanction agencies (Ackerman 2004, p. 449; Swatuk 2005).

Botswana has no enacted Water Conservation Policy (and updated water legislature) and hence has a poor enabling environment for the implementation of the water demand management programme (Swatuk & Rahm 2004; Toteng 2004). As a result, there is often lack of clarity as to who is responsible for implementation, and even less clarity on who is responsible for facilitation and monitoring (Mwendera *et al.* 2003).

However, Botswana's Water Conservation Policy and Strategy framework document clearly indicates the requirements for the coordination and monitoring of the programme and notes that water conservation is everybody's responsibility. The different sector users should all have water conservation activities and initiatives. The success of the water conservation initiatives relies on the active involvement of representative stakeholders from all segments of society. These segments include the following sectors: domestic and/or household, public, mining, industrial and/or commercial, as well as the agricultural sector (DWA 1999).



**2.6.2.1 Botswana's Water Conservation Policy and Strategy Framework**

The objective of the Water Conservation and Strategy Framework document is:

> ...to set out policy guidelines and strategies which – if implemented - should assist in managing and developing Botswana's water resources with focus on sustainability of water supplies (p. 5).

More directly, the document aims to facilitate the introduction of widespread water conservation practices as well as demand control measures at national and local levels.

Primarily, the framework recommends that the water conservation and demand management initiatives should be initially given a priority within: the domestic household sector – particularly the affluent segments of private water users in high cost residential areas -; government

departments, schools and other public institutions (public sector); major water users, commercial enterprises and industries; water and irrigation agricultural sectors; as well as by water providers - who are to achieve efficiently run schemes and water loss reductions. The framework points out that the Botswana Meat Commission (BMC) in Lobatse should be amongst the stakeholders in the priority list for demand reduction. The mining sector was omitted in the priority list as at the time of drafting the framework, the main mining operations had already started implementing water conservation measures. An observation and recommendation made in the document is that water conservation measures 'can be imposed on the public sector'. An additional recommendation for this sector is that a change in the existing payment system to that of a decentralized bill payment is required to promote accountability. With regard to the industrial and/ or commercial sector- it is recommended that this sector should have regular dialogues water providers (e.g. Water Utilities Corporation), the purpose of which would be water auditing. The aim of the dialogues is to highlight areas where water saving devices are required in the production process. Furthermore, water pricing is to be used as a demand management tool especially where the enterprises use a lot of water.



The commercial and industrial sector was identified as major water consumers, for example, in Lobatse. The domestic sector was also identified as a major water consumer – it posed a challenge in demand management because in some areas water was made available through the public standpipes as 'free' water.

#### 2.6.2.2 Reporting and Feedback Mechanisms

The framework suggests that the institution adopts a system of regular progress reporting on the water conservation programme and the highlighting of future activities. As part of the reporting system, it is proposed that the Water Conservation Unit submit bi-annual reports to the Director

of Water Affairs. In addition, the reports are to be shared among all the administrators, policy makers and other interested parties.

The processes of data collection, analysis and information dissemination are integral to the success of the programme. The intended output (aim) of such an exercise is to provide feedback to the stakeholders on their performance in comparison to other users and neighbours. It is also hoped that this would enable the water users to measure their performance against environmental and conservation objectives identified for the resource which supplies them. It is recommended that a formal public relation type of publication or "water budget bulletin" be instituted and distributed to the public.



The overall objective for monitoring and performance auditing is to be supportive rather than punitive to the stakeholders. The aim of the monitoring aspect is, therefore, to ensure that goals are met. The framework document indicates that the latter is best achieved through support and cooperation rather than coercion. Similarly, Bolton (2003) indicates that the performance measurement process should be constructive and its intended role of performance enhancement recognised as such by the stakeholders. The role of the Water Conservation Unit, as indicated by DWA (1999) should be to provide assistance where non-achievement or non-compliance due to a lack of technical or administrative capacity is identified.

### 2.6.3 Policy and Framework in southern Africa

Water demand management literature in southern Africa indicates that while there may be recommendations on how to address issues of water scarcity, the tendency is that often these schemes are hardly followed (Gumbo & van der Zaag 2002; Swatuk 2005; Swatuk & Rahm 2004;

Toteng 2001). While Gumbo and van der Zaag (2002) observed the above indications for Mutare city in Zimbabwe, Swatuk and Rahm (2004) noted similar trends in Botswana. In an environmental study that was not limited to water resources management, Toteng (2001) remarked that although Botswana has limited analytical frameworks to guide developments, these are hardly adhered to in full. The researchers observed that often what happens on the ground does not reflect what is on paper in the form of policy or recommendations. 'Political constraints' are identified by the above researchers as the main cause of deviation from what is on paper, and this trend, as a result often affects what is to be implemented.

Swatuk and Rahm (2004), highlights that in Botswana disparities between policy and practice prevail due to a lack of integration of major activities in water resources management. Similarly, Toteng (2001) observed that, despite the developed systematic analytical frameworks, these are rarely adopted as guides for policy formulation, implementation and progress evaluation. This problem is predominant in urban environmental issues. While integrated water resources management would assist in addressing the problem, the absence of an enacted policy in Botswana's water sector largely contributes to the problem (Swatuk & Rahm 2004; Toteng 2004). Turton (2002) argues that Botswana is experiencing a 'temporary bottleneck' to adaptive capacity because of the fact that the framework document is not communicated to the stakeholders; this has a negative effect on social adaptive capacity. The framework document is meant to serve as a "white paper" to all relevant stakeholders, policy makers and district authorities until its further refinement into a National Conservation Policy (DWA 1999). As observed by Radif (1999) and Young (2000), a common understanding is important to public accountability where stakeholder participation is expected.

Gumbo and van der Zaag (2002) state that, while documents and working papers may support water demand management, implementers (engineers) tend to lean more towards a supply-oriented approach in addressing the water scarcity issue. Observations illustrate the 'power relations' take place under such instances and when different stakeholder groups have to make consensual agreements and implement programmes. Mitchell's (1997) typological observation on the importance of recognising that different stakeholders fall within certain specific groupings based on the 'power' and influence they have on set objectives, has reference.

## 2.7 Manufactured scarcity

In manufactured water scarcity, the argument is that water scarcity may be described as a 'perception' of inadequate availability of water supply; such a type of scarcity may be rooted in political ideologies and inadequate institutional frameworks (Mehta 2001). Turton (2003) and Ohlsson (2000) also point out that sometimes what may start as temporal water scarcity in the form of real or first order scarcity may eventually end up as a long-term manufactured water scarcity. The researchers also support Mehta's argument that in arid and semi-arid regions, people would have adapted to the climatic conditions over time; highlighting that the construction of dams to supply more water is "an alarmist approach" that is never necessary. Mehta (2001) also indicates that manufactured scarcity tends to overlook local indigenous knowledge of coping strategies to the temporal scarcity problems.



## 2.8 Society Empowerment for Public Sector Accountability

Programme monitoring requires indicators to gauge progress. Environmental sustainability indicators (as performance measurement indicators), need to be accurate and reliable, rapidly developed, cost-effective and easy to use, as well as linked to management objectives so that they

can target stakeholder empowerment and sustainable natural resource management (Dougill and Reed 2004). Ackerman (2004) indicated that since vertical and horizontal accountability mechanisms may lack effectiveness, the general society can directly oblige government agencies to be answerable for their actions and sanction the agencies, where necessary. However, Paul (1992) argues that society needs to be willing and able to act towards enhancing public sector accountability. It must be noted though, that in order for civil society to act effectively they also need to be empowered.

Essentially empowerment means that the people should be able to organize and influence change based on their access to knowledge, political processes, and to financial, social and natural resources (Thomas-Slayter cited in IRED 1997, p. 4). Thomas-Slayter (cited in IRED 1997, p.4) notes that the best approach to society's empowerment involves finding ways to mobilize local resources, engaging diverse social groups in decision-making, identifying patterns which eliminate poverty, and building consensus and accountability. As observed above, empowerment not only covers issues of co-governance - which is an important aspect of public sector accountability (Ackerman 2004) but also those of effective natural resources management that is efficient as in water demand management. Timing is therefore a critical issue in strategic resource management (Thompson 1997) and lack of consensus may result in a purposefully delayed action (Allan 2002).



## 2.9 Conclusion

Water demand management literature in general and particularly in southern Africa tends to be skewed towards "vertical" accountability – i.e. political accountability in the public sector. Although problems of horizontal accountability are indicated in IWRM literature for southern

Africa (and more specifically Botswana and southeast Botswana), focus tends to be on outlining the prevalent problems rather than providing/ suggesting possible solutions (Swatuk & Rahm 2004; Swatuk 2005; Toteng 2001, 2004). Furthermore, literature on Botswana's water governance is limited. From the literature review, it was established that water demand reduction is a critical aspect of demand management; the success of which depends on the cooperation of stakeholders. While it is most critical to ensure the cooperation of all stakeholders and their deliberate action through an action guide in the form of a policy or other authoritative document, the civil society also needs to be involved in the pro-accountability processes to help overcome the problems associated with new horizontal accountability structures.

Furthermore, the interpretation of the purpose of the document needs to be understood by all stakeholders, particularly programme coordinators whose roles and responsibilities need to be clear. The framework document, therefore, needs to be widely shared and communicated amongst all stakeholders (civil society and public officers) as a move towards a 'powerful accountability mechanism' process and for their use as a reference guide. As such, the common interpretation of the purpose of the water demand management strategy initiative would enable collective action through integration and a supported coordination system. Successful stakeholder accountability could occur as part of an evaluation process aimed at improving the performance of the programme.

Furthermore, it can be deduced from the literature review that an appropriate institutional structure and building on feedback are central to the successful implementation of a strategy that ensures sustainable natural resources management. Notably, a successful strategy implementation

that is sustainable is achievable through an evaluation process that involves stakeholder accountability as part of the monitoring process. The Water Conservation Policy and Strategy framework document's section on monitoring indicates that the reporting process will facilitate stakeholder capacity building through needs assessment. Where there is non-achievement or non-compliance in the implementation of the water conservation programme due to a lack of administrative or technical capacity, the needs assessment based on observations of stakeholders' would in turn aid in training (DWA 1999).

While it may be indisputable that water resource management in southeastern Botswana requires critical attention, a disparity between the recommendations' coordination and monitoring aspects and their implementation has the high probability of leading to poor stakeholder accountability and therefore poor monitoring of the programme's progress. Such an outcome would negatively impact on Botswana's long-term development due to the country's challenge of very limited water supply sources.

# CHAPTER 3

# METHODOLOGY

## 3.1 Introduction

This chapter outlines the research design and the methodology of the study. It elaborates on the qualitative methods that have been applied, and how the techniques used aided in addressing the study objectives. The tools employed for data analysis are also discussed.

The study has followed a qualitative research approach. Information was sourced from documentary evidence and semi-structured interviews. The documentary sources included reports, minutes and news clips (audio-visual and newspapers) and were used to get better insight into the nature of the water conservation and demand management programme implementation and the role played by different key stakeholders. The interviews were conducted with relevant senior officials in water supply agencies, (i.e. Department of Water Affairs, Water Utilities Corporation and South East District Council Water Unit). The aim of the interviews was to establish how the different agencies implement the water conservation and demand management programme. In addition, interviews were intended to obtain information on the accountability of the respective water authorities, both as stakeholders and as coordinating bodies.



While the integrated approach to management highlights three components, the focus of this study was limited to the systems approach, which deals with the interrelationships of the organisational parts. The approach is then applied to the notion of horizontal accountability. The systems approach was considered significant because the study aimed at investigating the implementation of the WC&DM programme and the accountability of dominant stakeholders in the programme. For purposes of this study, the dominant stakeholder group comprise of the water

supply authorities with decision-making power, whilst the key stakeholder group consist of organisations that formed the project steering committee. Although the water conservation and demand management programme in Botswana is not an organisation in the business sense, its institutional operations and structure closely simulate those of an organisation and ideally should integrate the water sector and its stakeholders.

### 3.2 Sources of Data

This section discusses the geography of the area and the significance of the villages, town and city. The subsequent segment discusses the data sources and instruments used in this study as well as outlines how the two methods compliment each other to promote the validity and reliability of the information gathered.



#### 3.2.1 Study interest area

The study was carried out in the southeastern part of the country where water demand has significantly increased over the years, necessitating the development of water supply infrastructure such as the North-South Carrier. Figure 3.1 illustrates the location of the areas of study interest in southeastern Botswana.

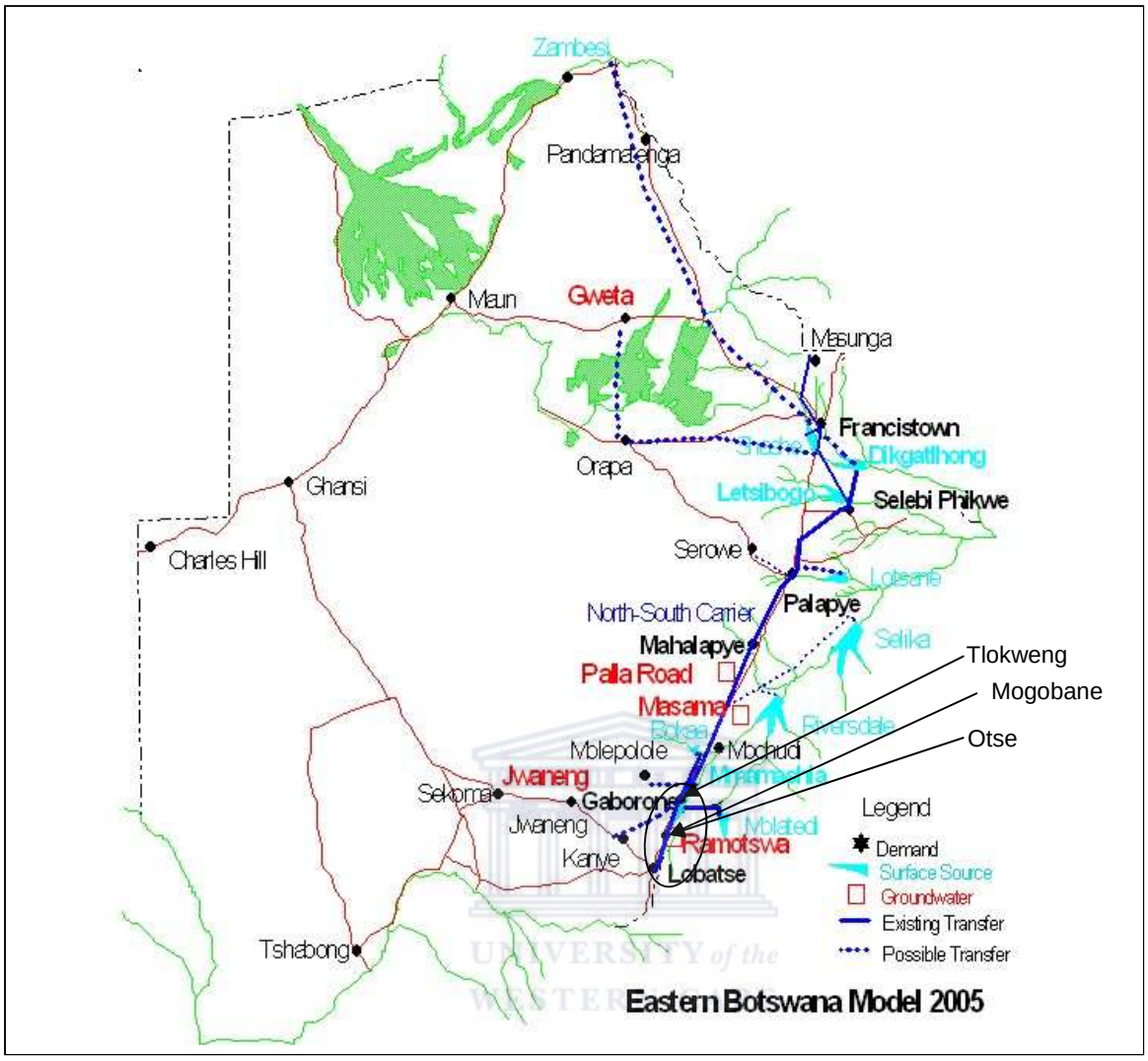


**Figure 3.1:** Study interest area site map (Modified from WUC data system [**Sourced - May 2006**] to include area selection - Otse, Mogobane and Tlokweng villages)

The specific areas of interest were the city of Gaborone, the town of Lobatse, and the villages of Tlokweng, Ramotswa, Otse and Mogobane. The first two villages fall under the jurisdiction of the Department of Water Affairs' (DWA) in terms of water supply, operations and maintenance and have a common water committee – unlike other DWA outstations. The committee's role involves the representation of water user groups in the respective areas and acts as an advocacy group for the water conservation and demand management programme in the southeast district. In

this regard, the DWA outstation managers form part of the water user representative group. The villages are part of what the government terms “urban or major villages” (Central Statistic Office 2001).

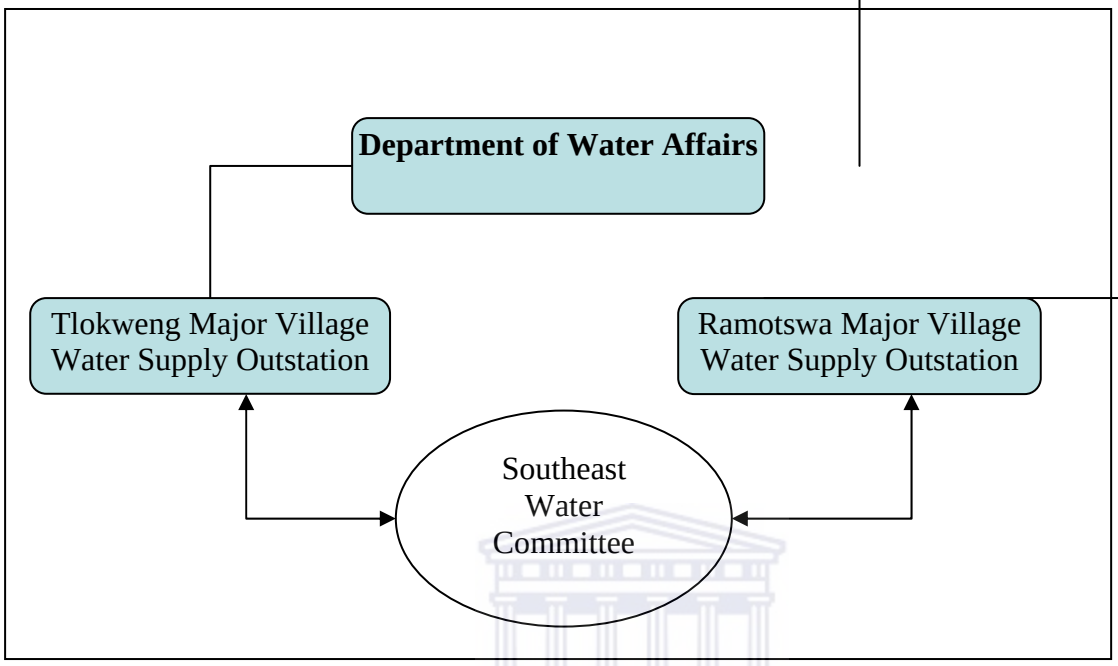


**Figure 3.2:** DWA outstations and their link to the Southeast Water Committee



Otse and Mogobane villages fall within the government’s category of medium and small villages respectively. Operations and maintenance of water supply to these villages are the responsibility of the Ministry of Local Government’s Southeast District Water Unit which falls under the Department of District Water Units.

The population of all the targeted villages comprise of urban commuters and subsistence farmers. Due to the proximity of the villages to the city of Gaborone and the departments’ headquarters, water demand management pilot projects such as pre-paid metering have been undertaken in these villages.

The capital city of Gaborone has been selected for two reasons. Firstly, Gaborone has the highest number of urban dwellers who have a high water demand and therefore the need for schemes such as the North-South Carrier. The high demand for water can be attributed to the urban lifestyles and infrastructural development (MoFD&P 2003). The second reason is that all the water supply departmental headquarters are located in Gaborone; this includes the Water Utilities Corporation (WUC), which is responsible for water supply, and operations and maintenance in urban areas. WUC is also the bulk supplier of surface water in the areas of interest to this study.

Lobatse town, even though not that highly populated, was selected for reference because it hosts the Botswana Meat Commission. The latter was identified in the Water Conservation Policy and Strategy framework as a major water user in the commercial/ industrial sector that needed to input water conservation and demand management initiatives. The Water Conservation Policy and Strategy framework further recommended that water conservation initiatives be started in the southeast of the country because of its high water demands.



### 3.2.2 Data Sources and Collection Techniques

#### 3.2.2.1 Data Sources Description

The data sources used in this study can be classified into two broad groups - documentary sources and key informants' interviews. The sources comprised of 12 reports, 8 newspaper articles, seven sets of minutes, 16 departmental system data (for consumption, demand and forecasts) and 12 interviews. Of the 12 reports referred to above, four dealt with development and water issues in Botswana while the balance was specific to the programme. The seven sets of minutes reflect proceedings of all but one steering committee meetings held during the project phase of the

programme. The last meeting was documented in the form of a report and discussed under reports. Of the 16 departmental system data, one is from the Southeast District Council Water Unit; five are from the Department of Water Affairs while the remaining ten are from the Water Utilities system.

The interviewed respondents can be classified into two groups: these are water conservation and demand management programme coordinating officials and non-coordinating officials affiliated to the programme. The officials were from the Water Conservation Unit (WCU), Department of Water Affairs (DWA), Water Utilities Corporation (WUC) and the Southeast District Council Water Unit (SEDCWU). The respondents occupied posts at departmental director level, departmental programme coordination level or were departmental programme support officers.



**3.2.2.2 Documentary Sources**

Background information on the implementation of the Water Conservation and Demand Management programmes were sourced from various documents (these included the proceedings of steering committee meetings that took place during the programme's project phase). General reports on water demand management in Botswana were also consulted. The documents were analysed to determine what previous work had been carried out in this regard, as well to collect information on key stakeholder accountability. The process was also carried out to gather information, which had not been gathered before the writing up of the project proposal nor from the interviews. This information not only breached the gaps in some of the gathered information and answered some of the research questions, but it also made it possible to check for consistencies in the information gathered from interviews.

Advantages of the documentary analysis are that this method is economical; it allows for quick access to information; provides information that may not ordinarily be gained from interviews; and it helps to reduce the chances of data replication. Disadvantages of using the approach include the possibility of minimal information validity - the original researcher may have only recorded what was more relevant to their study interest, and probably would have asked questions that do not quite capture the essence of this study. Similarly, with regard to capturing meeting proceedings, the documenters of the information may have only documented information that they (or the overseeing body) deemed essential. As an extra measure, the researcher reviewed information from water and development programme reports outside the study interest; interviews were also undertaken to elicit opinions with regard programmes in Botswana.



**3.2.2.3 Interviews**

Interviews were conducted to gather information from the respective water supply authorities on implementation of the water conservation programme. The process also served to reaffirm and complement data from the documentary sources. The interviews were undertaken with senior officials (from the Department of Water Affairs, Water Utilities Corporation, Department of District Water Units and Southeast District Council Water Unit) who are directly involved in the programme. The use of open-ended questions enabled the researcher to ask for necessary explanations, which could not be obtained from reports and from some interview responses on the adopted implementation of the programme. The interviews were first administered to the senior authorities, and then to other officers within the departments. This was a necessary component for establishing the implementation of the programme through a minimization of bias of the key interviewees.

As a back-up measure, a digital voice recorder was used to record interview sessions prior to transcription. The information was then counter-checked to establish whether all the required information had been obtained. Use of a voice recorder enabled observation of body language for signs of distress, agitation or hesitance in responding.

The interview method was advantageous because it provided direct and personal information on the actions and activities that have been carried out (for example, whether a respective department reports its programme implementation progress, and, if not, why). In addition, the method allowed for a measure of flexibility, opportunities for clarification and answer probing by the interviewer, thereby ensuring a higher response rate. Interviews also ensure prompt responses. The conduct of interview sessions involving the presence of the interviewer enabled the environment of the participants to be controlled to ensure that the responses gained were not influenced by the opinions of other people who were not involved in the study. For example, during one of the interview sessions, the interviewee's colleagues would come into the office but left immediately when they established that an interview was in session. In addition, the use of open-ended questions, in some instances, lead to interview respondents' provision of information to questions that had not yet been asked. Follow-up questions were asked during later stages of the interviews. This process proved useful in extracting some elaboration of earlier responses, which provided in-depth information for the study.



The interview method, however, carries the potential risk of being provided with biased information. This risk exists because the views provided by the informants may blend both factual information and personal opinions. The risk was minimised by looking for commonalities in the information provided by all the respondents. The commonalities of particular interest

related to issues of poor feedback processes. The information was found to be consistent from all the data sources.

### 3.2.3 Methods of Data Collection

Prior to the implementation of the data collection, permission was requested from the director of the lead agency (Department of Water Affairs) to carry-out the study with the staff in the department and key stakeholders. Benefits of the study were also outlined.

Data collection occurred during the months of May and June 2006. Most of the data were collected from the department's operational head offices based in Gaborone (except for that of the Southeast District Council Water Unit). The Southeast District Council Water Unit (SEDCWU) is based in Ramotswa and this is where the senior authority was interviewed. SEDCWU had very little documented information on the implementation of the programme. As such, the researcher had to rely on the interview and compared the information with that from the other sources.



As observed, data was collected through a qualitative approach involving the assessment of documented sources as well as interviews. The data was then categorised according to the respondent groupings and thematic evaluation units. Thus, indicators such as stakeholder action and decisions, on implemented water conservation projects, served as evaluation themes under the units. The recommendations from the Water Conservation Policy and Strategy (WCP&S) framework document on coordination and monitoring were used as a measurement-guiding tool for data categorisation and analysis as they relate to the promotion of stakeholder accountability.

The background information on the implementation of the water conservation programme obtained from documents was reaffirmed through interviews with the relevant senior officials. The information gathering process was conducted to shed light on the implementation of the programme in the area of study. The topical issues that were covered relating to the coordination and monitoring of the programme were:

- The nature of the water conservation and demand management programme.
- Measures taken to implement the water conservation programme as per the Water Conservation Policy and Strategy framework. In other words, considerations taken in the implementation (its monitoring and stakeholder capacity building) and the actual mechanisms for its operationalisation.
- Decisions that have been made to address the coordination and monitoring aspect.
- Key stakeholder interpretation of the recommendations.
- Opinions about alternative ways of implementing the programme.



The following accountability issues were specifically covered:

- The nature of the overall implementation of the water conservation programme, - in the respective areas - based on past experiences.
- The nature of monitoring the progress of the water conservation programme and providing an account to the coordinating unit.
- The nature of the stakeholders' involvement in implementing the programme and their accountability. That is, what initiatives have stakeholders made to ensure accountability?
- Alternative suggestions to the implementation of the programme to ensure accountability.

Data obtained from interviews provided cross-reference material to the data from the documented sources. This made possible the verification consistency of all the data sources. In some instances, the water authorities lacked documented information and the only available sources of information were the programme coordinating officials.

### 3.3 Sample Selection

The study involved all the water conservation and demand management programme coordinators (liaison persons) from the respective water supply authorities within the study area. Officers directly affiliated to the implementation of the programme in the respective departments were also interviewed. The study used purposeful sampling for this category by identifying and interviewing officers who are involved in (and acquainted with) the operations of the programme. The programme was found to be new and therefore few people were involved in its operations.



### 3.4 Data Capturing and editing

Information on the water conservation programme in Botswana was analysed to identify and extract programme implementation information. Additional data (such as consumption and demand reports, as well as supply projections) was then sourced from the respective departments. Where the information was not available as electronic or hard copy format, the information which was provided verbally was later compared with that of the bulk supplier to establish its validity (as was the case for one of the departments).

The data from interviews was transcribed after the interview sessions. Where interview responses were gathered without the voice recorder, notes were taken. The transcribed data was revisited to counter-check errors that could have occurred during the typing process.

The data was synthesized to establish the predominant issues expressed in the different data sources that relate to the implementation of the programme in the study area. The predominant issues were noted using key concepts such as 'coordination, integration and monitoring' and colour coding.

Data matrices were drawn from the different data sources. Each matrix included sections for the different categorical titles based on the study objectives and findings from the source.

In order to minimize errors, work on a specific matrix was completed before working on another. The error minimisation process was largely carried out by reviewing a specific piece of data material (e.g. newspaper article) then inputting the data into the matrix. It was then counter-checked for similarities with the article. In the case of interviews, the researcher printed out the transcripts ready for the analysis. The information was then summarised into the matrix objective and research question categories. In some instances, a quotation was made to capture the expression of a common concern or an explanation to an underlying problem observed during data collection.



### 3.5 Data Analysis

The framework document recommendations were used to categorise the data and analysis (in terms of success or failure) of the programme's implementation. These recommendations were used with reference to management principles, particularly as they relate to accountability.

Analysis started with the onset of the data collection and capturing processes – here the information was categorised into themes. The information from the various sources i.e. interviews, newspaper articles, reports and minutes was analysed based on the study objectives. From the established categories, descriptive content analysis was employed by identifying and describing the main themes of the data. Trends and patterns were established according to the dominant concepts and indicators. Specifically, frequencies in trends and patterns that relate to monitoring and stakeholder accountability indicators were then established. Furthermore, the similarities and disparities in the responses in relation to the questions that relate to common issues were established, for example, similarities and differences in responses regarding the best alternative solutions to the implementation of the programme.

A comparison between the study finding and recommendations made it possible for conclusions to be made based on the objectives of the study. Conclusions on the nature of implementation and accountability recommendations from the study findings should facilitate the drafting and amendment of relevant policies and regulations. Finally, recommendations have been made for the coordination and monitoring of the programme as part of the implementation strategy that seeks to ensure stakeholder accountability.



### 3.6 Synthesis of Analysis and Framework

An investigation into the water conservation and demand management programme clarified whether its implementation adheres to the recommendations. In addition, it also made it possible to establish the nature of the administrative structure of the programme and hence the Water Conservation Unit's ability to adequately play its role of coordination functionality and reporting responsibility. The framework indicates that the success of the programme relies on the active

involvement and cooperation of all stakeholders. The need to determine whether there is cooperation, points further to the nature of the programme and whether it is achieving its intended goal. The understanding of the actual role of the Water Conservation Unit, as the coordinating and monitoring body, as opposed to the role recommended in the framework document was obtained. The establishment of recommendations interpretation was also assessed as it has a direct bearing on the stakeholders' common understanding, compliance, as well as, their action-taking. The impact on stakeholders' common understanding is particularly true in the instance of providing feedback (accounts) under the monitoring component as part of the management process.

### 3.7 Limitations of the study

The limitations are related to time and funding constraints. Given that this is a mini-thesis, the study could not cover all the aspects that relate to stakeholder empowerment and accountability in water demand management for the entire southeast Botswana. In order to address all the related aspects, an in-depth study looking at all stakeholder groups and employing long-term observation of the implementation of the programme would be required. A study of such magnitude would require substantial amounts of time and money; resources of which were not available for the purposes of this study. As such, the current study only served as a catalyst for further studies in the water demand management and programme implementation by providing an insight into the situation in southeast Botswana.

It was also envisaged that there would be difficulties in accessing information from some of the respondents and data providers. To address this problem, facilitation by Director for the

Department of Water Affairs and its stakeholders about the study was requested. This allowed easy access to data.

# CHAPTER 4

# RESULTS

## 4.1 Introduction

This chapter focuses on the research findings and a discussion of the results under six thematic areas.

## 4.2 The Nature of the Water Conservation and Demand Management Programme in Southeast Botswana

The framework document recommends an administrative structure that will ensure the success of the programme. Furthermore, the document emphasises that water conservation is everybody's responsibility and further calls for water suppliers to implement the programme in their respective areas and report to the Water Conservation Unit. This section addresses the above noted aspects of the above thematic area.



### 4.2.1 Water Conservation and Demand Management Programme Administrative Structure

The WCP&S framework document recommends that the water conservation and demand management programme should have a comprehensive institutional structure that is well coordinated to ensure programme success. In order to achieve this, the report recommends the establishment of a Water Conservation Unit, which should coordinate the promotion and implementation of the programme. As a focal point with a cross-sectoral role, the framework recommends that the WCU should facilitate a functioning and reporting responsibility directly to the DWA director. Although the DWA 2003/04 fiscal year annual report (2003) illustrates that

the Water Conservation Unit was established, the recommended administrative structure was not followed. Results indicate the Unit is located within one of the department's technical divisions, implying that it does not report directly to the director and remains the status quo. Due to the location of the Unit, the stakeholders to the WCU (DWA, WUC & SEDCWU) identified the unit as a DWA operational component and therefore question its authority. Stakeholders outside DWA further indicated that DWA had no jurisdiction to expect them to account to one of its (DWA's) components.

The study established further that it was difficult and at times impossible to get reports from stakeholders who were at the same level as (and in some cases above) the unit in public service administrative structure due to issues of protocol. This was expressed by one of the interviewees as:

> I am not too sure how the people then[sic] expect us to tell one of you [sic] to do something and you know you [sic] are within that system… under the current arrangement, it [implementing coordination and monitoring] is proving to be quite impossible unless drastic changes are going to be made […]



Another source indicated that the role of the Unit as coordinator and monitor was not recognised because of its placement within DWA.

> […] sometimes if you come up with a good idea like a conservation unit, and it's placed in a certain department, that could have adverse effects. Sometimes you might find that you might not achieve what you had intended, because sometimes people might not take it seriously or might disown it. Because [sic] they feel it belongs to somebody else, and somebody else is accountable

> and ultimately has to answer, if they [a sectoral stakeholder] don't do what they are supposed to be doing on their part, they will not really be exposed.

As noted earlier in Chapter 2, new institutions that are created to oversee the existing institutions with varying jurisdictions, pose challenges in the implementation of IWRM programmes in southern Africa (Tapela 2002). Similarly, Swatuk (2005) views IWRM as a "Eurocentric notion" whose implementation in southern Africa is challenged due to its political implications on the existing institutions. Although the WCP&S framework recommends a comprehensive structure for the successful implementation of the water management programme, these were not fully adhered to, thereby creating a gap between the recommendation and its implementation.

While the above findings indicate a flaw in the structural implementation of the Water Conservation Policy and Strategy framework document, successful accountability processes in the implementation of management strategies are largely dependent on the appropriate institutional structure as part of an enabling environment (Thompson 1997; Winpenny 1997). Similarly, strong institutions that can support "unpopular decisions" need to be developed as part of a move towards a strategy that builds awareness on the need for societal adaptations to hydro-climatic constraints (Falkenmark 2001).

It must be noted, as observed by Ackerman (2004), that new agencies of horizontal accountability tend to be faced with structural and contextual problems. Although Botswana is good at choosing its policy and has 'strong state machinery' (its public sector), development programme implementation is a problem (Kaunda 2005). According to Kaunda (2005), lack of ownership, transparency and accountability, amongst other challenges, are contributory factors to the general

implementation problem in Botswana. The author suggests that the solution to Botswana's problem lies in the formulation and development of a comprehensive national capacity building approach that can be integrated into programmes in a coordinated manner. While the framework document may be a good tool, even if the recommended programme administrative or institutional structure had been implemented, problems of accountability may have still prevailed due to the observed issues of ownership and lack of unity in the water sector.

### 4.2.2 Implementation by the Department of Water Affairs

In the case of the Department of Water Affairs, all the data sources indicate that the water conservation and demand management initiatives were largely perceived as "a Water Conservation Unit thing."



However, the Department of Water Affairs, as the lead agency in water conservation and demand management, coordinates the programme activities such as water supply through outstation managers. The findings specifically indicate that the Department plans and facilitates the annual National Water Week and World Water Day celebrations in conjunction with the local communities and other agencies. In addition, the Department has since 1999 carried out pilot projects for water demand management initiatives such as the pre-paid metering system at public standpipes in both Tlokweng and Ramotswa villages.

During the project phase of the water conservation and demand management programme, DWA's Operations and Maintenance division sought support and collaboration from the Water Conservation Unit in a water-loss-control project for Ramotswa village. The findings from the WC&DM programme minutes and reports indicate that the project was aimed at reducing unpaid water rates. The project also aimed at reducing the level of water loss recorded at 50 percent at

the beginning of the water-loss-control project. This level was reported to have dropped to 'acceptable levels' of about thirty percent in August 2004. The Water Conservation Unit advisory team had raised concerns that, other than the Station Manager for Ramotswa village and 'two or three other officers,' no senior technical officer was available for training in water demand management and water loss control. Significantly, such training would have contributed to ensuring the sustainability of the programme. Records, however, indicate that the water-loss problem persists. DWA data system records for the fiscal years 2004/05 and 2005/06 indicate that water loss fluctuated between 50 percent and 30 percent; with no specific pattern (see figure 4.1 below based on DWA data system [May 2006]).

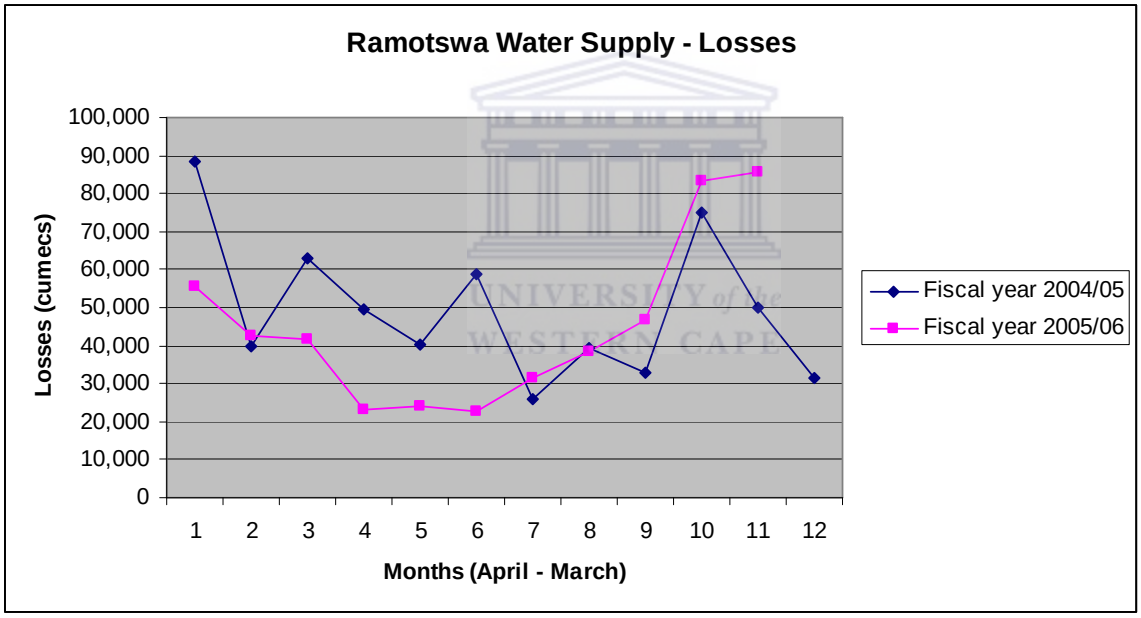


**Figure 4.1:** Ramotswa Water Supply - Losses for fiscal years 2004/05 and 2005/06

**NB:** Fiscal year 2005/06 data series only reflects eleven months because not all the data had been entered into the system at the time of data collection.

### 4.2.3 Implementation by Water Utilities Corporation

The implementation of the water demand management programme initiatives was established in 2004 for Water Utilities Corporation (WUC). According to a respondent, the WUC had discussed efficient water use with its major water users in Gaborone, Lobatse and other urban areas outside southeast Botswana. Advertising in the local media was used to alert the nation to the importance of water conservation and demand management. WUC also undertook a non-market WDM approach in the form of water restrictions as an additional measure. This study also concluded from the organisational data systems that overall water consumption levels had declined from around December 2004; after the introduction of the water restrictions and water conservation campaign.

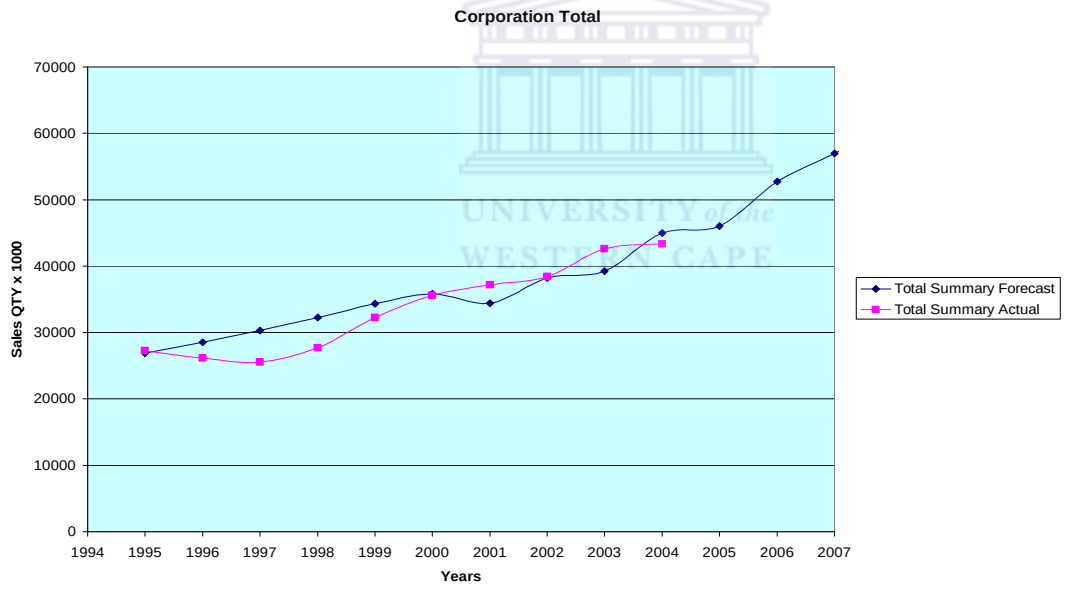


**Figure 4.2:** Summary of Forecast versus actual Water Consumption – standardise figures
**Source:** Water Utilities Corporation data system – May 2006

At the onset of the WC&DM campaign, the corporation had set an overall target of 25 percent decrease; impressively, a 35 percent decrease was achieved. It must be noted that indications are that the implementation of the WC&DM initiatives started in the middle of a drought (one that

was observed to have been the worst in twenty years). This implies that the action could have been reactive rather than proactive to the implementation of the water demand management strategy. However, Thompson (1997) and Tibela (2005) indicate that for the implementation of a strategy to be successful it should be proactive rather than reactive. The reduction in water use results [as illustrated in Figure 4.2] also indicates that the agency has the potential of achieving long-term accountability in the water conservation and demand management programme.

### 4.2.4 Implementation by the Southeast District Council

The findings for the Southeast District Council Water Unit (SEDCWU) indicate that from 2005 the agency had started a water demand management programme that involved the replacement of conventional public stand-pipes with a prepaid metering system. The programme was necessitated by the local concern of water wastages at the public standpipes and the reportedly high water consumption rates. The respondent pointed out that the process was completed in Mogobane village but still ongoing in Otse village. This study assessed consumption levels of the Southeast District (specifically for Mogobane and Otse villages) from the bulk supply data and established that the supply and consumption levels for the area had been declining steadily since 2005. SEDCWU did not have a comprehensive data system – however, an interviewee was able to provide billing figures from the bulk supplier (WUC), which also indicated that there was a decline in consumption levels since the pre-paid standpipe installation process started.

The study also revealed via observations and an interview that due to the management style of local district council units, which mandated the involvement and approval of local councillors and the tribal authority, hierarchical control co-governance was a key element in the management of the resource. The co-governance process took place mainly through the discussion and

resolution of issues at monthly kgotla meetings (tribal communal gatherings). Community members were also involved in this process. The study further established that it was at the communal gatherings that the local community demanded explanations on issues such as resource use and management as well as contributing to decisions on managing the resource (marketisation and direct public participation). Although this intense participatory process seems to have delayed actions by the agency, the study noted that the approach was beneficial as it empowered all stakeholders through joint decision-making. In the Botswana District Council areas, the availability of programme and project funding relies heavily on the petitions made by councillor who is supported by the tribal authorities and the community. In the light of this, a decision made without the involvement and consent of the tribal authorities and the community would not get the required support. Such a system ensures the accountability of the respective public officer to society. As observed by Paul (1992), the public participation and marketisation reinforces the "hierarchical control" in public sector accountability. In addition, bureaucratic accountability was also successful because the "head" (i.e. the councillors and tribal authority) had some control - through funds - over the District Council Unit.



The different forms of accountability (Ackerman 2004; Gormley & Balla 2004) were observed to be more prevalent in the SEDCWU management area than in the WUC and DWA areas. The above findings concur with the views of Bernard and Khumalo (2004) that traditional natural management systems tend to have better continuity, as they are in synchrony with the lives of the local people. Integrating the positive aspects of 'local expertise' with those of 'modern expertise' empowers the people and leads to better sustainable natural resource utilisation and management (Chanda & Phuthego 2004). Empowerment, therefore, is a key factor in the increment of responsibility and accountability (Thompson 1997).

### 4.2.5 Implementation by the Water Conservation Unit

The findings indicate that since the establishment of the Water Conservation Unit (WCU) in 2002, water conservation and demand management programme was implemented. This was through a request for support by stakeholders in the implementation of WDM initiatives and pilot projects. This study established that in the few instances where stakeholders sought guidance, the Unit undertook to resolve the problems in the form of pilot projects, for example the Ramotswa Water Loss Control and the Ledumang (pilot) Senior Secondary School rainwater harvesting projects.

On a general note, the study established that while the three agencies (DWA, WUC & SEDCWU) and the Water Conservation Unit were implementing the programme in different ways, it lacked a means of building on common efforts. Collaboration was seen to exist only during the National Water Week and World Water Day celebrations – this can be perceived as an activity rather than an action. The above classification is made from action competence and accountability theories, which state that, "prior to action-taking there has to be a conscious making up of one's mind" (Jensen 2002, p. 326; Thompson 1997; Tibela 2005). In such an instance, influence and manipulation are not contributory factors to the acting process and as a result, the actor makes a deliberate and planned intention to engage in the process. The key principle of accountability in any form of management lies in focusing on results rather than on activities (Klatt, Murphy & Irvine 1999). The difference between actions and activities is that while activities are short-term with participation through influence or compliance, actions are driven by a deliberate action aimed at achieving long-term results (Jensen & Schnack 1997). The actor's long-term intent to act deliberately would be reflected in other problem solving acts outside the one in question. On the contrary, this was not established to be the trend for the three surface water authorities despite the annual celebrations since 1999. The lack of continuity outside the annual celebrations and

non-integration of activities reflect the lack of accountability by the three water supply authorities to the WCU (as the programme coordinator).

### 4.2.6 Water Conservation and Demand Management Programme Implementation Progress Monitoring

The Water Conservation and Policy framework document indicates that it should be used as a 'white paper' in the programme's implementation and monitoring until its full development and enactment into a policy. Reports from other sources also indicate that there is a problem with stakeholder reporting on implementation progress. As indicated in the WC&DM programme (project form) minutes and reports, two of the stakeholders who were part of the steering committee were asked to implement water conservation and demand management within their respective areas, and report on progress in the scheduled meetings. The request was evidently made due to problems identified within the operational areas of those stakeholders. However, the minutes and reports referred to above indicate a lack of feedback right through to the conclusion of the project phase.



#### 4.2.6.1 Structural Problems

Toteng (2004) and Swatuk & Rahm (2004) observe that Botswana has no enacted water conservation policy to guide the implementation of the water conservation programme and water demand management; this presents a challenge. Conversely, Turton (2002) considers Botswana as having a framework that qualifies as a policy. The problem, however, is that it has not been widely communicated to all stakeholders. Mwendera *et al.* (2003) argues that in countries where policy is weak (or non-existent) there is usually a problem with regard to the clarity of roles and responsibility for water demand management programme implementation. As observed in the

previous section, and indicated by Ackerman (2004), new agencies of horizontal accountability commonly face such structural problems that relate to "agencies' statutory or constitutional independence" (p. 450). Similarly, indications from the different sources are that the Water Conservation Unit's lack of empowerment and issues of jurisdiction were hindering any possible stakeholder sanctioning by the Unit.

Whilst on the issue of collaboration, Young (2000) indicates that it is important to 'speak across' differences in issues of accountability to reduce "mutual ignorance about one another's situation, or the misunderstanding of one another's values, intentions, and perceptions (p. 118)." Young (2000) further points out that the reduction is made possible as the information sharing process enables stakeholders to perceive the bigger picture that is necessary to establish resolutions that are reasonable and just. Although Young's statement was made in the context of public accountability, it is significant to the situation observed by this study (See Section 4.2). Stakeholder input would contribute towards resolving the problems underlying the ineffective implementation and monitoring of the programme. Such an achievement is important to Botswana and particularly in the southeast part of the country because of the acute water scarcity prevalent in the area.



Interview responses indicate that the problem of stakeholder cooperation on the monitoring aspect is still prevalent beyond the project phase. All the respondents attributed the monitoring and accountability problem to coordination related issues pertaining to the programme's institutional administrative structure (see Section 4.2.4) as well as to poor leadership.

#### 4.2.6.2 Contextual problems

New agencies of horizontal accountability also face contextual problems that relate to limitations of funding and human resources, "limited enforcement capacity", lack of second order accountability (i.e. "holding accounting agencies accountable"), as well as weak "rule of law to enforce agency sanctioning" (Ackerman 2004, p. 449).

Afrosearch (2004) reports that very little funding was available for water conservation and demand management initiatives in Botswana. Interviewees also indicated that insufficient funding and human resources were key causes of the coordination and monitoring problems. Respondents attributed the cause of insufficient resources to poor leadership; an issue that resulted into one unit being at a disadvantage to others within a given division. The above response relates to the statement made earlier on the issue of the ownership of the coordinating unit. However, as indicated earlier, these challenges are contextual problems of new horizontal accountability agencies. The study also observed that the issue of the Water Conservation Unit ownership was prevalent both within and outside the host agency, DWA. Botswana has a strong institutional adaptive capacity (Turton 2002) because of its strong state machinery (Kaunda 2005). Notably, the challenge in implementing the IWRM is not so much about a lack of resources, but the result of its political implications over existing institutions (Swatuk 2005).



Water conservation and demand management initiatives were found to be commonly perceived to be a responsibility of the Water Conservation Unit and was often referred to as "their thing." Records from the November 2002 and November 2003 steering committee minutes and progress reports indicated a poor ownership of the water conservation and demand management programme. In the minutes, stakeholders criticised the Water Conservation and Demand

Management programme coordinators for highlighting the water wastage and growing water demand problem in areas of southeast Botswana. The minutes also indicate that some stakeholders were under the impression that the above mentioned problems were the sole responsibility of the Water Conservation Unit to resolve. Both records reflect a statement of clarification by the Chief Technical Advisor to the project (programme in its project phase) that water conservation and demand management was everybody's responsibility and that the WCU was there as a guide. The project completion report, however, states that implementation of the project had been inefficient due to "the unwillingness and inability of relevant agencies (including DWA) to support, sustain, monitor and improve on the knowledge, tools, skills, initiatives and people who have been associated with the project."

The study by Afrosearch (2004) on water governance in Botswana shows that there is a lack of cooperation and integration between various institutions in the water-supply chain, particularly in the water services sector. The report states further that there is resistance to change among the water institutions. Findings from the above report were also gleaned during an interview, where it was stated that water demand management would never work in Botswana and that initiatives towards it were "a waste of time". Dziegielewski and Baumann (1992) argue that the problem with water demand reduction programmes is that they tend to rely heavily on the cooperation of water users. In this instance, the success of the Botswana water conservation and demand management programme's coordination and monitoring component rely on the cooperation of other stakeholders for their support. The above is particularly true where the stakeholders' accountability is required as part of a performance measure component.

Finally, IWRM, as a framework, recommends the buy-in of all stakeholders in order to achieve an integrated approach that is efficient and leads to long-term development and sustainability (Savenije & van der Zaag 2000). From the results and foregoing observations on issues affecting accountability, it can be noted that the stakeholder buy-in for the water conservation and demand management programme in Botswana is very limited.

Structural and contextual problems associated with new agencies' horizontal accountability (Ackerman 2004) perpetually challenge the implementation of IWRM programmes. These range from acceptance of the new institution to issues of cooperation in the monitoring process (Tapela 2002; Chanda & Phuthego 2004; Bernard & Phuthego 2004; Swatuk 2005).



### 4.3 Interpretation of the Water Conservation Policy and Strategy Framework Recommendations for Stakeholder Accountability

The Water Conservation Policy and Strategy framework document calls for the active involvement of all stakeholders in the implementation of the water conservation and demand management programme. It further recommends that the Water Conservation Unit serves as a coordinating agency to which the stakeholders would report to, as part of performance measurement and a capacity building process. Two of the three coordinating officials interviewed from DWA and WUC respectively, had knowledge of the document and its content - established from respondents' interpretation of stakeholder accountability. Stakeholders were expected to report their implementation progress to the coordinating unit. The coordinators from the Department of District Water Unit, including at the Southeast District level, had neither seen nor heard of the document. However, it was established from an interview with the lead agency, that the document had been revealed to the Ministry of Local Government, but not the District

councils. The analysis of the minutes and progress reports of the "project phase" programme established that only a representative from the Department of Sanitation and Waste Management (DSWM) had regularly attended meetings; there was no recorded representation from the Department of District Water Units.

The above findings concur with Turton (2002) that although Botswana has a document that qualifies as a policy document, it is yet to be communicated to all stakeholders. Turton's (2002) findings are specific to community members at the user level, but results show that the problem also exists at the institutional level. These findings, therefore, reflect a flaw in the implementation of the programme recommendations since they are not widely communicated to all stakeholders - effective performance measures and horizontal accountability are lacking. A common understanding, and more importantly, public sector accountability, as observed by Radif (1999) and Young (2000), is a critical tool in the involvement of stakeholders in the water demand management decision-making and implementation processes. As indicated previously, Young (2002) states that in public accountability, it is beneficial to address issues of difference and/or misunderstandings on stakeholders' values, intentions and perceptions as such that will result in the necessary common understanding required to resolve problems.



### 4.4 Decisions for Ensuring Stakeholder Accountability

As noted above, there is lack of ownership and cooperation by the stakeholders. This in turn directly affects the coordination of the programme and its monitoring component. The observed problem further affects the integration of activities and actions of the different stakeholders all aimed at promoting water conservation and demand management. All sources highlight a lack of integration on stakeholder water conservation and demand management actions.

The Project Completion Report indicates that the project steering committee had resorted to the revival of the Inter-ministerial Water and Sanitation Committee (IW&SC). The committee would play the role of monitoring the implementation of the Water Conservation Policy and Strategy framework, as was the case prior to the establishment of Water Conservation Unit. The reason for this decision is not explained in the report. It was however, established from one of the interviews – 'due to coordination problems and stakeholder accountability failure, key stakeholders (former Steering Committee members) had resolved to revive the Inter-ministerial Water and Sanitation Committee'. The respondent also reported that the stakeholders were hoping that such an approach would assist in the monitoring process. This was based on the notion that the Water Conservation Unit would obtain feedback from representation on the committee and 'pick the issues' from developmental initiative presentations.



It was also reported that the Education and Awareness Taskforce had been revived to assist in the preparations for National Water Week and World Water Day. On this issue, an interviewee stated that as a means towards getting stakeholders involved in the implementation of the water conservation programme, a decision was made to revive the four national taskforce groups. These groups were: education and awareness; technical issues; policy and administration; and pilot projects on districts. As with the inter-ministerial committee, the taskforce groups were operational prior to the establishment of the Water Conservation Unit. The respondent explained that each taskforce was hosted by an identified lead agency. The role of the taskforces had been to spearhead the initiatives so that they would not be perceived as the sole responsibility of a specific organisation. As an example, the respondent stated that while the taskforce would coordinate the activities for the education and awareness component of the water conservation

and demand management programme, the main coordinator would be the Water Conservation Unit.

Notably, where there is lack of consensus on an issue that relates to policy implementation, actors may sometimes delay to take an action (Allan 2002). In light of the above observations, it should be noted that for as long as the WCU is not recognised as an advisor and guide, its initiatives might be in vain. While the unit might be able to identify (WC&DM programme) issues by having representation on the board, role clarity and consensus are key to the programme's success and cooperative action of all stakeholders (Mwendera *et al*. 2003; Young 2001).

The decisions discussed above are required by the WCP&S framework, which recommends that the committees and taskforce groups that had been established by the key stakeholders should continue. The study has observed that while a larger part of the implementation of the WCP&S framework recommendations is not taking place through the steps outlined in the framework document, some of the recommendations are being implemented. However, as a reaction that does not directly address the cause of the problem, the sustainability of the initiative to ensure stakeholder involvement and accountability in the water conservation and demand management programme remains questionable. The implementation of a strategy must be proactive rather than reactive in order to ensure long-term accountability success (Thompson 1997; Tibela 2005).

The evaluation process of a development strategy needs to accommodate continuous learning, correction and adjustments in order to be effective (Allen 1997). Furthermore, Radif (1999), Kaunda (2005) and Young (2001), note that transparency is a critical component of improving accountability. As a result, while decisions might have been made in an attempt to circumvent

the prevalent coordination and accountability problems, not directly addressing the cause of the problem may hinder long-term success and achievement of the desired goal.

## 4.5 Stakeholder Opinions on the Solution to Ensuring Stakeholder Accountability

The respondents from the different water authority departments gave various suggestions on ensuring stakeholder accountability. All the responses indicate that there is a need for an administrative structure that would empower the unit by suitably locating it to become an authority to coordinate and monitor the programme. The responses on the above aspect could be categorised into four broad categories. While data category one indicated that the unit should be moved to the ministerial offices as an advisory unit, category two indicated that the unit should be located within the department at the same level with the water apportionment board. Category three, on the other hand, highlighted that the unit should be at the same level as the Ministry's legal advisory office. Finally, category four indicated that the unit should be outside the ministry possibly as an independent body that is not identified with a specific organisation. While the interview responses mostly point to addressing the structural problem, the issue needs to be addressed in a manner that addresses the contextual problems too (see Section 5.3).

In a country analysis report, Kaunda (2005) notes that the implementation of the development programme in Botswana is generally a problem despite the country's "good choice of policy and state machinery (p. 22)." The report referred to above indicates that the solution lies in the formulation of a comprehensive and coordinated approach to national capacity development. The formulated and developed approach would also need to be integrated into the local development programmes.

## 4.7 General Observations

From the discussion, it is clear that there is a disparity between the framework recommendations and its implementation. The disparity mainly points to poor coordination and stakeholder cooperation in the programme monitoring process as well as ownership issues. This study observed a lack of clear roles and responsibility resulting in poor and in most cases no stakeholder accountability.

In addition, the findings and discussion on stakeholder actions and action reporting indicate that there is lack of cooperation and integration of actions by stakeholders. Following the accountability facets as illustrated by Gormley and Balla (2004), the results indicate that a form of legal accountability of the programme is highly desirable to involve stakeholders, particularly the dominant ones. In such an instance, the unit's control of the coordination and monitoring of the programme would be effective as the unit would have effective control on other departments' actions. The framework document recommendations can be categorised as falling within a system that would enhance bureaucratic accountability through a hierarchical supervisory system. On the contrary, the current situation is such that political accountability is most prevalent and as a result, the coordinating unit has limited external control over agencies' reporting. In addition, new agencies of horizontal accountability almost inevitably face structural and contextual problems such as those observed by the study (Ackerman 2004; Tapela 2002; Swatuk 2005).

According to Ohlsson and Turton (2000), the transition from a water supply driven approach to a demand approach, usually has an oscillation effect such as that which is seen in 'the turning of a screw,' and hence the bottlenecks. In such an instance, the problem therefore relates to high or

low levels of social resources. Although Botswana is considered strong in its institutional capacity (Turton 2002), the results indicate that the coordinating unit of the programme has low levels of adaptive capacity. Individual organisations and management bodies that lack human resources need collective action for goal achievement (Mathie & Cunningham 2003). In that regard, the Water Conservation Unit needs to act collectively with the stakeholders in order to achieve its goal. Roles and responsibilities should be clearly demarcated and understood. This is essential because, as noted by Dziegielewski and Baumann (1992), the success of water demand management programmes rely heavily on stakeholder cooperation.

IUCN Water Demand Management guidelines as a package for water suppliers, has a narrow perspective and hence is problematic (Manzungu & Machiridza 2005). The guidelines primarily address rural water suppliers and neglect urban water demand management. The observation by Toteng (2004) that environmental management issues are neglected in and around urban areas, such as Gaborone, is validated here. However, the problematic implications of the above observations also apply to the entire southeast Botswana because access to water supply is not a core problem, even in rural areas (Earthtrends 2003). Furthermore, the bulk of the domestic sector water in Botswana's rural areas is paid for by the state and therefore presents serious implications for water demand management, accountability and cooperation of the end-user not paying for water. This raises the issue of answerability of other stakeholders in the dominant group who are not directly accountable to society for water availability. In order to strengthen the hierarchical control proposed by the WCP&S framework and this study, society also needs to actively participate in directly questioning the respective agencies and sanctioning them (Paul 1992).

However, for the latter to be achieved society needs to be empowered and willing to play the part (Falkenmark 2001; Paul 1992).

## 4.8 Summary of findings

The water conservation and demand management programme is a relatively new programme in Botswana. While the Water Conservation Policy and Strategy framework is supposed to be used as a 'white paper' and guide to the implementation of the programme, this is not the case. The document is not widely shared amongst the water services sector. In addition, its recommendations have not been strictly adhered to, resulting in problems of coordination and poor stakeholder accountability. As a result, the monitoring of the programmes' progress is a task, which is not only difficult, but almost impossible to achieve. While some respondents attribute the cause of the problem to the administrative structure, others consider it to be a leadership problem. The solutions range from reviving pre-conservation-unit committees to restructuring the programme's administrative structure. From a national perspective and analysis of Botswana's development policies, the suggested solution is that there is need for the formulation and development of a comprehensive and coordinated approach to national capacity development. An approach such as the latter one explained above may resolve issues such as lack of transparency and accountability, which negatively affect the implementation of the programme. However, the resolution approach needs to be such that it actively involves the public to reinforce the "hierarchical control" by the coordinating agency.

# CHAPTER 5

# CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

This chapter is organized into three sections: section one summarizes the major findings of the study and attempts to reconcile them with the objectives; section two draws conclusions on the issues from the major findings; and section three provides recommendations.

The aim of the study was to investigate accountability in the implementation of the Water Conservation Programme against the Water Conservation Policy and Strategy Framework in order to determine whether a disparity exists between the Water Conservation Policy and Strategy framework coordination and monitoring component, and its actual implementation in southeastern Botswana.



This study shows a disparity between the recommendations and its implementation. Although some recommendations were implemented, these were not carried out in the approved sequence. The framework was not widely distributed amongst the water authorities. However, stakeholder interpretation among those who have the document was found to be knowledgeable, especially as it relates to the implementation of water conservation and demand management activities. While the programme is still in its infant stages, its administrative structure does not follow recommendations, which makes its coordination difficult and sometimes impossible. The key stakeholders (former steering committee members) to the programme decided to revive a committee and taskforce groups, with the hope of overcoming the problems of stakeholder accountability and poor programme implementation. The three water authorities were established to have started the programme implementation in their areas of operation, although initially for

different reasons. The stakeholders' opinions on ensuring stakeholder accountability, pointed to the review of the administrative structure as a preferable way forward.

## 5.2 CONCLUSIONS

### 5.2.1 The Nature of the Water Conservation and Demand Management programme in Southeast Botswana

The study sought to establish the nature of the programme implementation as it relates to accountability in southeast Botswana, that is, determine what the administrative structure of the Water Conservation and Demand Management programme is and to establish stakeholders' actions in the implementation of the programme. From the results, it was evident that as recommended, a Water Conservation Unit had been established to coordinate the implementation of the programme. However, the study discovered that the unit did not appear within the Department of Water Affairs' structure at the Department of Public Services Management, which is an overseeing body to government agencies. This implies that the unit is not formally established as per the recommendations. While the unit does appear within the Department of Water Affairs' (DWA) internal structure and its published annual reports, its location within the agency (DWA) is not at a level that empowers it as a multi-sectoral coordinator. The unit is housed within one of the technical divisions and does not report directly to the director of DWA as per the framework recommendations. As a result, its role as a coordinator and monitor is challenged by its lack of authority, particularly because the other stakeholders' implementation of the WDM framework is an additional task. The results further revealed that promotion and acquisition of the stakeholders' accountability at coordination level was a daunting task for the unit under the current implementation approach. Ackerman's (2004) observation regarding

accountability problems such as the one noted above is that it can be expected to occur as part of the structural difficulties faced by new agencies of horizontal accountability.

### 5.2.2 Programme Implementation by the Water Authorities

The respective water authority organizations acted independently of each other in implementing the programme and their water demand management actions were mostly not integrated. However, the water authorities collaborated for the annual National Water Week and World Water Day celebrations. The preparations of the celebrations were done through the common Water Committee comprising of representatives from the community, council offices, tribal authorities as well as the water services authorities.



The Department of Water Affairs had piloted some prepaid metering systems at public standpipes in Tlokweng village and implemented a water loss control project in Ramotswa. The implementation of these initiatives had started under the projects officiated by the Danish and Botswana government in 1999 and 2002 respectively. The latter project was conducted under the Water Conservation and Demand Management programme in its project form. The Southeast District Water Unit started their implementation in 2005 in Otse and Mogobane villages. The implementation involved the replacement of conventional public standpipes with prepaid metering systems further to the finalisation of the bureaucratic procedures that previously affected funding availability. Water Utilities Corporation started its implementation in 2004 in Gaborone; these were in the form of public awareness campaigns and water restrictions. The latter, although not normally perceived as a WDM measure, is a non-market policy measure of a water demand management approach (Winpenny 1997). Their action was in response to a severe drought situation that had led to Gaborone Dam reaching its lowest water levels in history. It was

gathered from the results that although the Water Utilities Corporation is not the lead agency, it has a better capacity to influence the outcome in demand reduction. The reduction is possible because as a bulk water supplier, the corporation can effectively implement the economic aspect of water demand management through restrictions and tariffs where water user compliance is called for.

Based on the observations of Mwendera *et al.* (2003) on the lack of/ weak policies, it can be anticipated that an implementation of the WC&DM programme may be a challenge as there is no clear outline of stakeholder accountability. From the above observation, it can be concluded that progress on the water demand management actions that relate to the responsibility of the different stakeholders would be difficult to monitor.

### 5.2.3 Interpretation of the Water Conservation Policy and Strategy Framework Recommendations for Stakeholder Accountability



The study also sought to establish the water authorities' interpretation of the recommendations as they relate to the promotion of stakeholder accountability. The results revealed that the two water authorities that were familiar with the existence of the document had a clear understanding of the recommendations. It was stated by an official (not from the lead agency), that the lack of accounting and programme implementation by the dominant stakeholders resulted from non-ownership of the programme and its coordinating unit. This point is also indicated in the reports on the programme. The results revealed further that the delay in sharing the document with the water authorities at district council level was a result of lack of financial and human resources experienced by the coordinating unit because of its location within a technical division. This scenario was because of the unit having to compete for funds and human resources with the other

units within the division; no preference was afforded to the coordinating unit. Because of the above problems, the capacity of the coordinating unit to identify the needs and requirements of its stakeholders was also noted to be a difficult task.

### 5.2.4 Decisions for Ensuring Stakeholder Accountability

Another objective of the study was to establish what decisions had been made to ensure stakeholder accountability in promoting water demand management. Based on the results, decisions were made to revive an inter-ministerial committee and some taskforce groups that were operational before the establishment of the Water Conservation Unit. These decisions were made by 'key' stakeholders who had constituted the steering committee for the programme in its project form, as indicated in Chapter Four. The committees to be revived include the Inter-ministerial Water and Sanitation Committee (IWSC), as well as, the education and awareness; policy and administration; technical issues, and; districts' pilot projects taskforce groups. It was established from the results, that the main driving force behind the decision was the coordination and monitoring problems experienced by the coordinating unit. However, it needs to be noted that the Water Conservation Policy and Strategy Framework document indicates that these committees should remain operational and work with the coordinating unit after its establishment.



### 5.2.5 Flaws between framework recommendations and implementation

The study ascertained that there were flaws between the framework recommendations and their implementation as observed above. The flaws range from the lack of 'marketing' the framework document (which was supposed to have been done prior to the starting its implementation) to the location of the coordinating unit within the lead agency at a level other than what was recommended. The observation from the results is that the flaws have created problems relating

to the horizontal accountability of stakeholders as it relates to the coordination and monitoring component. The results also indicate that the stakeholder actions lack integration, which is a factor that directly hinges on poor coordination.

### 5.2.6 Stakeholder Opinions on the Solution to Ensuring stakeholder accountability

The study also aimed to elicit the stakeholders' opinions concerning the best solution to ensure accountability in the programme. According to the results, the opinions are that the administrative structure of the programme needs to be reviewed to empower the coordinating unit and improve the programme's operational system. The results show that the respondents had several opinions on the best location for the coordinating unit ranging from departmental advisory level, the ministry offices level, to placement of the Unit outside a specific agency so that it becomes an independent body. Some of the respondents, however, were of the opinion that the problem lies in the leadership of the programme and that under the current governmental operational system, not much could be done to assist the programme.



The results indicate that while some of the water authorities recognised the importance of the programme, its ownership is largely perceived to be and is entitled "a Water Conservation Unit thing," and occasionally as "a Water Conservation and Quality Division thing" even within the DWA - its host agency. One should note that the implementation of the WC&DM project took place against a supply oriented NWMP. This may further explain why its implementation was so challenging and not as effective and efficient as was anticipated. Failure to initiate the project with the establishment of a policy and its enactment also meant that there was no creation of an enabling environment to empower and further support the implementation of the project. As a result, it can be concluded that the ad-hoc implementation of the WCP&S recommendations has

more consequences than the envisaged long-term running of the programme. Furthermore, as stated by the interviewees, the unit is not owned nor taken seriously by some of the key stakeholders. This also has serious negative implications on the coordination and monitoring of the national water demand management programme. In addition, if as noted in the Project Completion Report, the Water Conservation Unit's comments and advice for ensuring sustainability are not incorporated in overall guiding development plans, then sustainable water resources management in the country may be a faux. Finally, as a new agency of horizontal accountability, the challenges of accountability can be expected.

## 5.3 RECOMMENDATIONS

The active involvement of all water authorities, other than the primary lead agency (DWA) in the decision making and implementation process of the programme would serve to promote transparency and ownership of the programme and its coordination aspects.



Based on the study findings and literature, it is recommended that the administrative structure of the programme should be reviewed to empower the coordinating unit and its stakeholders. The restructuring (although different from the recommended WCP&S framework) would involve the relocation of the coordinating unit to the ministry offices so that it is in a position to work within the governmental coordinating structure and advise its stakeholders and the Water Council that is to be formed. A structure similar to the Ministry of Finance's Rural Development may be adopted to empower all stakeholders to act independently and without associating the Unit directly to the Department of Water Affairs. In that manner, even the DWA, as an agency can be expected to account to the Unit; the latter will play a full role as the head in the above-recommended institutional structure for the WC&DM programme.

Another recommendation for similar development programmes is that where a policy and strategy framework document is formulated, it should be adhered to. Finally, the document needs to be marketed for it to be understood by all stakeholders so that even when it is being developed into a policy, all the stakeholders will have an understanding of its intentions. This is particularly critical, as it should have been done prior to the document implementation. Such an accomplishment would form part of societal empowerment which would support their willingness and ability to engage in the powerful accountability mechanism needed to enforce the 'hierarchical control' achievable through the structure proposed in Figure 5.

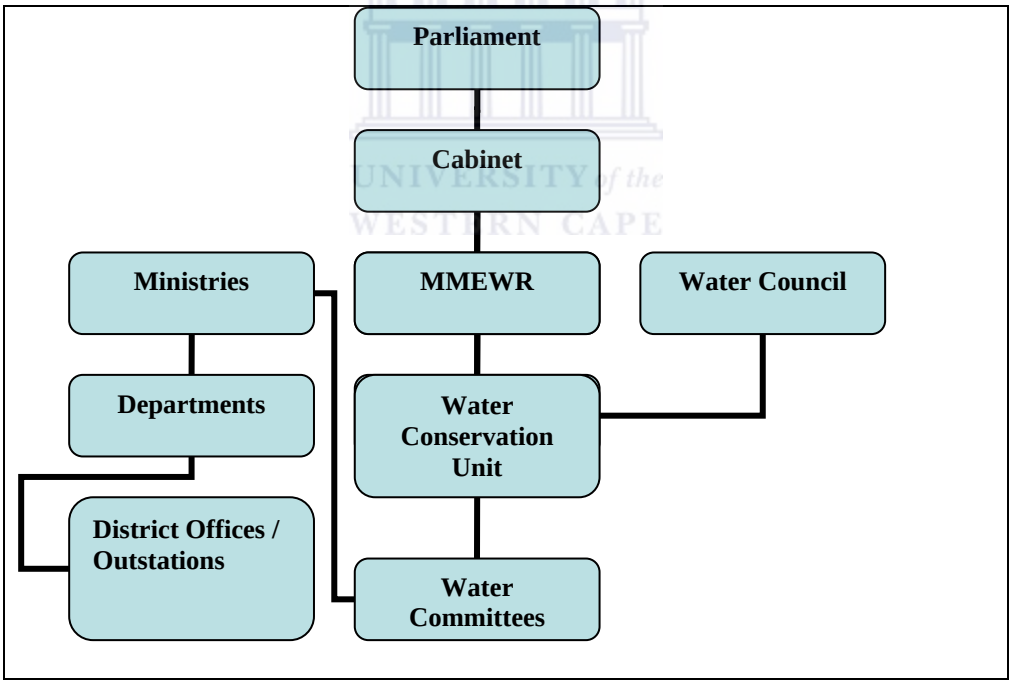


**Figure 5:** Recommended Coordination Structure: Water Conservation and Demand Management Programme

**REFERENCES**

Ackerman J., 2004. Co-governance for Accountability: Beyond "Exit" and "Voice." *World Development* 32 (3), 447-463.

Afrosearch, 2004. Water Governance. Water Awareness, Conservation and Demand Management in Botswana, 2. Unpublished consultancy report prepared for Department of Water Affairs, Gaborone.

Agrawal, A., Gibson, C. C., 1999. Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation. World Development 27 (4), 629-649.

Aguillera-Klink, F., Pérez-Moriana, E., Sánchez-García, J., 2000. The social construction of scarcity. The case of water in Tenerife (Canary Islands). Ecological Economics 34 (2), 233-245.

Allan, J.A., 2002. Hydro-peace in the Middle East: why no water wars? A Case Study of the Jordan River Basin. SAIS Review 22 (2), 255-272.

Allen, W.J., 1997. Towards improving the role of Evaluation within Natural Resource Management R&D Programmes: The Case for 'Learning by doing.' Canadian Journal of Development Studies 28, Special Issue, 629-643.

Al-Weshah, R., 2002. The Role of UNESCO in Sustainable Water Resources Management in the Arab World. Desalination 152, 1-l 3

Appelgren, B., Klohn, W., 1999. Management of Water Scarcity: A focus on Social Capacities and Opinions. Physics and Chemistry of the Earth 24 (4), 361-373.

Babbie, E., 2001. The Practice of Social Research. 9th Ed. Wadsworth, Belmont.

Bernard, P., Khumalo, S., 2004. Community-based natural resource management, traditional governance and spiritual ecology in southern Africa: The case of chiefs, diviners and spirit mediums. In: C., Koch, E., Magome, H., Turner, S. (Eds.), Rights, Resources and

Rural Development: community-based natural resource management in Southern Africa. Earthscan, London.

Boland, R. J. Jnr., Schultze, U., 1996. Chapter 4 - Narrating accountability: cognition and the production of the accountable self. In: Munro R., Mouritsen J. (Eds.), Accountability – Power, Ethos, & the Technologies of Managing. Thomson Business Press, London.

Bolton, M., 2003. Public sector performance measurement: delivering greater accountability. Work Study 52 (1), 20-24.

Botswana Government, 1996. Vision 2016. Gem of Africa, Botswana Government Website. Available at: http://www.gov.bw/gem/vision_2016.html

Botswana Government, 1992. National Water Master Plan. Department of Water Affairs, Ministry of Minerals Energy and Water Resources. Government Printers, Gaborone.

Botswana Government, 1999. Water Conservation Policy and Strategy Framework. Department of Water Affairs, Ministry of Minerals Energy and Water Resources, Gaborone.

Botswana Government, Ministry of Foreign Affairs (Denmark) – Danish International Development Agency (DANIDA), 2004.Water Conservation and Demand Management Project – Project Completion Report. Department of Water Affairs, Ministry of Minerals Energy and Water Resources, Gaborone.

Castro, A. P., Nielsen, E., 2001. Indigenous people and co-management: implications for conflict management. Environmental Science and Policy 4, 229-239.

Cech, T. V., 2003. Principles of Water Resources: History, Development, Management and Policy. John Wiley & Sons, New York.

Central Statistic Office, 2001. 2001 Population Census. Ministry of Finance and Development Planning, Gaborone.

Creswell, J.N., 1998. Qualitative Inquiry and Research Design: Choosing among Five Traditions. Sage, London.

Dziegielewski, B., Baumann, D., 1992. Tapping Alternatives: The Benefits of Managing Urban Water Demands. Environment 34 (9), 6-41

Dougill A., Reed, M. 2004. Participatory Indicator Development for Sustainable Natural Resource Management. Doctorate thesis paper. Available and downloaded on 11/06/05 from: http://www.env.leeds.ac.uk/~mreed/Dougill%20and%20Reed%202004.doc

Du Plessis, A., J., E., Rowntree, K., M., 2003. Water resources in Botswana with particular reference to the Savanna regions. South African Geographical Journal 85 (1), 42-49.

EarthTrends, 2003. Population, Health and Human Well-being: Botswana. Country Profile. In: Environmental Information (Section), World Resources Institute, EarthTrends. Available online at: http://earthtrends.wri.org

Falkenmark, M., J., 2001. The Greatest Water Problem: The inability to link Environmental Security, Water Security and Food Security. International Journal of Water Resources Development 17 (4), 539-554.

Falkenmark, M., Rockström, J., 2004. Balancing Water for Humans: Chapter 5. Earthscan, London.

Fraser, E. D.G., Dougill, A.J., Mabee, W.E., Reed M., McAlpine, P., 2005. Bottom up and top down: Analysis of participatory processes for sustainability indicator identification as a pathway to community empowerment and sustainable environmental management. Journal of Environmental Management 78 (2), 114-127.

Gardiner, R., 2002. Freshwater: A Global Crisis of Water Security and Basic Water Provision, in Towards Earth Summit 2002. Environment Briefing 1. Available online at: http://www.earthsummit2002.org/es/issues/Freshwater/freshwater.rtf

Gormley, W. T. Jnr., Balla, S. J., 2004. Bureaucracy and Accountability – Accountability and Performance. CQ Press, Washington.

Gumbo, B., Juizo, D., van der Zaag P., 2003. Information is a prerequisite for water demand management: experiences from four countries. Physics and Chemistry of the Earth 28, 827-837

Herzlinger, R.E., 1996. Can Public Trust in Nonprofits and Government be restored? Harvard Business Review 74 (2), 97-107

Heyns, P., 2000. Chapter 2: An assessment of water security in terms of the environmental and social cost of water-supply plans, water needs and water security within SADC. In: An analysis of the role of virtual water in Southern Africa in meeting water scarcity: An applied research and capacity building project. Turton, A.R., Moodley, S., & Meissner, R. (Eds.), Report prepared for the Group for Environmental Monitoring (GEM). Available online: http://www.gem.org.za/html/documents/vw2b.doc

Hoskin, K., 1996. Chapter 14 – The 'awful idea of accountability': inscribing people into measurement of objects. In: Munro, R., Mouritsen, J., (Eds.), Accountability - Power, Ethos, and the Technologies of Managing. Thomas Business Press. London.

Humphrey, C., Miller, P., Scapens, R.W., 1993. Accountability and Accountable Management in UK Public Sector. Accountability and Accountable Management 6 (3), 7-29.

Irvin, R. A., Stansbury, J., 2004. Citizen Participation in Decision Making: Is It Worth the Effort? Public Administration Review, 55-65

Jensen, B.B., 2002. Knowledge, Action, and Pro-environmental Behaviour. Environmental Education Research 8 (3), 325-334.

Jensen, B.B., Schnack, K., 1997. The Action Competence Approach in Environmental Education. Environmental Education Research 3 (2), 163-178.

Kaunda, J. M., 2005. Effective States and Engaged Societies: Capacity Development for Growth, Service Delivery, Empowerment and Security in Africa - The Case of Botswana. Draft Report for World Bank. Botswana Institute for Development Policy Analysis (BIDPA), Gaborone. Available at: http://siteresources.worldbank.org/AFRICAEXT/Resources/CD_Botswana.pdf

Klatt, B., Murphy, S., Irvine, D., 1999. Accountability: Practical Tools for focusing on clarity, commitment and results. Kogan Page, London.

Klumpes, P., 2001. Generational accountability of public sector management: A case study of the State Authorities Superannuation Board of New South Wales. Accounting, Auditing & Accountability Journal 14 (2), 166-189.

Lello, J., 1993. Accountability in Practice: Chapter 1 – Meaning and Interpretations. Cassell, London

Liamzon, C., 1997. An Overview of the Concept of Empowerment. In: IRED Nord (Ed.) (1997), People's Empowerment: Grassroots Experiences in Africa, Asia and Latin America, Rome, 1-35.

Lussier, R. N., 1997. Management Fundamentals: Concepts, Applications, Skill Development. South-Western College Publishing, New York.

Mathie, A., Cunningham, G., 2003. From clients to citizens. Development in Practice 13 (5), 474-486.

Manzungu, E., Machiridza, R., 2005. An analysis of water consumption and prospects for implementing water demand management at household level in the City of Harare, Zimbabwe. Physics and Chemistry of the Earth 30, 925–934.

Mehta, L., 2001. The Manufacture of Popular Perceotions of Scarcity: Dams and Water Related Narratives in Gujarat, India. World Development 29 (12), 2025-2041

Meteorological Services Botswana, 2003. Botswana's Climate. Available online: http://www.weather.info.bw/

Ministry of Finance and Development Planning, 2003. National Development Plan: 2003/04 – 2008/09. Government Printer, Gaborone

Ministry of Finance and Development Planning, 1997. National Development Plan 8: 1997/98 - 2002/03. Government Printer, Gaborone

Mitchell R. K., Agle, B. R., Wood, D. J., 1997. Toward a Theory of Stakeholder Identification and Salience: defining the principle of Who and What Really Counts. The Academy of Management Review 22 (4), 853-886.

Mogae, F. G., 2004. State of the Nation address. Botswana Television. Department of Information and Broadcasting, Gaborone.

Moyo, S., O'Keefe, P., Sill, M., 1993. The Southern African environment: Profiles of the SADC countries. Earthscan, London.

Mwendera E.J., Hazelton, D., Nkhuwa, D., Robinson, P., Tjijenda, K., Chavula, G., 2003. Overcoming constraints to the implementation of water demand management in southern Africa. Physics and Chemistry of the Earth, 28, 761-778.

National Conservation Strategy Agency, 2002. State of the Environment Report. National Conservation Strategy Agency (now Directorate of Environmental Affairs), Gaborone.

Nze, F. C., Nkamnebe, A. D., 2003. Internalising effectiveness and accountability for the public good: strategic choices for public sector bureaucracies in Africa. Management Decision 41 (3), 281-286.

O'Donnell, G.A., 1998. Horizontal Accountability in New Democracies. Journal of Democracy 9 (3), 112-126.

Ohlsson, L., Turton, A., 2000. The Turning of a Screw: Social Resource Scarcity as a Bottle-Neck in Adaptation to Water Scarcity, Stockholm Water Front - Forum for Global Water Issues, no. 1, Stockholm International Water Institute (SIWI). Available online: http://www.edcnews.se/Reviews/Turningofascrew-1.html

Ohlsson L., 2000. Water Conflicts and Social Resource Scarcity. Physics and Chemistry of the Earth 25 (3), 213-220.

Paul S., 1992. Accountability in Public Services: exit, voice and control. World Development 20 (7), 1047-1060.

Pereira, L.S., Cordery, I. and Iacovides, I., 2002. Coping with Water Scarcity. International Hydrological Programme. Technical Documents in Hydrology 68. UNESCO, Paris.

Phuthego T.C., Chanda, R., 2004.Traditional ecological knowledge and community-based natural resource management: lessons from a Botswana wildlife management area. Applied Geography 24, 57–76.

Polonsky M., J. 1995. A stakeholder theory approach to designing environmental marketing strategy. Journal of Business and Industrial Marketing 10 (3), 29-46

Radif, A. A., 1999. Integrated water resources management (IWRM): an approach to face the challenges of the next century and to avert future crises. Desalination 124, 145-153.

Ritzer, G., 1992. Chapter 6: Phenomenological Sociology and Ethnomethodology, in Contemporary Sociological Theory. 3rd Ed. McGraw Hill Incorporated, New York

Rockström, J., 2001. Green Water Security for the Food Makers of Tomorrow: Windows of Opportunity in Drought Prone Savannahs. Water Science and Technology 43 (4), 71-78.

Ronald, K. M., Agle, B. R., Wood, D. J., 1997. Toward a Theory of Stakeholder Identification and Salience: defining the principle of Who and What Really Counts. The Academy of Management Review 22 (4), 853-886.

Rosengrant, M.W., 1997. Water resources in the twenty-first century: Challenges and implications for action. Food, Agriculture, and the Environment Discussion Paper 20. International Food Policy Research Institute (IFPRI), Washington D.C.

Saint-Onge, H., Wallace, D., 2003. Leveraging Communities of Practice for Strategic Advantage. Butterworth-Heinemann, Burlington.

Sarantos, S., 2005. Social Research. 3rd Ed. Palgrave, New York.

Savenije, H. H.G., van der Zaag, P., 2000. Conceptual framework for the management of shared river basins; with special reference to the SADC and EU. Water Policy 2, 9-45.

Seidman, I., 1998. Interviewing as Qualitative Research: A guide for Researchers in Education and Social Sciences. 2nd Ed. Teachers College Press, New York.

SMEC International, EHES, 2005. Volume 10 – Institutions and legislative Reform. National Water Master Plan Review. Draft Report prepared for Department of Water Affairs. Ministry of Minerals Energy and Water Resources, Gaborone.

SMEC International, EHES, 2005. Volume 5 – Water Demands, Demand Management and Natural Resources Accounting. National Water Master Plan Review. Draft Report prepared for Department of Water Affairs. Ministry of Minerals Energy and Water Resources, Gaborone.

Stikker, A., 1998. Water Today and Tomorrow. Futures 30, 43-62.

Sullivan, C., 2002. Calculating Water Poverty Index. World Development 30, 1195-2020.

Sutherland J., Canwell D., 2004. Key Concepts in Strategic Management. Palgrave Macmillian, New York.

Swatuk, L. A., 2005. Political challenges to implementing IWRM in Southern Africa. Physics and Chemistry of the Earth 30, 872- 880.

Swatuk, L. A., Rahm, D., 2004. Integrating policy, disintegrating practice: water resources management in Botswana. Physics and Chemistry of the Earth 29, 1357-1364.

Tapela, B. N., 2002. The challenge of integration in the implementation of Zimbabwe's new water policy: case study of the catchment level institutions surrounding the Pungwe–Mutare water supply project. Physics and Chemistry of the Earth 27, 993-1004.

Therkildsen, O., 2001. Efficiency, Accountability and Implementation: Public Sector Reform in East and Southern Africa. Governance and Human Rights Programme, Paper 3. United Nations Research Institute for Social Development (UNRISD), Geneva.

Thompson, J. L., 1997. Leading With Vision – Manage the Strategic Challenge. International Thomson Business Press, Boston.

Tibela, J.M., 2005. Do it because you can: How to development the "muscle" to do it. Knowres, Randburg.

Toteng, E. N., 2001. Urban Environmental Management in Botswana: Toward a Theoretical Explanation of Public Policy Failure. Environmental Management 28 (1), 19 – 30.

Toteng, E. N., 2004. The Private Sector, Urban Water Conservation and Developing Countries: A Stakeholder Theory-Driven Perspective from Botswana. South African Geographical Journal 86 (2), 113-121.

Turton, A. R., 2003. What is the best way to improve access to water in the developing world? – What matters is the capacity to adapt. The Environment Debate: Water Shortage. Closed debate available online: http://www.spiked-online.com/articles/00000006DE98.htm

United Nations Development Group (UNDP), 2001. Reporting on the Millennium Goals at the Country Level. Guidance Note, World Volunteer Web

United Nations Environmental Programme (UNEP), 1999. Global Environmental Outlook 2000. Earthscan, London.

United Nations Environment Programme (UNEP), 2002. Chapter - Integrating Environment and Development: 1972-2002. United Nations Environment Programme.

Wilkins, P., 2002. Accountability and Joined-up Government. Australian Journal of Public Accountability 61 (1) 114-119

Winpenny, J.T., 1997. Managing Water Scarcity for Water Security. A paper prepared for FAO.

Wolfe, S., Brooks, D. B., 2005. Water scarcity: An alternative view and its implications for Policy and Capacity Building. Natural Resources Forum 27 (2), 99-107

IUCN-World Conservation Union, 2005. Post-graduate training Module on Water Demand Management. Prepared by WATERnet. IUCN, Pretoria.

Young, I. M., 2000. Inclusion and Democracy. University Press, New York.

Zehnder, A. J.B., Yang, H., Schertenleib, R., 2003. Water issues: the need for action at different levels. Aquatic Science 65, 1-20.

**APPENDIX**

| ORGANISATION | INITIATIVES & APPROACHES TO WATER DEMAND |
|---|---|
| Department of Water Affairs | 1. Coordinates local Water Committees in National Water Week and World Water Day celebrations<br>2. Pilots water conservation projects in major villages (e.g. pre-paid metering systems in Tlokweng village)<br>3. Approach is driven by the department. |
| Water Utilities Corporation | Implemented water conservation campaign through:<br>1. Water restrictions enforcement during drought period<br>2. Discussions of water conservation strategies with major water users during drought period<br>3. The approach is driven by the Corporation. |
| Southeast District Water Council Unit | 1. Co-govern water with the local community, through following a tribal administrative systems that is involves the tribal authorities, district councilor and the water authority.<br>2. Replacement of conventional public standpipes with pre-paid metering systems.<br>3. The approach is driven by the community and is supported by the tribal and political authority, while the water authority plays the role of service provider. |
| Water Conservation Unit | 1. Coordinates World Water Day and National Water Week at a national level<br>2. Provides technical support and advice to all stakeholders (interested and affected parties) on water conservation strategies (e.g. Assistance of DWA through implementation of Water Loss Control project in Ramotswa).<br>3. The agencies approach dependent on stakeholder cooperation |

**Appendix 1:** Agency-water demand management approaches matrix