FROM WATER RESOURCES MANAGEMENT TO *INTEGRATED* WATER RESOURCES MANAGEMENT: AN ANALYSIS OF THE ESTABLISHMENT OF NEW WATER MANAGEMENT ORGANISATIONS IN NAMIBIA

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KEY WORDS

Basin Management Approach

Basin Management Committee

Catchment Management Agency

Decision-making

Delegated Governance

Decentralisation

Integrated Water Resources Management

Public Participation Process

Stakeholders

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ABSTRACT

The water resource management sector in Southern Africa has undergone a radical transformation at the basin and catchment levels. Basin management has evolved over the years and only recently been acknowledged as a tool for effective water resource management. Though referred to by different names in different countries; Basin Management Committees (BMC) in Namibia, Catchment Management Agency (CMA) in South Africa, and Catchment Councils (CC) in Zimbabwe, these water organisations comprise the same objectives.

The Namibian Water Act provides for the establishment of Basin Management Committees to devolve its management functions to a local level. A key function of the Department of Water Affairs is to promote the establishment, and support the functioning of, the BMCs. The draft Water Resource Management Act (Act 24 of 2004) of Namibia devotes one chapter (Part IV) to basin management committees as a mechanism to ensure more equitable, efficient and effective sharing of water resources and their benefits. In Namibia the process, through an intense participatory approach, took a relatively shorter period to establish the Basin Management Committees, compared to other southern African countries, e.g., South Africa. This is evident, reflecting especially on South Africa, where, since the promulgation of its National Water Act (36 of 1998) more than a decade ago, only two of the catchments are established and operational.

The questions posed in this study address the different processes that were involved in the decision-making and establishment of the water management organisations, the extent of public participation, as well as features of evident governance in implementing the policies. A critical analysis of the role of stakeholders and the various influences they may have in water management will also be examined. The methodology follows a historical study approach. A thorough document review will be done of the policies and related materials around BMCs, where events will be constructed from the findings. Interviews will be conducted for verification purposes, to verify the desktop findings and to assimilate any conflicts of opinion that might have not been documented.

DECLARATION

I declare that this thesis, From Water Resources Management to *Integrated* Water Resources Management: An analysis of the establishment of new water management organisations in Namibia, is my own work, that all the sources I have 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.

SIMATAA, Faith Auguste May 2010

Signed:……

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DEDICATION

To my kids, Ashley and O'Brien, my parents, Mr and Mrs Simataa,

and my entire family

ACRONYMS

BMA	Basin Management Approach
BMC	Basin Management Committee
CC	Catchment Council
CMA	Catchment Management Agency
DRFN	Desert Research Foundation of Namibia
IBMC	Iishana sub-Basin Management Committee
IWRM	Integrated Water Resources Management
KBMC	Kuiseb Basin Management Committee
MAWF	Ministry of Agriculture, Water and Forestry
NamWater	Namibia Water Corporation
OkBMC	Okavango Basin Management Committee
OmBMC	Omaruru Basin Management Committee
WRMA	Water Resources Management Act No. 24 of 2004

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CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.1 Introduction

A water crisis results from more than just a lack of supply; it is also about policies and management (Schubert, 2008). A study by Dragnich et al. (2007) revealed that the problems with water shortage within Namibia begin with the region's landscape and climate, which is predominantly arid or semi-arid, and the limited nature of the freshwater sources. Since its independence in 1990, Namibia has seen changes in the legislation of the country and other political frameworks aimed at the protection of the water resources. The Directorate of Rural Water Supply was established in 1993 to be responsible for supplying water to rural communities, and, in 1997, the Government decided to commercialise bulk water supply and established for this purpose the Namibia Water Corporation. In 1998 the Namibian Water Resources Management Review Team was formed to carry out an assessment of the Namibian water sector, which gave birth to a series of theme documents (1999-2000), the National White Paper on a Water Policy (2000), and then the Water Resources Management Act of 2004. The new government grounded their reforms on the Dublin Principles as a guide to better water resource management. The Dublin Principles are:

- Fresh water is a finite and vulnerable resource, essential to sustain life, development and environment.
- Water development and management should be based on a participatory approach, involving users, planners, and policy makers at all levels.
- Women play a central part in the provision, management and safeguarding of water.
- Water has an economic value in its all competing uses and should be recognised as an economic good (Global Water Partnership, 2000).

From these principles a comprehensive set of recommendations was developed during the reform process by the MAWF (Amakali & Shixwameni, 2003). These recommendations were in the form of seven theme reports: Water Use and

Conservation, Strategic Water Resources Assessment, Shared Water Courses, Legislative and Regulatory Framework, Institutions and Community Participation, Human Resources, and Economic and Finance. The documents define the guidelines, principles and goals of IWRM, and deliberate on current situation analyses (e.g. decentralisation and creation of agencies). These relations provide a platform for the development of best matching practices among different sectors in water management.

The Directorate of Resource Management in the MAWF was charged with being the guardian over the water resources of Namibia. This corporate governance function would assist in the overall management of national water resources, regulation, planning and control of the water sector (Office of the Prime Minister, 2009). Processes to establish BMCs were intended to create a sense of ownership in matters regarding the water resources, and to facilitate awareness campaigns within the communities (IBMC, 2000; Amakali & Shixwameni, 2003). However, according to the respondents, most stakeholders still feel that not enough power has been given to them to confidently take decisions regarding planning and management with regard to water. Matters concerning basin management are housed in the Directorate of Resource Management within the MAWF, formerly known as the Ministry of Agriculture, Water and Rural Development. The absence of a Basin Management Unit within the Ministry, confirmed by the key informants (KI), further suggests an obstacle to the proper coordination and implementation of strategies from a national scale point of view. Work by the Directorate of Resources Management and Hydrology staff is currently in the pipeline to create a Basin Management Unit in the year 2010.

This was upon recommendations to the Minister of the MAWF by the stakeholder representatives within the individual basins, and aims to better facilitate and coordinate the BMC activities from a central point at national level. The Minister will appoint individuals recommended by stakeholder departments with interest in the water sector who demonstrate expertise in the required fields.

> *"Advertisements of the vacancies to be created, shortlisting of candidates, interviews and selection processes will be done by the human resources*

department. Thereafter, with approval from the Minister, the best candidates for the positions will be appointed", commented four key informants when queried about the structure of the yet to be established unit.

Others were either still unsure what form the basin management unit will take, or did not have enough information on the matter to make a judgement

One of the key elements in the new approach to water management is the role of institutions, hence the establishment of new water management organisations, for instance, Basin Management Committees (BMC), as they are known in Namibia, to focus on water management at the catchment level. The main function of these organisations is to promote community participation in the protection, use, development, conservation, management and control of water resources in its water management area. These water organisations were supposed to be established through an intensive process of public participation. Manzungu (2004) illustrates that the water sector is a particularly challenging sector in the Southern African Development Community, of which Namibia forms a part. Community-based management initiatives have been coordinated to address these challenges, in the pursuit of introducing a democratic system for managing water resources (Manzungu, 2004).This is to bring aspects of equity into the access to and sustainable use of water.

The approach to managing water resources involves integrating ecological, economic and social aspects of natural resource management around an identified catchment in a way that best ensures long-term viability, while at the same time serving human needs (Jonker, 2007). This is indicative of the vast challenges that management of natural resources encompasses. The focus of this study will be firstly on the processes leading to the establishment of these new water management organisations; secondly, on the characteristic comparison of the BMCs; and thirdly on the degree to which the new management organisations impact on the implementation of water legislation in the country.

1.2 Background

The realisation of political reform in Namibia within a democratic framework has called for wide-ranging reforms in all sectors of society, the water sector included (Heyns, 2005). Du Plessis and Enright (2005) highlight that the establishment of new water management organisations involves a radical change in the way in which water users and interest groups relate to water. Subsequent to Namibia gaining independence in 1990, policy reforms included the development of a new water policy, new legislation, and new organisational forms to develop, manage and regulate activities in the water sector (Heyns, 2005). The new water policy and water law supports integrated water resources management (IWRM), and the management of water along hydrological boundaries. This involves the setting up of BMCs to manage water at the lowest appropriate level, and supports the government initiative of community-based management (Amakali and Shixwameni, 2003).

A BMC is a river basin organisation, a statutory body mandated by the Water Act, to address all relevant national legislations and regulations pertinent to integrated water resources management. The committee shall serve as an advisory body to the Directorate of Resources Management of the Ministry of Agriculture, Water and Forestry and the Minister on issues affecting water resources at the basin level. The concept of managing water resources at a basin level was introduced to and accepted by stakeholders during the water sector review process in the late 1990's (Schubert, 2008; Amakali and Shixwameni, 2003).

Namibia's water law follows South Africa's policy framework, where a legislative review process was initiated for water resources management in 1995, culminating in the 1997 White Paper on a National Water Policy for South Africa (Department of Water Affairs South Africa, 1997*),* and the National Water Act (RoSA, 1998). The National Water Act of 1998, in its preamble, recognises the need for 'the integrated management of all aspects of water resources and, where appropriate, the delegation of management functions to a regional or catchment level so as to enable everyone to

participate'. These ideals are acknowledged in the Water Resource Management Act (WRMA) of Namibia (RoN, 2004). The concept of IWRM has, to a certain extent, been introduced in the river basins considered here. However, the degree to which this concept has been put into practice varies from one basin to another (Van der Zaag and Savenije, 2000).

1.3 Problem Statement

Establishment of new water management organisations (Basin Management Committees) is seen as a key to implement water resource management in accordance with the IWRM approach. In Namibia, they are established by the Water Resource Management Act of 2004. Establishing these basin scale organisations appears to be a difficult and slow process. The slowness in setting up the basin organisations might suggest shortcomings in the processes of establishing them. However, slowness might also reflect complexity in managing the basins. Consequently, the delays in implementation of policies at the basin level and the development of key regulatory instruments have meant that institutional and practical implementation of the basin management framework is not well developed (Pegram et al., 2006).

1.4 Rationale/Justification

Amakali and Shixwameni (2003) and Schubert (2008) are of the opinion that the catchment seems to be the most appropriate level to resolve complex water management issues. Many of the challenges exist because of multiple resource users in a single catchment. Thus, Dungumaro and Madulu (2003) emphasise the importance of local communities' consent in taking part in public decision-making processes, especially on issues that directly affect their welfare. However, without proper guidelines to enhance effective implementation of policies in water resource management, including a fundamental re-structuring of ownership and access to the resource, there can be no meaningful governance of water resources (Manzungu 2002).

The establishment and evolution of institutions at the catchment level provide an important opportunity to give effect to the principles of integrated water resources

management. These effects are meant to address the specific challenges at a catchment level, such as including stakeholder participation (Department of Water Affairs, South Africa, 2002). Institutions to manage the water and other resources within a catchment, as stipulated in the Water Resource Management Act of 2004, are regarded as critical, and their establishment needs to take precedence. These organisations provide an opportunity and platform for the government and communities to work together to ensure that access to the resource and sustainability are achieved (Manzungu, 2004; Amakali, 2005; Jonker, 2007; Schubert, 2008). This research provides insights into water resource management practices, and the processes leading to the establishment of water management organisations.

1.5 Aim and Objectives of the Study

1.5.1 The Overall Aim of the Study:

The overall aim of the study is to understand the processes involved in establishing new water management organisations.

1.5.2 The Objectives of the Study are:

- to compare the processes involved in the establishment of BMCs across Namibia;
- to determine the characteristics of the new organisations;
- to assess the way in which Namibia's water policy has been operationalised;

1.6 Research Questions

- What is the nature of the process followed to establish BMCs in Namibia?
- How do the characteristics of the BMCs in the different basins in Namibia compare?
- Has the water policy in Namibia been operationalised?

1.7 Structure of the Thesis Report

The thesis consists of six chapters.

Chapter one narrates the introductory and background information to the study. The project aim and objectives, research questions, and significance of the study are presented.

The second chapter presents reviews of some of the existing literature on the ongoing processes of establishing river basin organisations, including vital ideas such as IWRM, public participation, and water governance. This will provide a background of past experiences and lessons learnt at local as well as international spheres of the water sector.

The third chapter describes the methodology employed in this study.

Chapter four sheds light on the current legal and organisational frameworks involved in the management of the water resources in Namibia, and their functions and contributions to the basin approach.

The main thrust of the study is found in the discussion and analysis in chapter five.

Finally, chapter six will complement the previous chapter by discussing and interpreting the findings of the study. The chapter also concludes the paper by giving a brief summary of the findings and incorporating the background.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Water availability and access are critical issues for the social and economic development of sub-Saharan Africa, where most of the countries suffer from water scarcity. There has been an observed increased pressure on river basins and their resources (Davies and Day, 1998). This situation is worsened by poor infrastructures and unequal distribution of water. Bahri et al. (2008) goes on to add that water resource management is also limited by the lack of capital investment and appropriate institutions to manage existing water infrastructure. Seemingly, innovative ways of managing land and water are needed. Efforts to develop water infrastructure, policy and institutional reform to overcome the growing scarcity of water are a priority. Social considerations and ecological functions are imperatives, and should be taken into consideration (Bahri et al., 2008).

Immediately after independence, the Namibian Government began transforming the water sector. It realised that a more integrated water policy was needed, and that this policy should be accompanied by modified institutional structures to allow for equitable, efficient, and environmentally sound management of the water resources (Amakali, 2003). The main functions of these water management organisations are to promote community participation in the protection, use, development, conservation, management and control of water resources in their water management area; to prepare a water resource plan for the basin; and to coordinate related activities of water users and of the water management institutions within the water management area (RoN, 2004). The literature review presented in this chapter will look into 1) the integrated management of water, 2) institutional roles in water resources management, and 3) stakeholder participation in water sector reforms.

2.2 New Approaches to Water Resources Management

Namibia adopted the basin management approach, through the Water Resources Management Act No. 24 of 2004, as a platform to manage water resources at a basin scale. A river basin is defined as the area contributing to the drainage or discharge at a

particular river section. Other associated terms for river basin are watershed, catchment or drainage basin (De Laat and Savenije, 2001), and have been broadened by definition to include underlying groundwater systems. Koudstaal et al. (1992) point out that water resources management needs to extend its focus to deal with environmental, social, institutional and legal aspects of water development and use. This is backed up strongly by Van Koppen (2003), Van der Zaag (2005), and Amakali and Shixwameni (2003), in that the basin management approach is holistic, integrating, and refers to the management of all activities aimed at the better functioning of the basin. This integration encompasses a coordinated set of policies, rules and regulations covering all natural resources within the basin, and also an effective coordination among the organisations related to the management of all natural resources (Bandaragoda, 2000). New reform approaches have been prescribed in draft Water Bills and Water Policies, as a way of managing water and natural resources to ensure their availability well into the future (Matros, 2005). The integrated, basin-scale framework, for water resources assessment and management, took into account the physical, climatic, ecological, and human variables which affect both the quantity and quality of the resource (Amakali, 2003).

2.2.1 Integrated Management of Water Resources

Institutional reforms were undertaken with an overall aim of introducing IWRM as a durable solution to the water challenges of the arid environments (Manzungu, 2004; Heyns, 2005). The aim of integrated management is to identify the structures and procedures that would work best for management of the resource at the basin level. It is vital to develop a better understanding of the socio-economic, political and ecological environments under which natural resources are managed. Botes et al. (2003) and Jaspers (2003) suggest that a sound policy framework conducive to sustainable natural resources management should therefore form a vital component of any future strategy. The concept of a holistic approach at basin level, in the case of Namibia, was identified by the Namibian Water Resources Management Review, through the work of a German Technical Cooperation-supported project, as a keystone of the reform process in the water sector (Manning and Seely, 2005). IWRM is simultaneously a philosophy, a

process and an implementation strategy to achieve equitable access to and sustainable use of water resources by all stakeholders, at the same time maintaining the characteristics and integrity of water resources at catchment scales within agreed limits (Pegram and Palmer, 2001; Savenije and Van der Zaag, 2002).

This view is counteracted in arguments by Merrey (2008), stating that it is time to abandon IWRM as a guide for implementation. He calls for realism and action by focusing attention on and prioritising the critical needs of the poor people in Africa. The emphasis of the argument is that "people cannot wait forever". Successful water resources management reflects on the cooperation among all spheres of government, and the active involvement of water users and other organisations and stakeholders. It should thus promote the management of catchments within a water management area in a holistic and integrated manner (Thompson, 2006). The fundamental objective for managing water resources arises from the principles of achieving equitable access to water (Global Water Partnership, 2000). Jonker (2007) adds that the objective should be to achieve sustainability in the ecological, social and financial spheres.

The elements considered in achieving sustainability encompass efficiency in the exploitation and utilisation of water, as well as strengthening resource protection in the management of water resources (Dube and Swatuk, 2002). Consequently, IWRM is presented as a question of governance operating within an essentially political sphere, where the law reigns supreme (Swatuk, 2005). To achieve this, an enabling environment must be provided where structures, such as guiding policies encompassing integrated management, are in place (Swatuk, 2005). Anderson et al (2008) acknowledges that there is a need to balance the establishment of an enabling environment, not only in the legal aspects, but to also include institutional structures.

2.3 Water Concepts: Scarcity, Aridity and Security

2.3.1 Water Scarcity and Aridity

Water stress and deteriorating water quality are the general concerns amongst nations where reforms are undertaken. *Water scarcity*, the most popularly used term, has many

facets. It is defined as a situation where there is insufficient water to satisfy normal requirements, and this is amplified in regions which are arid, that is, regions with very dry climatic conditions, having little or no rain (Falkenmark, 1998; Abrams, 2001; Kruger, 2001; Mehta, 2003). Although water scarcity is considered the most pressing problem confronting the management of resources in today's world, Mehta (2003) asks, 'What is it that makes water scarce'? In Swatuk's (2005) view, most southern African countries provide stunning examples of extreme cases of politically constructed water scarcity. The current debates cite the causes as largely deterministic, in that scarcity is a result of identifiable cause and effect, determined both by the availability of the resource and by the consumption patterns. Many of the causes are inter-related and not easily distinguished (Food and Agriculture Organisation, 2009). These could range from population growth and water demand, climatic change and variability, land use and water quality, legislation and water resource management, to a host of other factors. The various forms of water scarcity are explained below in excerpts from Molle and Mollinga (2003), Abrams (2001), and Mehta (2003):

i) *Physical scarcity* is an absolute type of scarcity where the water sources available are limited by nature and confined to wells, springs or *qanats.*

ii) *Economic scarcity* is the limitation of water needs or uses due to the incapacity to commit human resources (e.g. labor and time needed) or financial resources such as payment for water to access the resource.

iii) *Managerial scarcity* may occur through mismanagement of water systems.

iv) *Institutional scarcity* is a slight element of induced scarcity suggesting a society's failure to deal with rising supply/demand imbalances and to preserve the environment. This may include for example, water problems inflicted on downstream users by land and water use patterns of upstream users.

v) *Political scarcity* involves subordination of certain individuals, barring them from accessing an available source of water because of their political standing.

In some areas, according to Noemdoe et al. (2006), it depends on what water is available and the water needs in that area, to evaluate the concept of scarcity. The author further alludes to infrastructurally induced scarcity (lack of storage capacity to hold water over long periods of time, such as dams), institutionally induced scarcity (as described in point (iii) above, and refers less directly to the overall legal settings in a given area), and virtual scarcity (demand for water for future needs).

Wester and Warner (2002) point out that, although it has become conventional to cite water scarcity as the biggest threat facing humankind in the 21st century, some argue that it is the mismanagement of water that is the problem rather than water scarcity *per se*. Hooper (2003) argues that global human development is not necessarily the cause of water shortages, but rather the management and decisions made that affect the way in which water will be supplied, accessed, used and controlled. Despite the environmental constraints of variously induced forms of water scarcity, Falkenmark (1989) stressed that ways have to be found to improve the quality of life in Africa's semi-arid countries, with emphasis on the water resource.

2.3.2 Water Security

Anderson et al. (2008) highlights the need to assess and take into consideration the interdependence of resource-, access-, capacity-, use-, and environment- components in the search for sustainable approaches in water management. Water is recognised as a severe constraint on socio-economic development and environmental protection, at levels of internal renewable water availability of less than 1000 m^3/capita, according to the Food and Agriculture Organisation (2009). Molle and Mollinga (2003) and Amakali and Swatuk (2009) express the same views regarding socio-economic development where water is limited. At the aforementioned levels, the resource is also seen as a potential major problem in drought years. The concept of water security refers

to a situation of reliable and secure *access* to water over time; protection of vulnerable water systems against water-related hazards; and sustainable development of and safeguarding of access to water functions and services. Because the concept of water scarcity is viewed as a matter of political and economic perception, water security could likely be described as a particular mix of availability and demand at which water stress occurs, rather than a per capita figure.

2.4 IWRM and the Influence of the Global Water Partnership

With the integration of various aspects for effective and sustainable water resource management, we need to understand what the concept IWRM signifies. For the purpose of providing a common framework, the Global Water Partnership (2000) definition is used and defines IWRM as:

> *"a process that promotes the coordinated development and management of water, land, and related resources in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems*".

Key features of IWRM are (Kaoko, 2008):

- an intra- and inter-sectoral management approach to water and other natural resources in a geographical basin;
- stakeholders' involvement in decision making and management activities.

The above-mentioned features form the focal point in river basin management, and are essential in ensuring equitable access for the poor, promoting the best socio-economic benefits, and warranting long-term sustainability and environmental protection.

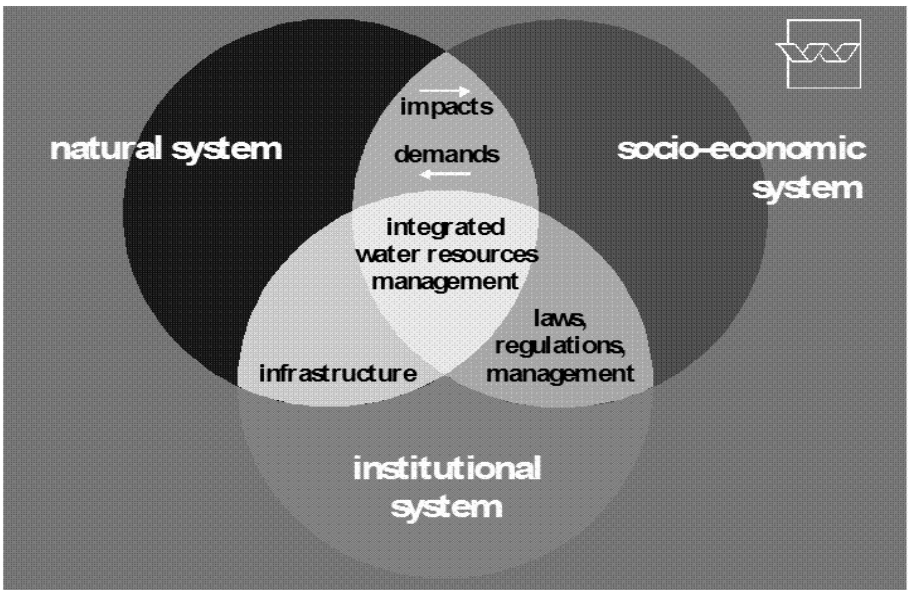

Figure 1. IWRM links between natural, socio-economic and institutional systems
(Kaoko, 2008)

The above diagram presents the linkages between the natural, institutional, and socio-economic systems as an integral part of IWRM. On one hand, the environment demands assessment of impacts and evaluation of resource demands by the socio-economic system. On the other hand, water infrastructure with the appropriate legal, regulatory and management structures in place effects the implementation of IWRM approaches. Accordingly, socio-economic development is boosted, at the same time managing, conserving and protecting the natural system. IWRM, as depicted in Kaoko's (2008) view, finds its application in the river basins where human beings interact with their environment to utilise natural resources for a sustainable livelihood. With an overview of water forums held in previous years, it is easy to recognise that the main aims were to bring communities together, build a strong world-wide network, and ultimately establish programmes for action. In this, Hall (2003) noted that implementation plans set a target for countries to "develop IWRM and water efficiency plans by 2005", thus giving formal recognition to the importance of IWRM.

The World Water Fora have sung the praises of the IWRM notion throughout, recommending it as the best possible solution in managing water resources in an integrated fashion. The Global Water Partnership has had tremendous influence in lobbying for management according to the IWRM approach. This is because the Global Water Partnership, in response to the Kyoto Protocol (1997) and the World Summit on Sustainable Development (2002), has pledged to assist countries in establishing IWRM plans and processes. The partnership also vowed to follow up dialogues on water governance and panels on financing water infrastructure. Most importantly, it determined to use its networks to enable the more advanced countries to support those not yet started in this initiative towards achieving the Millennium Development Goals (Global Water Partnership, 2000; Halls, 2003). Jonch-Clausen (2004) commends the approaches to integrated management of natural resources. He, however, questions if the integrated management, development and use of water resources is the pre-requisite for achieving the millennium development goals in developing countries. If so, what key steps need to be taken to ensure that these targets are achieved?

2.5 Institutional Roles in IWRM

The framework for institutional reform is based on the allocation of responsibilities to different entities that are best suited to execute those responsibilities. Water institutions, according to Saleth and Dinar (2005), can be defined as rules that together describe action situations, delineate action sets, provide incentives, and determine outcomes. These are applicable both in individual and collective decisions related to water development, allocation, use and management. Livingston (2005) says the basis to understanding different users' interests in the designated area is the production, distribution and consumption of goods and services in order to evaluate the pressures for change. She therefore defines water institutions as all the formal laws, policies and administrative rules governing water allocation and use in a particular context. To add to the preceding definition, institutional arrangements would then refer to responsibilities of agencies at different levels of government, the corresponding linking mechanisms between the agencies, and the standards and regulations that form the institutional framework in which agencies work (Koudstaal et al., 1992).

According to Biswas (2004), IWRM has not been explicitly defined, nor has the question of how it is to be implemented been fully addressed. Accounts from Biswas indicate that despite its potential, IWRM is difficult to implement effectively, with little success to date, and the reason, in his opinion, being "*…there is no fundamental issue like what aspects should be integrated, how, by whom, or even if such integration in a wider sense is possible*" (Biswas, 2004). Despite the criticism, IWRM has emerged as the cornerstone to water reforms in Namibia (Heyns, 2005).

2.6 River Basin Organisations as Appropriate Reform Vehicles for IWRM

For decades, water resources management and development functions were carried out by government through a centralised, bureaucratic system (MacKay, 2003). As a result, this model disadvantaged a majority of the population, holding back ordinary people from participating effectively in decisions made, as viewed by Blackie and Tarr (1999) and Amakali and Swatuk (2009). Mehta (2003) concurs and argues that there is tremendous need for implementing agencies to ensure the participation of especially the marginalised and socially excluded groups in creating a level playing field for all stakeholders. The establishment of new water management organisations was one of the most significant aspects of this enabling environment. This was due to the nature of devolving powers, functions, and decision-making at the local level through specific institutional arrangements (De Coning, 2006).

What do institutional arrangements encompass? Zhou (2006) suggests that institutional arrangements for water resources management have much to do with the management and decision-making culture of the organisations, and are impacted by many factors which ultimately determine the allocation of the resources. At regional levels, new legislation advocates active participation of the public sector in water resources management by decentralisation to the lowest appropriate levels, deemed to be river basin organisations.

Their objectives collectively are (Manzungu, 2002; Amakali and Shixwameni, 2003):

- to oversee and coordinate natural resource management activities at the water/river basin level;
- to plan for achieving sustainable natural resource management for the water basin in partnership with Government at all levels;
- to encourage the most beneficial use with a view to maximising social and economic benefits;
- to embody full consultation and participation by local committees and stakeholders;
- to incorporate wide sectoral involvement in relation to the impact of development on the natural resource base in a river basin.

Delegation is probably the most practised institutional instrument to transfer tasks and competencies. It can be prompt and definitive as is the case in Zimbabwe, or gradual and progressive as is the case in South Africa and Tanzania (Jaspers, 2003; Manzungu, 2004; De Coning, 2006). Progressive delegation is applied over time, as the need for delegation arises and on request by stakeholders. In fact, the whole water sector in Zimbabwe was decentralised and commercialised during the process of revising the water legislation (Jaspers, 2003; Manzungu, 2004). The added values of functional decentralisation enabling decision-making at the lowest appropriate level, and stakeholder participation in decision-making and water resource planning are, according to Jaspers (2003), some of the 'triggers' behind institutional arrangements. While water policies and new legal frameworks are prepared in order to embody new principles and strategies for IWRM (Global Water Partnership, 2000), integrated approaches are indispensable when trying to prevent and remedy problems and conflicts to meet social and natural demands.

Although the reform processes have been inclusive and participatory, Wester and Warner (2002) express that the challenge is to keep the momentum going during the various stages. Effective management of surface water and groundwater has long been

argued to be best at a basin scale (Wester and Warner, 2002), but experience suggests it has been difficult to sustain (Mkandawire and Mulwafu, 2006). This, in part, has been attributed to political and administrative jurisdictions usually not corresponding with the basin boundaries. Therefore, besides administrative boundaries, it is suggested that the characteristics briefly described below should prevail, in order for these water management organisations to succeed in implementing the new approaches in their operations.

i) *Social Viability*: the ability to engage a wide range of stakeholders with diverse backgrounds, and then make provision for a division that will address the socio-economic issues in the Water Management Area (WMA), with stakeholder communication forming an integral part of the division.

ii) *Institutional viability*: engaging with the various private and government organisations operational, as well as the level of involvement by representatives from these institutions in the activities of the BMCs.

iii) *Organisational viability*: the internal organisational arrangements within the BMC that will enable the agency to fulfil its functions; giving special attention to addressing capacity building, employment equity, health and safety.

iv) *Financial viability*: the ability to operate as an independent and financially sustainable organisation.

v) *Technical viability*: the functional evolution of the BMC, including the capacity and the resources available to perform its functions.

Forrest (2001); Botes et al. (2003); Manning and Seely (2005), all acknowledge that ensuring gender mainstreaming and equality in processes carried out further influence the success of the river basin organisations, provided the correct regulatory measures, initiatives and proper management structures are in place. The processes implied here could be community-based pilot projects aimed at agriculture, or skills training for IWRM. At the Second World Water Forum in 2000 in The Hague, the current water

crisis facing the world was attributed primarily to "poor" or ineffective governance and water resources management practices (Funke *et al*, 2007). The United Nations Development Programme (2005) defines water governance as:

> *"The range of political, social, economic, and administrative systems that are in place to develop and manage the water resources and the delivery of water services at different levels of society; and comprises mechanisms, processes and institutions concerned where interested groups and citizens articulate their priorities and exercise their legal rights to meet their obligations"*.

Sometimes conflicting elements of achieving effectiveness, participation and legitimacy require compromises which fall in the sphere of politics (Jonch-Clausen and Fugl, 2001), thereby alleviating undesired consequences and using elements of governance to reach informed compromise, forms an integral part of water management. One of the key features of IWRM is that of involving stakeholders in the decision-making and management activities pertaining to water resources. The shift from the notion of **governance** (the exercise of economic, political and administrative authority) to manage a country's affairs at all levels to ***good*** **governance** thus introduces a normative dimension addressing the *quality* of governance giving effect to democracy (Stoker, 1998; Santiso, 2001; Rogers and Hall, 2002; Franks, 2004). It further places requirements on the process of decision-making and public policy formulation, and implies managing public affairs in a transparent, accountable, participatory and equitable manner (Santiso, 2001; Colvin and Saayman, 2007).

2.6.1 Reflections on Examples from Developing Countries:

The call to establish BMCs was regarded as necessary due to the vulnerability and degradation of the resource. But, the establishment of basin management organisations is also part of the global discourse and understanding that there would be better results if the resource were managed at lower levels, and if there were to be multi-stakeholder representation. The BMCs in Namibia are statutory advisory bodies (RoN, 2004). The CMAs of South Africa (RoSA, 1998) are considered corporate bodies, and have a governing board where various stakeholders' interests are represented. The CCs in

Zimbabwe are considered the units of management for water and also corporate bodies, which are expected to generate revenue from the sale of water within their catchments (RoZ, 1998; Jaspers, 2001; Gumbo, 2006). The large-scale sizes of the catchments necessitated the establishment of sub-Catchment Councils to run the day-to-day water management responsibilities, and are thus considered to be the lower level management unit in Zimbabwe (Gumbo, 2006). The sub-Catchment Councils report to the CCs.

In all, the river basin organisations carry out strategic planning, co-ordination, and assessment roles in the management of natural resources of the basin. However, the names of these bodies give an idea of what type of organisation they might be e.g. a council, an agency, a committee-, thereby assuming different approaches and different functions in managing their respective country water resources. The basin management approach in Namibia, as reflected in other developing countries, is aimed at providing the opportunity for basin communities, stakeholders, government, and interested parties to work together.

The need to redress unequal allocation of the water resources, and overcoming the colonial rule, seemed to be the driving forces behind the water reforms in the above-mentioned countries. In Zimbabwe, the Rhodesian Water Act of 1976 was replaced by the introduction of the Zimbabwe Water Act 31 of 1998 and the Zimbabwe National Water Authority Act of 1998 (Jaspers , 2001; Kujinga and Jonker, 2006). This was meant to introduce integrated approaches to water management at the lowest appropriate level. The new laws stamped out the water rights, which benefited mainly the white minorities, and vested all water resources in the president of the country (Jaspers, 2001; Maviya and Munyai, 2005). Government agencies involved in water management, such as the Zimbabwe National Water Authority, were commercialised, and a permit system was introduced for water use.

Catchment Councils are established by the Ministry of Rural Resources and Water Development, and report to the Zimbabwe National Water Authority.

In South Africa, the Water Act of 1956 (RSA, 1956), spoke to riparian principles, as was the case in Zimbabwe, and it marginalised the majority black and coloured communities. The need for institutional and organisational reforms in the water sector was deemed necessary by the Department of Water Affairs and Forestry, in addressing issues of equity and sustainability in water allocation and use respectively (Amakali and Shixwameni, 2003). CMAs are established, with the purpose of delegating water resources management aspects to the regional or catchment levels, and involve local communities in water-related matters (Manzungu, 2004; Goldin, 2010). A governing board, established by the Minister and part of the catchment management agency, must be representative of all the stakeholders and their interests in the water management area. The agencies report to the Department of Water Affairs, whose primary responsibilities are policy formulation and implementation of water resources management strategies (Goldin, 2010). In Namibia, the basin management committees report to the Minister of the MAWF.

2.6.2 Proposed Functions of the River Basin Organisations:

Looking at southern Africa, the functions of river basin organisations in Namibia, South Africa, and Zimbabwe are strikingly similar in more ways than one. The proposed functions all involve the establishment of a river basin organisation strategy (Namibia, South Africa) or plan (Zimbabwe), as they are referred to in their respective countries (Manzungu, 2002). The overall objective generally involves coordinating development strategies or plans for implementation. Most notable is the promotion of multi-stakeholder platforms in water resource management, for example, in the use, conservation, control and management of the resource at a catchment scale.

In Zimbabwe, the Catchment Councils regulate and supervise the exercise of water rights, have full autonomy in water allocation, and oversee the sub-Catchment Councils. They can, however, delegate functions to the sub-Catchment Councils. Corporate bodies, as Jaspers (2001) defines sub-Catchment Councils, have the power to levy rates upon permit holders to meet their expenses, and are in charge of the monitoring and day-to-day management of water use in their management areas. In South Africa, the

functions and operations of the CMAs are stipulated in the Water Act of 1998 (Chapter 8, Part 3), with additional powers and duties that may be assigned to them set out in Schedule 3 of the Act (RoSA, 1998).

2.7 Implication of Governance on Public Participation

A strategic direction in the way forward in the water sector, according to the Namibia Water Resources Management Review (2000a) and Pegram et al. (2006), is the establishment of coherent institutional arrangements at catchment level, and the development of adequate institutional capacity. The demands on government resources for creating this new administration have contributed to a need for participatory democracy and management of the country's scare water resources. A participatory approach is one of the cornerstones of IWRM, as reflected in the Dublin principles (Global Water Partnership, 2000). In light of this view, Du Plessis and Enright (2005) highlight the strong emphasis put on public participation in the process of establishing these water resource management organisations. However, there are factors that may hamper effective participation. These factors, as indicated by Kujinga (2002) and as expressed in part by Kujinga and Jonker (2006) are, for instance, lack of proper representation of stakeholders, inadequate financial resources for river basin organisations, lack of proper planning, and ensuring that water users pay for the water they are using.

Integrated management of water resources is therefore a tool to support sustainable development from a 'good governance' perspective. Good governance of any natural resource depends on stakeholder institutions acting independently and making independent decisions (Burkey, 1998 quoted in Maviya and Munyai, 2005). An important question that is addressed in this thesis is: To what extent were these institutions granted the independence to determine their own destiny? Stakeholders, in turn, are defined as:

> "*persons, groups, or institutions with interest in a project or programme who may be affected in a positive or negative manner by the decisions and actions made*" (Dube and Swatuk, 2002).

Unfortunately, most contemporary pro-accountability reforms exclude the "voice" of societal actors, especially the poor, and they are often left speaking into a void (Ackerman, 2004). Ackerman (2004) further argues that opening up the core activities of the state to societal participation is one of the most effective ways to improve accountability and governance in a sustainable manner. Although the focus of stakeholder participation is captured in the second and third Dublin Principles, which call for a participatory approach in general and participation of women in particular, Manzungu (2004) remarks that, if stakeholder participation and improved governance are to be achieved, the process and approach, entry and levels of participation, as well as the definition of 'stakeholder' and how it can be operationalised, need careful consideration.

The sphere of delegated governance has grown increasingly vast over recent decades, although the existence of delegated governance organisations is at odds with the traditional notion of representative democracy (Stoker, 1998; Denton, 2006), which lacked transparency in its processes. It is for this reason that the full participation of the rural population in policy development and implementation is essential. Stressing one of the IWRM principles, Neseni (2007) highlights that users, planners and policy makers at all levels should be involved in these processes, and assumes this to be the foundation for accountability and transparency. She is also quick to add that the apparent gender bias of structures and processes should be questioned at all levels. The Government has taken it upon itself to revert decision-making power and initiative to the local level, enabling people to have control over identification of opportunities and solutions, planning and design, implementation, monitoring and evaluation, and subsequent re-planning.

In the same vein, Dube and Swatuk (2002) and Goldin (2010) observe that if stakeholder representatives attend meetings but do not participate in the debate, it cannot be termed participation. Experience has shown that considerable effort is required to ensure active engagement of all stakeholders. The Global Water Partnership (2000) concurs, and goes on to add that 'real' participation only takes place when

stakeholders are part of the decision-making process; but this is dependent on the provision of mechanisms and information to allow individuals and communities to make water-sensitive choices. Much of the discourse around participation vaguely identifies sectors that are required to take part in water management activities. Stakeholders, as expressed in the Namibia Water Resources Management Review, 2000a and Kujinga (2002), should include all those who affect, and those who are affected by, the policies, decisions and actions of the systems. These include individuals, communities, social groups, and institutions. The list below identifies prominent groups necessary in forming part of the stakeholder groups in any reform, and some of the motivating factors for making sure these sectors are on board:

- *Industries:* particularly mining as a very important economic driver. It is a well-capacitated sector, but also one that generates challenges around water conservation and water quality for settlements in proximity to the mines.
- *Agriculture*. While they may at times be reluctant to accept the principles of IWRM and basin management, they are in a position to transfer skills and knowledge to smaller, less-capacitated farmers.
- *Government departments and sub-national authorities*. Engaging other government institutions in basin management processes can minimise conflicts. Particularly important is engaging regional and local authorities, since they fulfil local planning responsibilities.
- *Marginalised Groups*. Much-needed effort is required to engage these groups in the processes of establishment and management of river basin organisations. Not only building awareness is required, but also capacity and development to empower the communities and ensure active participation, individually or through representatives.

2.7.1 Spectrum of Public Participation:

A Public Participation spectrum provides a framework to assess the level of participation by stakeholders within the establishment processes that occur across the

various basin management areas. Five significant levels of the spectrum, as identified by the International Association for Public Participation (2007), are:

- *Inform*- which aims to provide the public with objective information to assist the stakeholders in understanding the issues at hand, alternatives, opportunities and/ or solutions.
- *Consult*- this deals with obtaining feedback on analysis, alternatives and/ or decisions through techniques, e.g. public comment, meetings and surveys.
- *Involve*- involves working directly with the public throughout the processes to ensure transparency and accountability, and that public concerns are understood and considered.
- *Collaborate*- ensuring participatory decision-making, and identification of preferred solutions.
- *Empower*- by placing the authority over the final decision-making in the hands of the public through, for example, ballots and citizen juries. This also constitutes the highest level of public participation.

According to Du Toit and Pollard (2008), the public is given the opportunity to participate in a collaborative manner, but not to take autonomous decisions that the water management organisations must implement. De Coning (2006) points out that the South African policy-making exercises required participation and public choice, in which direct representation, empowerment, and active decision-making were priorities. However, Du Toit and Pollard (2008) draw attention to the idea of empowerment, and note that in the South African context this is a meaningless notion. Individuals who are drawn into public participation processes are rarely able to make meaningful changes or to be empowered in the way that the word leads us to believe. The same authors also caution that no single component of the public participation spectrum is any more or less important than another. It matters that there should be information, consultation, involvement, collaboration, and empowerment in all forms of public participation.

Levels of participation will differ, according to the specific stages of a water management task. Capacity is one of the ingredients that need to be developed especially for the day-to-day functioning of the water management organisations. It can be achieved by launching an effective human resources development program, and by upgrading organisational, financial and asset management (Rogers et al., 2000; Neseni, 2007).

Water resources' planning, without stakeholder participation in decision-making, has been shown to be less effective in implementing strategies. Jaspers (2003), and Marimbe and Manzungu (2003) support this, saying that low awareness among stakeholders undermines the democratic principle of informed decision-making by citizens, often resulting in conflicts. It thus undermines ideas of decentralisation, intended to bring decision-making closer to where it is applied. Considerable strategic planning is required in public engagement to ensure the efforts are both applicable and relevant to those involved. Important to note is that poor people may not have the capacity to participate in management structures, as they face constraints of illiteracy, poor education, bad health and poor nutrition, as alluded to by Neseni (2007) and in part by Marimbe and Manzungu (2003), and Van der Zaag (2005).

Van der Zaag (2005) goes on to encourage the translation of project documents into local languages, enabling local people to sufficiently understand the processes, in order for them to participate fully. In reflecting on the world water forums, governance has become a great concern within the reforms in the water sector. This requires strategies to be put in place in order to, as realised in many international treaties under the IWRM umbrella, improve communication and access to information for accountability, and transparency, and, in turn, to reduce corruption. It is also necessary to develop regulatory organisations that avoid jurisdictional overlaps and conflict between the sectors (Bandaragoda, 2000; Hall, 2003; Garande and Dagg, 2004)

According to MacKay (2003):

> "*…unless the capacity building issue is addressed as a critical national priority in the water sector, chances of long term implementation will be very limited*".

It is therefore critical that the establishment process be successful for river basin organisations to fully function, and serve as vehicles for the partnership between the government, the private sector, and the community in relation to water. In addition, Wilson (2001), states that capacity building and an ongoing programme of human resource training and development will need to be implemented for board members and staff to carry out the river basin organisation functions. Heyns (2005) makes mention in his article that a common perception is that without competent human capital to man the structures, the need for structural change becomes purely cosmetic. As a counterstatement, Saleth and Dinar (2005) ascertain that even these cosmetic changes are useful at times, both in realigning political groups and in creating a pro-reform atmosphere conducive to undertaking substantive changes, noting legal reforms, privatisation and water rights, as imperatives.

2.8 Summary:

The new approaches to water resources management were meant to provide a platform to manage natural resources at a basin level. The reforms can be related to a number of important issues, but were also meant to accommodate political views, perceptions and requirements to meet the expectations of the electorate (Heyns, 2005). Apart from redressing the colonial regimes, the river basin management approach adopted in the water reforms needs to overcome some elementary hurdles in order to progress successfully beyond the inception phase. The more pertinent part is the ongoing long-term community development and management components, in which the Government, the political and local leaders, and the users all have roles to play. With the current institutional roles, problems do exist and will continue to exist, but they can be overcome if all parties fulfil their responsibilities as expected. River basin organisations, in the proposed approach, are deemed the most economical way of providing and extending services to the rural communities.

When successful, Heyns (2005) affirms that the approach is a strong tool for the empowerment of people and the achievement of democracy for all in the management of the water sector. Accordingly, since the foundations of river basin management are based on the principles of IWRM, Van der Zaag and Savenije (2000) and Funke et al (2007) also make it clear that the failure experienced in achieving the full implementation of IWRM, a challenge posed to most developing countries, is attributed, firstly, to severe internal problems (technical capacity) that hinder the management by the responsible institutions: secondly, that the concept of IWRM has not been fully accepted and practised by local water managers; thirdly, that there are a range of institutional challenges that persist, because of insufficient alignment and cooperation between policies of different government departments and the practices of different water use sectors that impact on water; last, but not least, inadequate attention to ideas of participation result in the poor development of new basin organisations.

IWRM then, with the Global Water Partnership influence, finds its application in the management basins where human beings utilise natural resources in their environment in a sustainable manner. To add to this, scarcity in its various forms also plays a role in the challenges faced in the water sector. However, Mehta (2003) argues that access to and control over water is usually linked to prevailing social and power relations, which influences how it is used or abused. Even with substantive institutional changes, reform benefits may not be that immediate and noticeable, as it is a long and slow process. In this Namibia is no exception. Saleth and Dinar (2005) echo this statement by saying that the direct outcome of institutional changes is only a process of behavioural changes, and its final outcome depends on the impact of these behavioural changes on the actual resource allocation, use, and management.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter describes the methodology used in the study, and considers various research approaches. This section provides an overview of the research approach and tools selected, and outlines the specific methodology applied and methods for data analysis. The research is part of a larger project that is testing the hypothesis that decentralising water governance results in better access to and sustainability of water resources than centralised water governance. The project "Exploring the lowest appropriate level of water governance in South Africa" was commissioned by the Water Research Commission (Project K5/1837/1) in 2009, through the Integrated Water Resources Management Programme at the University of the Western Cape.

The purpose of this sub-project is to understand whether BMCs in Namibia -

1. can be considered to be examples of decentralised water governance and
2. can result in better access to and sustainability of water resources.

The framework proposed by the governance project (Jonker et al., 2010) loosely informed the data analysis section.

3.2 Study Area

The study was conducted in four river basins in Namibia, the Kuiseb, Okavango-Omatako, Cuvelai-Etosha, and Omaruru-Swakop.

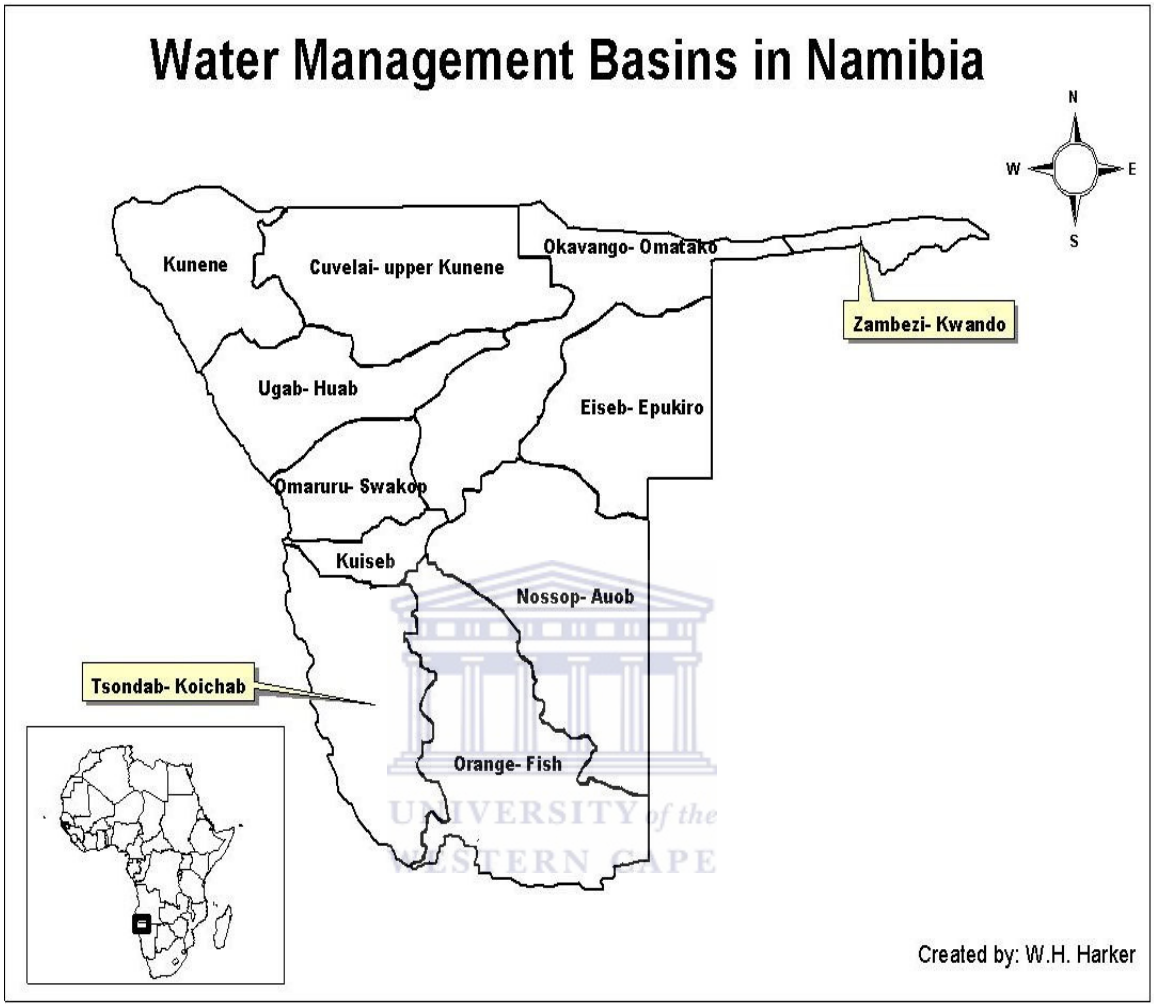

Figure 2. Water Management Basins in Namibia

The Kuiseb River basin lies along the central western coastline of the country, stretching from the central high grounds in the surrounding areas of the capital, Windhoek, while the Cuvelai-Etosha lies to the north of the country, bordering Angola. The Okavango lies to the north-eastern parts of the country, bordering Botswana. The Omaruru River basin is situated in the central western part, north of the Kuiseb. The basins vary in terms of size, climatic characteristics, economic activities, and social characteristics.

In order to reveal the manner in which the basin conditions contribute to successful or failed decentralisation of water governance in Namibia, the research was guided by the following research questions:

- What is the nature of the process followed to establish BMCs in Namibia?
- How do the characteristics of the BMCs in the different basins in Namibia compare?
- Has the water policy in Namibia been operationalised?

3.3 Methods of Data Collection

Data was gathered from different sources. The first data source was official government documents and policy plans; the second, documents produced on BMC in the basins. These included minutes of meetings, reports, and pamphlets. The third data source was semi-structured interviews with key informants employed by government (9). Lastly, the fourth data source was semi-structured interviews with other stakeholders (6). The interviews were recorded and transcribed. The Basin Management Approach Guidebook was used as a benchmark against which to assess the implementation of the processes on the ground.

3.4 Sample Selection

The study targeted officials involved in the establishment of basin management committees from the various water institutions. The key players consulted were from the Desert Research Foundation (DRFN), Iishana sub-Basin Management Committee (IBMC), the Cuvelai Basin Office, the Ministry of Agriculture, Water and Forestry (MAWF), the Kuiseb Basin Management Committee (KBMC), and the German Technical Cooperation.

3.5 Data Analysis

The research questions were answered by using data and information gathered from both desktop documents and interviews. This data was validated and elaborated using data from the interviews conducted with the government officials and other

stakeholders. The description of each BMC was analysed to ascertain whether it was an example of decentralised water governance, using the governance framework developed by Jonker (2009) as part of the larger water governance project mentioned in section 3.1. In the governance framework by Jonker et al., (2010), governance pertaining to water is classified as water governance and corporate governance.

Corporate governance entails good governance, and addresses issues of policy formulation, oversight of policy implementation, transparency and accountability. Water governance (Jonker et al., 2010) is classified as bureaucratic governance, delegated governance, and cooperative governance. Bureaucratic governance is where the government department performs all the water management tasks itself; delegated governance is where the government departments delegate water management tasks to other organisations with compensation; and cooperative governance is where any number of organisations perform water management tasks, with each contributing their own resources.

Finally, the conclusion from this governance analysis will be used to consider whether the decentralisation of water governance is better than centralised water management in Namibia.

3.6 Limitations of the Study

The study covered four basins. However, due to financial and time constraints, data collection was curtailed. Two basins (Kuiseb and Cuvelai-Etosha) were visited and field interviews conducted onsite, whereas in the case of the other two (Omaruru and Okavango), field visits were not possible. Despite this, interviews were conducted with key informants from Windhoek. The BMCs are in distant geographic areas, and the key stakeholder individuals are scattered in various parts of the country, thereby making it difficult to coordinate and schedule appointments that are mutually convenient.

CHAPTER FOUR: CURRENT INSTITUTIONAL STRUCTURES

4.1 Introduction

As the country confronts the challenges of resource scarcity, it also faces the difficulties inherent in forging a new country and new government. The Republic of Namibia gained its independence on March 21, 1990. Prior to that, the people of Namibia were under changing and oppressive authoritarian rule since colonisation in the early 1900s. This has led modern Namibia to strive towards democracy and equitable distribution of resources (RoN, 1998; Article 95). The Government is committed to involvement of a more diverse group of institutions, and more broadly based participation of the rural people and their traditional institutions (Kruger, 2001). Holzwarth (2002) noted that the principles of good governance in the water sector require a water policy that is effective (practical), with a clear legal framework and institutional structure for managing river basins and aquifers. He also adds that, although legal instruments are to some extent essential, the process of development is as important as their substantive content, because an early agreement without commitment is not enforceable and sustainable.

4.2 Legal Framework: Post-independence Era

The Namibian policy and legislative framework for the water sector has not changed significantly since the Water Act of 1956 (Blackie and Tarr, 1999). This is due to the fact that Namibia, formerly known as South West Africa, was under the South African administrative jurisdiction between 1915 and 1989 (Forrest, 2001). The main motive for legal change, as alluded to by Makurira and Mugumo (2005), was the notion of unequal distribution, where a vast majority of the (black) rural people in the communal lands were denied sufficient access to water resources. The first policy statement in this regard came in 1993 in the form of the Water Supply and Sanitation Sector Policy (RoN, 1993). Namibia had to deal with challenges with regard to the supply of water resources to its citizens.

These were, *inter alia*:

- a colonial culture that denied participation and responsibility of citizens;
- a bureaucratic style of management which prompted a demand for decentralised schemes;
- challenges and obstacles with implementation of legislation and policy.

Basin management committees, representing the stakeholders in a river basin, have been identified and given legal status as a suitable structure to implement the IWRM approach (DRFN, 2009). Legal instruments, such as the Water Supply and Sanitation Sector Policy (1993), and the Constitution (1998), were in place before the water reform process was initiated. The National White Paper on a Water Policy followed in 2000 (Namibia Water Resources Management Review, 2000b). The concepts and intentions of these legal documents were not properly conveyed to and understood by the community members, thereby impeding effective implementation.

The respondents and Heyns (2005) noted that the roles and responsibilities in the legal instruments and documents did not set out clear mandates as to which department is responsible for certain functions in water management. This created confusion, resulting in duplication and overlapping of responsibilities by various departments, as observed on the ground. This disjuncture could have contributed to a further delay in the progress of ensuring the implementation of the legal instruments. Another point to consider is that the laws and policies in place are legally binding on the issue of public participation, but most stakeholders do not oblige. This is indicative of flaws within the monitoring processes as well as in compliance by the stakeholders.

Water drives most of the economic activities in most countries. Therefore, effective management of water resources is viewed as fundamental to the social well being and economic progress of the country. South Africa's water policy in Namibia de-prioritised the provisioning of water supply to the communal areas (regions set aside for black residency). At the same time, it heavily exploited aquifers and surface water

resources for the purpose of supplying the water needs of white-owned commercial farms and South African-owned mining concerns (Forrest, 2001; Amakali and Swatuk, 2009). In view of these circumstances, the need for a new policy framework for water resources management in Namibia was recognised at the highest levels of government (Namibia Water Resources Management Review, 2000b). This, according to Amakali (2005), resulted in the Government of the Republic of Namibia deciding to initiate a Water Resources Management Review. The Water Resources Management Review was launched by former President Sam Nujoma in 1998. The terms of reference envisaged a description of the existing arrangements for managing Namibia's water resources, the definition of issues, and evaluating the impact of water resource allocation, water use, and waste water disposal practices.

In this, the team was required to make recommendations that will enable:

> "*the achievement of equitable access to, and sustainable development of, freshwater resources by all sections of the population, especially the rural and urban poor, in order to promote long-term social and economic development*" (RoN, 2000).

Four key legal documents laid the foundations for water resources management in Namibia.

4.2.1 The Water Supply and Sanitation Sector Policy, 1993

The first Water Supply and Sanitation Sector Policy was developed by an inter-ministerial committee appointed by the now Ministry of Agriculture, Water and Forestry in 1991. This policy considered water supply issues and contained the following principles (RoN, 1993):

- essential water supply and sanitation services be available to all Namibians at a price affordable to the country as a whole;
- importance of community involvement and participation in improved services,
- decision-making and cost sharing of water services and water management;

- ongoing environmentally sustainable development and utilisation of Namibia's water resources.

Since then several developments, such as the establishment of the Namibia Water Corporation (NamWater) enterprise and the Directorate of Rural Water Supply in the MAWF, necessitated a review. This culminated in the recently revised and promulgated Water Supply and Sanitation Policy of 2008 (RoN, 2008).

4.2.2 The Constitution of the Republic of Namibia (1998)

The Constitution (RoN, 1998) was accepted and adopted by the Namibian people as the fundamental law of the sovereign and independent Republic. Herein the protection, utilisation and management of natural resources on a sustainable basis are stressed, for the benefit of all. It also states that the ownership of all land, water and natural resources belongs to the state, unless otherwise lawfully owned (Article 95 and Article 100 respectively).

4.2.3 The National Water Policy White Paper (2000)

The Water Policy White Paper defines the policy framework for equitable, efficient and sustainable water resources management and water services provision. The main thrust of the institutional reforms proposed in the 2000 Water Policy is to improve functional capabilities and to increase management capacity to meet various challenges in water management (technical, environmental, social, economic and legal) (Heyns, 2005). The elements to achieve this include:

- an integrated approach to water resources management;
- recognising water as an essential resource;
- functional and effective management; coordination of sector activities;
- public awareness and stakeholder participation.

The policy further recommends that a systematic approach to water resources management should be adopted, using an integrated framework that considers issues of

decentralisation, social equity, ecological protection, and economic growth (RoN, 2000). An intra- and inter-sectoral approach to basin management and stakeholder involvement in decision-making constitutes the key feature of the above-mentioned policy.

4.2.4 The Water Resources Management Act (24 of 2004)

The water sector review undertaken by the Namibian government resulted in a new water law that was promulgated as the Water Resources Management Act, Act No. 24 of 2004 (RoN, 2004). This saw the abolishment of the water board as it was considered, according to Heyns (2005), to be non-representative in the new dispensation, and alternatively caused a vacuum in the development of a new water policy in the independent Namibia. The water board advised the Secretary of the South West Africa administration on water issues and decisions made in the way water resources were managed back then. The South West Africa People's Organisation government came into power after democratic elections in 1990, and gained a two-thirds parliamentary majority in 1994. The government committed itself to decentralisation of decision-making. On the contrary, Corbett and Jones (2000) made mention of an observed governance gap in the rural areas. They attributed this to the multiparty democracy system, which saw opposition parties calling for the retention of a centralised political control. This phenomenon is still evident today.

However, a more representative Advisory Water Board was established to advise the Minister responsible for water affairs on various issues of national importance, such as allocations of water resources, dam construction, and pollution control, to mention a few. The Water Act of 1956 dealt with water resources management, access and ownership of water, most notably the notion of 'riparian rights', which gave land owners the right to all water found in or under their land, as it was considered to be 'private water' (Amakali and Swatuk, 2009). This contradicted Article 95 of the Constitution of Namibia, which adopts policies that reflect on, among others, "…sustainable utilisation of natural resources, maintenance of ecosystems, essential ecological processes, and biological diversity for the *benefit of all*" (RoN, 1998). While

the previously used Water Act (RoSA, 1956) made no mention of water management organisations per se, the new Water Act (RoN, 2004) introduced and placed priority on the establishment of BMCs.

In terms of the new Act, Namibia was divided into water basins, for which BMCs may be established. This set in motion a process of fundamental change in the way in which water resources are to be managed (Amakali and Shixwameni, 2003). It further promoted the integration of water resources in terms of quality and quantity, surface and ground water, with a strong emphasis on efficient, equitable use and sustainable development of water resources. Part 4 of the Act describes the establishment of BMCs, and elaborates on the initial and specific functions and responsibilities of the BMCs in the inception phases of the processes, up to the final phases of establishment.

4.3 Organisational Framework

Policies, legislations and regulations are some of the key tools for water resource management in the promulgation and proper implementation of strategies (Holzwarth, 2002, Heyns, 2005, Gleick, 1998), with the aid of various departments. Gleick (1998) stresses that the involved departments should also possess regulations and legislations that allow for support of water resources management. Jaspers (2003) puts forth valid aspects of 'how all these should be implemented', and 'which arrangements can be made to bring theory into practice'. One of the core issues of the review process was the separation of institutional roles of policy and service delivery, in other words, moving from a 'good on paper' approach to a 'practical on the ground' approach. To this end, the Water Policy recommends that the current Department of Water Affairs (especially the Directorate of Resource Management) be converted into an agency to ensure that water resources management functions are delivered in the most efficient and effective way (Ngurare, 2002). Following on this, the government is yet to designate a unit specifically for hydrological resource management.

4.3.1 The Ministry of Agriculture, Water and Forestry

The Ministry's functions, as stipulated in the Water Act (RoN, 2004), are to coordinate water resources management at a national level, supervise water management institutions, establish any water management institution needed, describe its powers and functions, and other necessary matters connected thereto for its proper functioning. Establishment of the Water Resource Management Agency to guide, assist and coordinate activities of the basin management committees, and to collect and analyse information necessary for the development of the Master Plan, is also provided for. A Water Advisory Council has been established to render advice on matters of water management, either in policy development or review of existing strategies, and to attend to matters raised by the BMCs which the council considers priority. The Minister prescribes the terms of reference of the Council, which meets at least twice a year, and at any other such time the Council or Minister deems necessary (Heyns, 2005).

The MAWF is the custodian of the water resource. In its mission statement the Ministry realises the potential of the water sector in the promotion of an efficient and sustainable socio-economic development for the improved livelihood, wellbeing and wealth for all (http://www.mawf.gov.na/mission.html). Within the Ministry, two directorates are identified in the Water Affairs department, namely the Directorate of Rural Water Supply and the Directorate of Resource Management. The Directorate of Rural Water Supply is tasked with the supply of water to rural (communal) areas, with the following aspects to be considered:

- planning, implementation and operation of rural water supply schemes;
- transfer of rural water systems to local communities through water point committees and other community based mechanisms;
- assistance with capacity building for the water point committees;'
- provision of operation and maintenance services.

The establishment of the Directorate of Rural Water Supply laid the foundation for the successful implementation of a dynamic strategy, known as Community Based Management. This strategy involved extensive user participation in water supply and management in the form of Water Point Committees. At the same time, sanitation has also presented its own challenges. MAWF (2005) reports that the magnitude of the sanitation backlog is increasing, and has not improved in communal rural areas and informal urban settlements. This poses a threat to the quality of the resource, resulting in hazardous impacts if not attended to. The Directorate of Resource Management plays various roles in the water sector, with a focus on promoting and facilitating environmentally sustainable development, management and utilisation of water as a scarce resource.

The main functions in terms of water allocation alluded to in the Ministry report are:

- advising government on policy matters, national strategy and international waters; water management strategy formulation;
- regulating drinking water quality and tariffs to a limited extent, and quantifying Namibia's surface water and groundwater resources;
- conducting environmental impact assessments and some research activities;
- management by a variety of activities: monitoring of water resources, allocation and control of water abstraction and effluent discharge, support for water control and demand management, international negotiations.

The Ministry is also much involved in research work with regard to issues that pose a threat to the country's already scarce resource. It is enabled to institute appropriate management practices to conserve the water resource.

4.3.2 Water Resources Management Agency

Part II (section 7) of the Water Resources Management Act of 2004 defines the establishment of the Water Resources Management Agency to oversee the integration of the management of water resources in Namibia. The overall goal of the agency is to

find and secure new water sources, for example through reuse of treated water, groundwater sources, and desalination of sea water. As the proposed implementing agency for the new dispensation in river basin management, its functions as stipulated in the Water Act are (RoN, 2004):

- technical analysis of applications for licenses to abstract and use water, and permits to discharge effluent or to construct an effluent treatment facility or disposal site, including applications for renewal of such licenses and permits;
- the collection, analysis and sharing of data concerning the conservation and management of water resources;
- the monitoring and review of water usage by all water users and effluent discharges; to assess compliance with the Act;
- technical analysis of the need for water management areas, including recommendations regarding the establishment of such areas, their geographical boundaries, and any limitations to be imposed on such areas;
- guiding, assisting and coordinating the basin management committees;
- the collection and analysis of information necessary for the development of the Master Plan, and the information concerning internationally shared water resources.

4.3.3 Namibia Water Corporation

Namibia Water Corporation (NamWater) was officially registered as a company on 9 December 1997. It is a commercial entity that has been responsible for bulk water supply countrywide to municipalities, industries, and the Directorate of Rural Water Supply in the MAWF since 1998. The corporation's focus is on the development, operation and management of an efficient system of water supply, particularly water in sufficient quantities and of a quality suitable for the customers' purposes of utilisation. The Namibia Water Corporation Act of 1997 directs the responsibilities of the parastatal.

The more specific and elaborated functions, powers and duties of NamWater, reflecting on water resources management, focuses on the following core issues (RoN, 1997), to:

- investigate, research and study matters relating to water resources, waterworks and environment;
- determine and levy, in consultation with the Minister, tariffs on a full cost recovery basis for water supplied;
- utilise the available water resources on a long-term sustainable basis;
- conserve and protect the water resources and their environment from damage, destruction or degradation;
- furnish the MAWF with information on rainfall, river flows, groundwater levels, water abstraction from water resources, and water quality;
- formulate, maintain, and publish service standards;
- maintain a water quality laboratory for integrated and focused water data management.

Managing on a full cost recovery basis (operations, maintenance and capital costs) is an important aspect highlighted in *Section 7* of the Act (RoN, 1997).

4.3.4 Local Authorities

Local Authorities refer collectively to administrative authorities over areas that are smaller than a state, and include all municipalities, communities, village councils, and other organs of local government defined in Article 102 of the Constitution (RoN, 1998). Local Authorities are responsible for water supply in their areas of jurisdiction. Most Local Authorities buy water from NamWater. In turn, they distribute the water supplied to the end users. Responsibilities include provision and maintenance of systems of sewerage and drainage for the benefit of residents in its area; reticulation and supply of water to the communities they serve; own and operate water treatment facilities; and monitor water quality, ensuring that public health matters associated with water and sanitation within their boundaries are addressed. The Regional Councils are

responsible for physical planning for proclaimed and unproclaimed settlements at an early stage, to ensure the orderly development thereof and to establish the most appropriate level(s) of affordable service (RoN, 2008).

4.3.5 Water Point Committees

The day–to-day management of a water point – maintenance, control of access, payment etc- is carried out by water point committees. These consist of not fewer than five members, who are elected by the Water Point User Association for the purpose of co-coordinating the management of a particular rural water scheme. In addition, the water point committees are responsible for the protection of rural water supply infrastructure, where any damaged infrastructure is reported to the Directorate of Rural Water Supply. More important is the implementation of community-based management policies in the communities they serve. The community-based management strategy commenced in earnest in 1997.

When Namibia gained its independence, the country's public services fell into the hands of inexperienced bureaucracy; therefore, capacity building was an important part of the reform. Decentralisation measures have seen the transfer of responsibility for water supply to regional level, through the establishment of water point committees which ensure participation in management approaches in rural communal areas of Namibia. Furthermore, the number of established Water Point Committees in Namibia indicates that community-based management strategy is being implemented successfully in many regions. Table 1 below shows the percentage of coverage by water point committees in the communal areas of Namibia.

Table 1 Water Point Committees in Namibia 1997/ 98 (Adapted from: **http://www.op.gov.na/Decade_peace/agri.htm)**

Region	*No. of water Points in region*	*No. of water point committees needed*	*No. of water point committees established*	*Percentage of Communities with water point committees*
Karas	457	60	52	87
Hardap	417	40	14	35
Otjozondjupa	431	380	180	47
Omaheke	390	318	210	66
Erongo	330	255	71	28
Kunene	1 385	1 000	317	32
Omusati				
Oshana	1 200	1 200	421	35
Ohangwena				
Oshikoto				
Okavango	328	328	190	58
Caprivi	800	800	248	31
National	*5 738*	*3 673*	*1 703*	*46*

The figures are based on rural water supply quarterly reports and information gathered from other studies carried out. Data for Omusati, Ohangwena and Oshikoto regions was unavailable at the time. Currently, it is estimated that over 500 water point committees have been fully trained in the Caprivi and Cuvelai regions, and an estimated over 1000 Water Point Committees nationally (http://www.op.gov.na/Decade_peace/agri.htm).

4.3.6 Ministry of Environment and Tourism

This Ministry has broad responsibilities for the natural environment of Namibia; overseeing the Constitutional goal of "maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilisation of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future" (RoN, 2008). The Ministry recognises the sustainable management of natural resources for economic development and environmental protection as its key principles. It is responsible for establishing a statutory basis for environmental impact assessment of proposed public and private physical projects, and for proposals entailing new Government policies, plans and programs. Maintenance of natural resources, including provision and supply of water to the wildlife in the National Parks (Heyns, 2005), as well as implementing international environmental conventions and programs to which Namibia is a signatory, also fall under this Ministry.

4.3.7 Ministry of Regional and Local Government, Housing and Rural Development

The most important function of a regional council in the public administration of the country is related to socio-economic planning of the region over which it has jurisdiction. A key part of this planning process involves the way water is allocated, managed and used in the region. Currently the regional councils are not involved in planning and allocation of water resources, but are to some extent involved in water supply. When decentralised functions are more fully implemented, the regional councils will have significant influence on water resource management and planning.

The main functions of this Ministry pertaining to management of the water resources are:

- administrative services of the regional councils on behalf of the Government;
- proclamation of towns and provision of services, such as water supply to settlement areas;
- facilitating land and water management;

- promulgating model regulations as a guide for Local Authorities in the provision of water supply, sewerage and drainage services.

4.3.8 Ministry of Works, Transport and Communications

Vital data for water resource planning and flood forecasting is imperative in the stride toward effective water resource management. This information is provided by the meteorological service (the Namibian Weather Bureau), which is contained within the Civil Aviation Directorate of this Ministry. The Ministry of Works, Transport and Communications then forms an integral part of the framework of the new approaches to water management in the country. Water supply to small outposts such as police stations and border posts is catered for by the Ministry's Department of Works.

4.3.9 National Planning Commission

The National Planning Commission was established through Article 129 of the Constitution (RoN, 1998). The Commission has broad national planning responsibilities which focus on the development of Namibia. Water management is one of the fundamental issues at the core of the national planning responsibilities of the National Planning Commission. Functions of the National Planning Commission imposed by the National Planning Commission Act (RoN, 1994) include:

- formulating objectives, policies and strategies of development plans;
- strengthening the capacity of local and regional Government to prepare, coordinate and implement development plans;
- initiating and coordinating necessary economic and social studies and research;
- coordinating and monitoring sectoral policies and programmes in accordance with national objectives and priorities;
- advising the President and the Government on the general course of social and economic development.

4.3.10 Ministry of Health and Social Services

This Ministry is the custodian of all health-related functions in the country, and is responsible for sanitation and drinking water quality standards. This involves developing and monitoring water quality standards for the water environments, with a major emphasis on sanitation in rural (communal) areas. The Ministry of Health and Social Services was given the responsibility of ensuring that all water suppliers comply with the aesthetics, chemical, and bacteriological water quality guidelines applicable in Namibia (Heyns, 2005).

4.3.11 Ministry of Lands and Resettlement

It is deemed that land use management and water resource management are inseparable from each other. Inappropriate land use planning can have disastrous effects on erosion, aquatic ecosystems and eventually water quality. The Government has adopted the integrated land and water management approach for proper coordination of planning efforts. This is critical, particularly so as to minimise duplication or replication of duties and roles by the various institutions involved. The ministry is responsible for the management, control and development of communal land. One such development is the installation of basic infrastructure, such as water points.

4.3.12 Non-Governmental Organisations

Non-Governmental organisations are prominent players in the water sector in most countries, especially in the developing world. While they often participate in debates on water sharing (allocation) and water supply, they are most active in the area of protection of water and the water-related environment. Namibia is no exception in this regard, and within the country, the Desert Research Foundation of Namibia has done extensive and very useful work in promoting awareness of water and water-related issues. Other non-governmental organisations in Namibia operate either directly (e.g. Namibia Nature Foundation, United Nations Development Programme) or indirectly (e.g. World Health Organisation, United Nation Educational, Scientific and Cultural Organisation) with regard to water management issues.

4.3.13 Private Sector

The importance of the private sector was also recognised as prominent in the development of the country. Under the existing Water Act, there are rights associated with the ownership of river frontage and with groundwater under privately owned land. Using these rights, businesses such as mining companies and commercial farmers develop and operate their own water supply schemes.

4.4 Discussion

Since 1990, various investigations have been undertaken, with the government actively engaging in short to medium- term (five to ten years) and long-term (ten to thirty years) planning of water projects in the nation's interest. The challenges, however, lay in several different areas of the water sector. The replacement of the Water Act of 1956 proved to be the major highlight. Water pricing is another challenge within the water sector. Currently, subsidies for consumption still exist in many sectors, particularly irrigation. Individuals are aware of the measures put in place and show willingness to pay prices, but some argue that the prices are exorbitant, especially for the rural communities where most households are plagued by poverty.

Various institutions and government ministries have expressed interest in curbing the potential threats posed by the scarce nature of the water resource in Namibia by ensuring the equitable, efficient, and sustainable use and allocation of the resource. However, there is much confusion in the various departments regarding functions of water allocation, protection, and supply which each department is supposed to carry out. Due to this, it is necessary and of prime importance to have institutional arrangements that not only have their own vested interest in the management of the water resource, but also to carry out their activities in an integrated manner with other linked institutions.

As failures in the new approaches to management are deemed to be in the implementation phases, it is then convincing to say that the Water Resources Management Agency is not performing well in its functions as set out in the Water Act of 2004, and requires reconsideration of a number of issues, including the management

operations. Its structural functions and support of basin management committees needs to be critically looked into in order to significantly shed light on the loopholes that need to be addressed.

Table 2 Institutions with responsibility in water resources management, Namibia
(Heyns, 2005; NWRMR, 2000a)

Institutions with responsibility/ some influence in the water sector	**Water Allocation**	**Water Protection**	**Water Supply**
Ministry of Agriculture, Water and Forestry	X	X	X
Local Authorities	X	X	X
Water Point Committees		X	X
Non-Governmental Organisations		X	X
Private Sector		X	X
NamWater	X	X	X
Ministry of Environment and Tourism		X	X
Ministry of Regional and Local Government, Housing and Rural Development	X	X	
Ministry of Works, Transport and Communication		X	X
Ministry of Health and Social Services		X	X
Ministry of Lands, Resettlement and Rehabilitation		X	X

Sokile et al. (2003) has expressed that the current institutions need to restructure themselves so as to conform to the needs of inter-sectoral water management, and must be able to serve as mechanisms to resolve conflicts. It is also argued that existing institutional arrangements for water management are inappropriate, and a major constraint for the achievement of sustainable management (Wester and Warner, 2002). It is, however, necessary to question whether the reforms currently in process will lead

to significant improvements. This is a relevant aspect to consider. First and foremost, steps should be taken to address the specific functions and responsibilities of the various departments and institutions, before coordinating their activities in water resources management at a basin level. This would avoid confusion about and overlapping of responsibilities by the individual departments.

At the core of these reforms was the gradual devolution of ownership and management responsibilities to the level of users, which saw the water sector being the first to embrace decentralisation at policy level and in its day-to-day operations. The first policy statement in this regard came in 1993 in the form of the Water Supply and Sanitation Sector Policy, which recommended that 'the decentralisation objective should take precedence over the performance objective'; this was later replaced by the recently revised Water Supply and Sanitation Policy of 2008. Consequently, it argued that 'the equitable improvement of services should be the result of the combined efforts of the government and the beneficiaries, based on community involvement, participation and responsibility'. The MAWF in this regard is at the forefront and is the custodian of the water resources in Namibia, with other departments backing their initiatives in the sustainable management of the water resource in line with the IWRM approach.

Although it is deemed necessary to involve many departments in the management of the water resource (cross-sectoral approach) incorporating socio-economic development, it is argued that there should be clear mandates as to the exact functions to be carried out by each department in the three categories (allocation, protection, and supply). Acknowledging this, Van der Zaag (2005) expresses the concern that, unless roles are clearly defined, the fuzzy jurisdictions will leave many functions undone. In addition, the water sector should be overseen by a coherent institutional framework backed by an up-to-date legislative framework. This is imperative, as presented in the table, due to the overlaps that still lurk among these institutions. Here is where the gaps lie, and the MAWF has indicated that plans are underway to address the situation. Overall, the water supply and sanitation sector coordination, lack of an equitable tariff policy and a

water regulator, limited human resource capacity and limited cost recovery for water supply, remain a challenge (RoN, 2008). It should also be made clear that the design of institutional arrangements can only minimise the problems and not eliminate them completely.

CHAPTER FIVE: RESEARCH FINDINGS

5.1 Introduction

This chapter presents the findings and discussions of the data gathered on the established BMCs in Namibia, as well as a reflection on those that are yet to be established. The focus is on the following core issues:

- the nature and process of establishing the BMCs and stakeholder participation;
- characteristics of BMCs;
- operationalisation and impact on water resources management.

Acknowledging these factors, the study looks into the established BMCs, outlining the process of establishing the BMCs across the country, determining the characteristics of each, laying out the issues identified in the individual basins, and the operationalisation of the established BMCs. Finally, the study maps out reasons and contributing factors that might have led to BMCs not being established, or yet to be established in other water management basins.

5.2 Regime Established by the New Act

The new Water Resources Management Act 24 of 2004 makes provision for the establishment of BMCs to manage each river basin. A basin is recognised as one system, and therefore an action in one part of it can positively or negatively affect another part. Initially it was proposed to establish twenty-four basin management committees, but experts in the water sector advised on a reduction to the current eleven water management units. This, according to Bethune (2003), was done using agreed criteria that took into account both surface and groundwater sources, as well as present water transfer schemes. These criteria were (Amakali and Shixwameni, 2003): 1) biophysical conditions and characteristics; 2) demand for water; 3) source and availability of water; 4) the involvement of stakeholders; 5) future developments in the

area; 6) existing water infrastructure; 7) policy framework; 8) ecological units; 9) economic viability.

5.3 Establishment Process

For many years it was thought that the many problems encountered with the management of natural resources could be counteracted through scientific and technological solutions (Kruger, 2001). Today it is realised that these problems are linked to policy failures, coupled with the low capacity and lack of skills of communities to manage their resources. Neglect from municipalities and local authorities has contributed to the unequal allocation, shortages of the water, and water demand challenges that managements currently face. The Department of Water Affairs (2001) also added that a lack in 'resource' and 'capacity' requirements in a water management basin contributes immensely to the ineffective implementation and delay in the establishment of the water management organisations. This is evident in the form of human, financial, and structural resources and capacities. Therefore, Namibia took advantage of the financial assistance offered by various international donors (the German Technical Cooperation, Danish International Development Agency, and the Norwegian government), and went through intensive public participation processes as a run-up to the establishment of the new water management organisations.

The Namibia Water Resources Management Programme started in 1999 as a project of the now MAWF. The project was divided into two phases. The first phase was known as the Namibia Water Resources Management Review, and lasted from 1999 to 2001. The main emphasis during this phase was the development of a comprehensive policy framework for the Namibian water sector, as well as proposals for institutional reform geared towards equitable access to water by all Namibians. This phase of the project culminated in the adoption of the National Water Policy White Paper by the Namibian Cabinet in August 2000, as well as a Draft Water Resources Management Bill.

In the second phase, from January 2002 to June 2006, the Namibia Water Resources Management Review project supported the Government of Namibia in the implementation of policy and legal and management recommendations of the Namibia

Water Resources Management Review, as approved by government. The project goal was to strengthen the capacity of Namibians to manage their water resources in an optimal way, with special consideration for water-related resource protection.

The Basin Management Approach was adopted with the aim of managing activities related to water in a designated water management area. Consultative workshops and meetings with the stakeholders formed key components of the Basin Management Approach. This approach is described as "iterative, transparent to all, open to voluntary participation, information-rich, and based on a shared vision and understanding" (Desert Research Foundation of Namibia, 2005a). The process of establishing the BMCs followed three basic steps, as set out in the Basin Management Approach Guidebook:

- the start-up phase;
- the stakeholders' forum phase of development;
- the BMC phase of development.

The start-up phase involved identifying stakeholders and issues within the basin area, holding preliminary meetings, and disseminating information. The second phase is where a stakeholder forum is established. A shared information base is initiated, stakeholder capacity needs are identified, and plans to address them are made. In the third phase, the idea of basin management committees is introduced and discussed with the stakeholders, elaborating on the constitution and vision of the organisation. A committee is then established to implement the agreed-upon activities.

5.4 The Kuiseb River Basin

5.4.1 Description of the basin

The Kuiseb ephemeral river basin is located in west-central Namibia, and, like many of the westward flowing ephemeral rivers, is characterised by broad geographical diversity. This 'dry' river, as Manning and Seely (2005) put it, extends from the Khomas Hochland area west of the capital, Windhoek, and ends up at the coastal town

of Walvis Bay, where it occasionally meets the Atlantic Ocean. The Kuiseb River is approximately 503 kilometres (km) long and the basin covers a total area of approximately 21,768 square kilometres (kKm^2). Headwaters of the river lie at 2280m, with a mean rainfall of 335 mm/annum. Mean temperatures range between 14 °C and 16 °C at the coast, influenced by the cold Atlantic Ocean, to more than 22 °C further inland below the western escarpment (Mendelsohn et al. 2002). Mean evaporation ranges between approximately 1680–2380 mm/annum, increasing from the coast inland.

Surface flow in the Kuiseb, recorded at the Gobabeb centre in the middle reaches of the river, has varied from 0 to 102 days per year since 1962 (Jacobson et al. 1995); and only in years of exceptional rainfall, does the river reach the sea. As it is still the case today, this scenario is attributed to the fact that the water usually evaporates, seeps into the sandy bed of the river, or is caught in storage dams long before it gets to the lower reaches of the river (Manning and Seely, 2005). Based on the physical and socio-economic characteristics, the river basin is divided into the upper, middle, and lower Kuiseb.

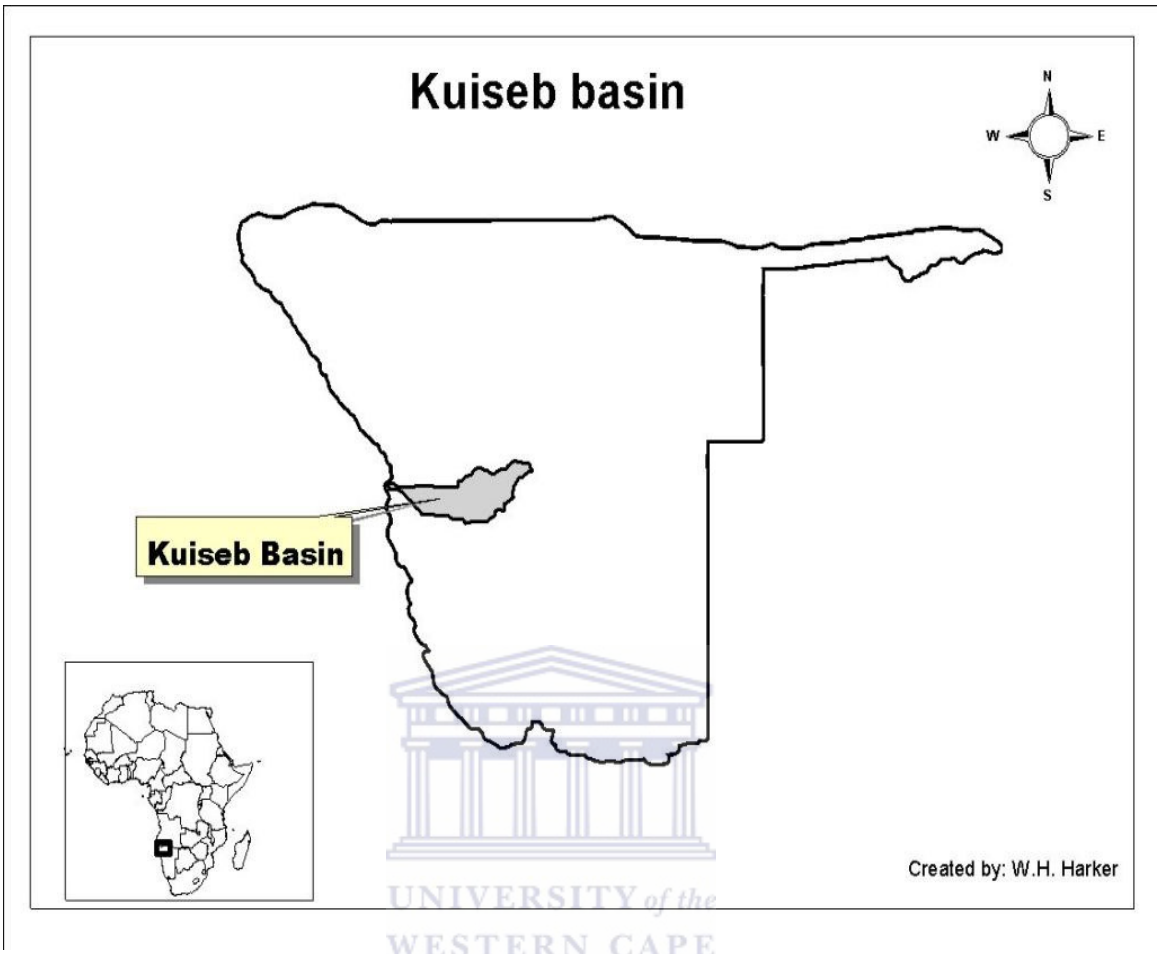

Figure 3. The Kuiseb River Basin

The upper section maintains a community of commercial farmers, with a flourishing tourism industry. Alongside the river channel, woodland riparian vegetation constitutes the middle section. This section receives very little rain (less than 200mm/a), and alluvial aquifers fed by the occasional flow of the river support the riparian vegetation. A community of the Topnaar small-scale farmers (approximately 300 in number) and the Gobabeb research and training centre also form part of the middle section (Botes et al., 2003). The lower section is characterised by substantial groundwater aquifers that supply about 90 % of the basin's population, located in Walvis Bay. Walvis Bay, in turn, assists other small towns and various mining (mainly uranium) and quarrying activities in the area with their water needs (Manning and Seely, 2005).

In addition, the water is consumed for domestic use (48%) and commercial and industrial purposes (52%).

5.4.2 Issues of the Kuiseb

There were issues of concern around management based on challenges faced by water users on a day-to-day basis. For this reason, the Environmental Learning and Action in the Kuiseb project provided information on river basin management, thereby building capacity among stakeholders to make wise water use decisions. Two main issues were identified within the basin. One is the perception by downstream water users that the upstream farmers are capturing all the water for themselves, leading to very limited resources downstream. The other is competition rather than cooperation among the water users in the area, both upstream and downstream. In fact, the real competition is between upstream commercial farmers and downstream communal farmers, and between the communal farmers and the municipality of Walvis Bay, due to uneven distribution of the resource. The upstream section falls within a high rainfall area of the basin, thus providing opportunities for use of surface waters along the ephemeral river course more frequently to upstream users as opposed to downstream sections.

Botes et al. (2003) confirms this by noting that only larger, less frequent floods reach the downstream watercourse of the Kuiseb River basin. Mining activities in the area are another concern. The activities pose a threat to the quality of the water, especially for communities in close proximity to the mines. The respondents (from the DRFN, the German Technical Cooperation, Directorate of Rural Water Supply) are of the opinion that, although water regulation and policy measures for resource protection and conservation with regard to mines are in place, their enforcement is yet to be seen. To some extent, this is seen as a contributing factor, which de-prioritises the smaller, 'economically' less powerful sectors and communities in the basin. Another issue is the lack of information or access thereto, due to inefficiencies in information dissemination plans, lost information, inaccurate data, and also inaccessible information.

5.4.3 Process to establish the KBMC

The initiative to establish a BMC stemmed from the stakeholders within the basin. The process started in October 2001 and concluded in April 2004. A total of seven meetings and two annual stakeholder forums took place at various locations across the basin over the three-year period. The DRFN, tasked by the MAWF, played a facilitating and coordinating role, and was responsible for mobilising the stakeholders and coordinating stakeholder workshops. This saw basin-wide information sharing platforms and outreach programmes carried out to ensure community participation. The meetings drew together more than 100 persons representing various organisations within and associated with the basin. The German Technical Cooperation, through the MAWF, funded and supported the process from inception to conclusion. The funding covered expenses for materials required for research, data collection, outreach programmes, development of information materials, venues for holding meetings, and remuneration for the facilitators. The various stakeholder organisations were expected to cover some of the costs, e.g., everybody had to meet their own transportation expenses to and from these meetings and workshops. A basin management stakeholder forum was the outcome of these meetings.

The stakeholder forum is a more 'refined' group of members representing broader stakeholders' groups in the basin, such as the mines, farmers' union, the Topnaar community, NamWater, Ministry of Environment and Tourism, the Gobabeb Research and Training Centre, the municipalities, the regional councils, and the departments of the MAWF. Individuals forming part of this forum were selected by the broader stakeholders and included the Topnaar community, Regional Councillors, members of Water Point Committees, as well as line Ministries. The positive attitude which the members showed toward the basin management approach is illustrated by the following, e.g., commitment by virtue of attendance at meetings, willingness to learn, voluntarism, and cooperation in working toward a common goal. The respondents noted that the enthusiasm and requests for information about the basin management approach reflected a sense of willingness to learn and interest amongst the stakeholders.

In the words of one key informant:

> "W*e are bombarded with queries from people wanting to know where they can obtain pamphlets, documents and other sources of information about this basin initiative*" (KI 8 , Directorate of Rural Water Supply, 20 July 2009).

High-ranking officials representing various departments showed keen interest in the basin management approach by being part of study visit groups to raise awareness about basin management and community based water management projects. This was another positive attitude noted.

A fourteen-member delegation undertook a study visit to Australia from 15 - 30 June, 2002. The representatives were from the Association of Local Authorities in Namibia, MAWF, DRFN, Cuvelai Basin, Electricity Board of Namibia, Namibia Communications Commission, NamWater, Namibia Water Resources Management Review, and Roads Authority. The visit was meant to look at and learn from water management agencies and stakeholder involvement processes in Australia. Australia was deemed appropriate because of the successes achieved in their basin management approaches, under conditions displaying somewhat similar climatic and geographic conditions to Namibia. This built confidence in moving into new directions of IWRM and institutional arrangements in water resources management. It further eliminated doubts of the BMA as a means of implementing IWRM principles in the new approaches.

An executive committee comprising members from what is called the core stakeholder organisations was elected to run the daily activities, which led to the formal establishment of the BMC. Core stakeholders are those that are required by law to participate, and they are farmers' unions, traditional authorities, regional councils, local authorities, MAWF (all directorates), Ministry of Environment and Tourism, Ministry of Lands and Resettlement, Ministry of Works, Transport and Communication, NamWater, Ministry of Health and Social Services, and Ministry of Women's Affairs.

The core organisations are identified and assigned tasks by the MAWF, Department of Water Affairs in particular. The members of the executive committee are elected by the stakeholders within the basin. The criteria to determine membership as stipulated in the KBMC constitution are:

- equitable local representation;
- recognised individuals with secundi;
- persons who are interested in and committed to water and water-related issues;
- gender balance;
- a component of knowledgeable people could be co-opted;
- diversity of sectors represented;
- core stakeholders;

Although stipulated as a criterion in the constitution, equality in gender representation (with only two females) did not seem achievable, as there is a lack of skilled persons in the related fields. Representatives were hence chosen based mainly on their expertise related to water management. The KBMC was formally established in October 2003 by the then Minister of MAWF, Honourable Mr Helmuth Angula. Once established, the BMC assumes responsibility for organising meetings for further discussions, guiding the agenda, and all the community activities in the basin.

5.4.4 Characteristics

The KBMC has a constitution to guide its functions, as well as a strategic plan to guide its operation. The functions are: promotion of community participation, preparation of a water resources plan for the basin, making recommendations regarding water licences and permits, promoting community self-reliance, and assisting in conflict resolution relating to water resources in its water management area. Other functions include cost recovery, maintenance and replacement of waterworks, monitoring and reporting on the effectiveness of policies and actions. Although the basin committee provides oversight (governance) on the latter functions, the members also monitor the coordination of activities performed by the implementing organisations.

Private service providers collect data (e.g. surface flow, flood assessment), and the BMC manages and shares the data with the stakeholders to properly manage the basin. The BMC also performs any such additional functions as the Minister may direct under Section 9 or assign under Section 10 of the WRMA of 2004. Reference here is made to those powers or functions that are conferred or imposed upon the Minister under the Act.

Currently, the KBMC includes twelve different organisations which form the core stakeholders of the BMC, namely: an environmental association represented by the Coastal Environmental Trust of Namibia, Commercial Farmers and Communal Farmers (within Khomas Hochland Farmer's Union), Namibia Water Corporation, Directorate of Engineering and Extension Services, Department of Water Affairs, Ministry of Environment and Tourism, Directorate of Rural Water Supply, the Erongo Regional Council, Khomas Regional Council, Walvis Bay Municipality, and the Gobabeb Research and Training Centre. The basin management approach intensely involves collecting and sharing information, creating great interest and awareness amongst the stakeholders. The information collected by the private service providers, as mentioned above, is aimed at better understanding the water dynamics in various parts of the basin to enable management planning[1]:

[1] The executive committee was led by Mr Andre Brummer (Chairperson) and Dr. Joh Henschel (vice Chairperson) in the period from inception 2003 to 2007. The two members are representatives of Walvis Bay municipality and Gobabeb Research and Training Centre respectively. From the year 2007 to date, Dr. Joh Henschel took over the reigns as Chairperson and Mr Uahorekua Usurua as the Vice-chairperson (Erongo Regional Council).

Table 3 Members of the KBMC executive committee

Organisation	Representative	Secundi
Coastal Environmental Trust of Namibia	Keith Wearn,	Susan Roux
Commercial Farmers	Mike Jacobs	Nick du Toit
Communal Farmers	Sebedeus Swaartbooi	Chief Kooitjie
Directorate of Engineering and Extension Services	Frank Wittneben	Joel Kooitjie
Gobabeb Research and Training Centre	Joh Henschel	Emily Mutota
Department of Water Affairs	Maria Amakali	Guido van Langehove
Erongo Regional Council /Directorate of Rural Water Supply	Usurua Uahorekua	
Namibia Water Corporation	Leopold Niipare	Erwin Shiluama
Walvis Bay Municipality	Andre Brummer	Andre Burger

[2]The funding to carry out the activities was supplied by the German Technical Cooperation, and small budgets provided by the MAWF. Respondents from the MAWF, DRFN and the IBMC specified that the MAWF does not have a budget for BMCs in their mandates; therefore the organisations were encouraged to solicit funding from alternative sources.

[2] The names of members representing the Khomas Regional Council and the Ministry of Environment and Tourism could not be obtained as they had not yet nominated a representative for their organisations at the time of data collection (July 2009)

5.4.5 Operationalisation

The KBMC was established before the Water Act was passed. The strides achieved thus far in the implementation of the strategic plan for the basin are attributed to the small-scale size and locality of the river basin. The main towns are situated close to one another, and therefore it is assumed that it is easier to get the stakeholders together more often. In addition, there are a few stakeholders, and consequently the degree of conflict experienced could be reduced at the meetings by collectively agreeing on measures to be taken (eg. monitoring of farm dams, recommendations on the issuance and cancellations of water licences and permits, and the 'polluter-pays' principle). The executive committee members, most of whom have full-time employment elsewhere, have various portfolios for which they are responsible. These compromise the operations of the BMC in the long run. This is particularly true in that the members' loyalty lies in their respective organisations as opposed to the BMCs, where they work on a voluntary basis. Some of the respondents attributed these foreseen challenges to the lack of incentives for the members attending the workshops or meetings.

Workshops and meetings also aided in disseminating information to the various stakeholders, resulting in a common vision for the basin. The various activities that have worked, such as developing an operational plan and terms of reference for the members, can be attributed to the fact that there are a small number of players within the basin, who are hence easier to work with. Some of these activities were community-based pilot projects implemented by the KBMC, particularly the members of the Gobabeb Research and Training Centre, and the DRFN, with European Union funding. The pilot projects mainly targeted the Topnaar community, introducing arid farming techniques and in-training for community tour guides.

Research and educational programmes organised by the Gobabeb centre involved the Training and Outreach Support Services programme and the Gobabeb Training and Research Internship Programme. The content covered in these programmes provided information on the natural environment, economic activities, development, and the relationship among the basin components. The training and outreach support services

programme conveyed knowledge on desert ecology and sensitivity, and used fieldwork to demonstrate scientific methods. The Gobabeb's training and research internship programme dealt with skills training in sustainable management of natural resources, copy-editing, research planning, English language skills, geographical information systems and statistics. With all the above-mentioned factors, advice and recommendation on environmental management, maintenance of water infrastructures, and protection thereof, are observed as activities of the KBMC.

5.5 The Cuvelai-Etosha River Basin

5.5.1 Description of the basin:

Located in the north central part of the country, the Cuvelai-Etosha River basin spans four (4) northern political regions of Namibia: Omusati, Ohangwena, Oshikoto and Oshana regions. Originating in the southern foothills of the Sierra Encoco in southern Angola, the endorheic Cuvelai River stretches about 430 km. in length. Towards the Namibian border, the land becomes flatter and the rivers and watercourses (*Iishana* in the vernacular) flow southwards. Crossing the border into Namibia these watercourses form a massive delta-like basin, converge, and then terminate in the ephemeral Etosha Pan (Kaoko, 2008). The basin's flat topography is 1100 meters above sea level, with semi-arid conditions. Variable rainfall patterns characterise the climatic conditions within the basin. The rainfall averages 300mm/a to about 500mm/a in the west and the east of the basin respectively, with an evaporation rate of 2750mm/a on average.

About half of Namibia's population resides in this northern part of the country, characterised by subsistence farming and rural environments, with most living in the poverty margin (a 0.686 score according to the global Human Development Index), described by the United Nations Development Programme (2009) as those living on under US$1.25 a day. The boundaries of the Cuvelai-Etosha basin are defined by the Angolan border in the north up to the Etosha Pan Rim, and part of the

Omuthiyagwiipundi constituency in the south. In the west and the east, various constituencies make up the perimeters.[3]

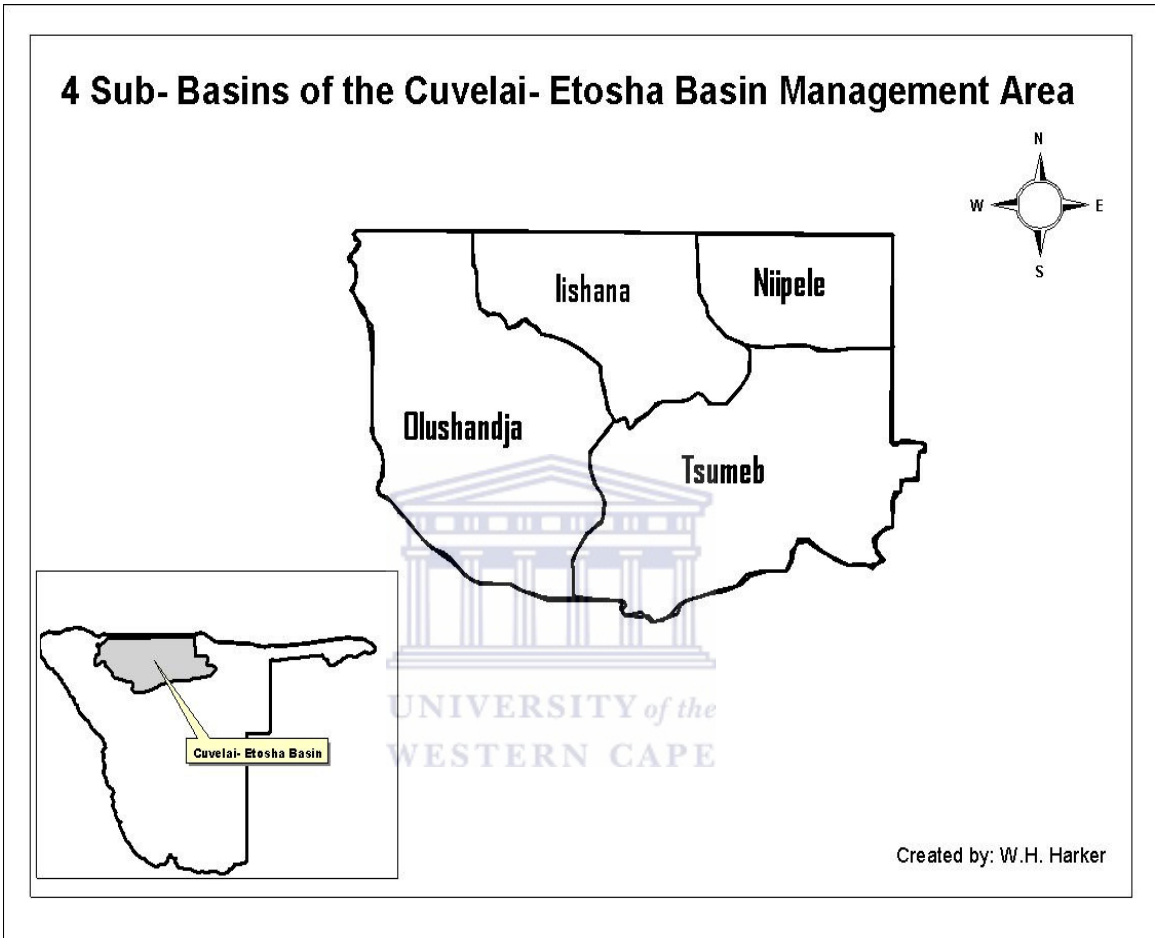

Figure 4. The Cuvelai-Etosha Basin Management Area

5.5.2 Issues of the Cuvelai-Etosha

Owing to its large (about 85,000 km^2) and complex nature, the Cuvelai basin was further divided into four sub-basins (Iishana, Olushandje, Niipele, Tsumeb) for better

[3] A constituency is referred to as any cohesive body of people bound by shared identity, goals, or loyalty. In the Namibian context, it can be described as the people or geographic area that a particular elected official represents.

management. The complexities entail many users of varying capacity, endemic water shortages, soils poor in minerals, and saline aquifers. The basin also spans four administrative regions. This subdivision was deemed necessary because of the many and diverse issues identified within a basin plagued by extreme resource degradation and stocking rates. Problems identified include dense populations (780,149 individuals, at an average of 10.6 persons per square kilometre) and rapid population growth with an annual rate of 2.6% (National Planning Commission, 2001). Other issues are inappropriate land use and agricultural practices, resource scarcity, and over abstraction of water.

Overgrazing due to livestock rearing methods that do not allow for full regeneration of the vegetation and deforestation for firewood and for use as construction materials, added to the burdens on the resource at hand. Sanitary issues such as pollution from sewage ponds, pit latrines, and agricultural run-off also came up as contributors to the problems posed in the management of the water resource within the basin (Kaoko, 2008). Poor planning and monitoring of the new settlements was noted by some informants because, during floods, most households are flooded. As a result, their latrines pose a health hazard. Given that the sub-basin borders Angola, there is a constant transfer of humans, animals (waterborne and livestock), water sources, and diseases. This is particularly a concern for Namibia, because unwanted products are transferred into the Iishana sub-basin surface and groundwater, where no proper monitoring systems are in place.

This phenomenon offers answers to the number of cholera outbreaks reported in the region where the basin is situated. A cholera pandemic affected Angola between February and May of 2006 with approximately 1200 fatalities recorded (Apps, 2007), worsened by the crowded slums and inadequate water and sanitation services. Apps (2007) and Sibeene (2008) reported that heavy rains in Angola made it difficult to control the outbreak, and it was seen to have spread to parts of Namibia.

By February 2007, 250 cases of cholera were reported in two northern regions (Kunene and Omusati) that were due to floodwater coming in from Angola (Sibeene, 2007; International Federation of Red Cross and Red Crescent Societies, 2007).

5.5.3 Process to establish the IBMC

The majority of the total population living in the river basin falls in the Iishana sub-basin where the major towns, Oshakati and Ondangwa, are located. The pressure exerted on the water resource due to population density prompted the piloting of the second BMC in the Iishana sub-basin. All the interviewed respondents agreed with the above-mentioned statement, and also added the deteriorating quality of the water in the region as another factor that worsened their plight. The IBMC, which forms part of the larger Cuvelai Basin, was established in 2005, a year after the Water Resource Management Act of 2004 was promulgated, with funding from the German Technical Cooperation and the European Union. The MAWF initiated the establishment of the BMC upon realising the extreme degradation of the resource in relation to the demand patterns of various users in the basin.

The MAWF, through its departments (Department of Water Affairs, Directorate of Rural Water Supply, and Directorate of Engineering and Extension Services), drove the process in the Iishana sub-basin, and much faster building ensued, based on the lessons learned from the experiences in the Kuiseb (Klintenberg et al, 2007; Schubert, 2008). The DRFN in this case took on an advisory role. The MAWF (Department of Water Affairs, resource management, and the Directorate of Rural Water Supply) identified the group of stakeholders in the basin before forming a more formal stakeholder forum. It was thought better and more efficient to work with a smaller number of individuals, who in turn will report back to the respective groups they represent. Upon identifying the problems in the basin, the Department of Water Affairs invited various experts from relevant fields to give presentations or lectures at the 'information exchange' workshops.

Eight stakeholder meetings were all held in the northern part of the country (Oshakati, Tsumeb, Ondangwa), except for one (10-11 March 2004) that was held in the capital,

Windhoek. The meetings were held in the period 2003 to 2005, organised by the Department of Water Affairs with a small budget allocated by the MAWF. Various participating institutions (NamWater; Oshakati, Tsumeb, and Walvis Bay municipalities, and independent consultants) funded their representatives to attend these meetings. According to one of the respondents from the Iishana sub-Basin Management Committee (IBMC) office, the operational BMC budget is approximately between N$200,000 and N$250,000 per annum. The stakeholders participated consultatively in the establishment processes, and among themselves selected members who will represent their groups on the basin management stakeholder forum.

5.5.4 Characteristics

The BMC, housed within the Cuvelai Basin office on the MAWF's premises in Oshakati, developed a constitution agreed on by all the stakeholders involved. The Cuvelai Basin Office is where matters concerning the basin in its entirety are facilitated. The vision of the IBMC is that the natural resources of the Iishana sub-basin be managed and utilised in an integrated and sustainable manner, with equitable access to and participation by all stakeholders by 2015.

The functions of the BMC set out in the IBMC constitution are:

- to protect, develop, conserve, manage and control water resources within its management area;
- to promote community participation in the protection, use, development, conservation, management and control of water resources in its water management area, through education and other appropriate activities;
- to prepare a water resource management plan, which must be submitted to the Minister for consideration when developing the Master Plan;
- to make recommendations regarding issuance or cancellations of licences and permits under the Water Resources Management Act of 2004;

- to promote community self-reliance, including the recovery of costs for the operation and maintenance of waterworks;
- to facilitate the establishment of an operational system and a maintenance system of waterworks and the accessing of technical support for water management institutions within its water management area;
- to monitor and report on the effectiveness of policies and actions in achieving sustainable management of water resources in its water management area;
- to collect, manage and share all data necessary to properly manage the basin in coordination with the Water Resource Management Agency;
- to develop a water research agenda, together with the Water Resource Management Agency, appropriate to the needs of water management institutions and water users within its water management area;
- to help resolve conflicts relating to water resources in its water management area;
- to perform any such additional functions as the Minister may direct under section 9 or assign under section 10 of the Water Act of 2004.

The stakeholders in the Iishana comprise traditional authorities, regional councillors, Namibia Water Corporation, commercial farmers, communal farmers, Ministry of Lands and Resettlement, Ministry of Regional and Local Government, Housing and Rural Development, Ministry of Environment and Tourism, Non-Governmental Organisations, and other line ministries as relevant. It is expected from the IBMC executives that a strategic plan be reviewed and executed in line with national policies and plans to enable achievement of the vision and functions of the IBMC. The plans are drawn up by the BMC. The Policy and Strategy Unit in the MAWF coordinates these plans, and develops a template for national water planning and policy development meant to create consistency in planning amongst BMCs.

The operations of the BMC are run by the executive committee members. These members work together to oversee the administration (organising venues for capacity building workshops and logistics, filing and retrieving documents) and operations (developing terms of references for consultancy, identifying training needs, designing, launching and managing the IBMC website, updating the BMC resource database, stream flow gauging, flood assessment and information dissemination during flood events) of the BMC. The implication is that the work is in actual fact done within the member organisations, with facilitation from the executive member representative. Membership of the executive committee is restricted to core stakeholder organisations, although these may change based on institutional or organisational developments in the Iishana sub-basin. The interviewees (from MAWF) noted that it is imperative that representatives from government departments and local authorities elected should have expertise in the field of water and other natural resources management. The executive committee portfolios, the institutions of the individuals that represent them and their responsibilities are described in the table below.

Table 4 Executive committee portfolios, representative organisations and responsibilities (IBMC, 2005)

Chairperson	Directorate of Rural Water Supply (Oshana region)	Chairing meetings, press statements, and with the assistance of the secretariat and other stakeholders, liaise with the MAWF.
Vice-Chairperson	Directorate of Rural Water Supply (Ohangwena region)	He/she assumes the role of the Chairperson in the Chairperson's absence.
Treasurer	Directorate of Rural Water Supply (Oshana region)	Overall financial management (bank account of the IBMC, investments of funds, signing powers with two other co-signers, annual financial statement).
Planning Officer	NamWater	Planning, monitoring and evaluation of activities; and from this preparing an annual report.
Training and Capacity building Officer	Ministry of Fisheries and Marine Resources	Awareness raising campaigns, training and capacity building of the communities.
Data and Information Management Officer	Ministry of Lands and Resettlement	Collecting and sharing information within the Iishana sub-basin.
Awareness and Mobilization Officer	Ohangwena Regional Council	Awareness-raising and mobilisation of stakeholders.
Secretariat	IBMC office	Provides required administrative support to the IBMC (agenda and minute taking duties). Keep a register of the members of the IBMC and of the broader Cuvelai basin forum. Remuneration by the MAWF.

A secretary from the Directorate of Engineering and Extension Services in the MAWF has recently joined the IBMC team. The responsibilities of the secretary are administrative, such as compiling minutes of meetings and facilitating ongoing networks with the IBMC, stakeholders and the government. Progress is assessed and evaluated through quarterly reports. In the Iishana sub-basin, however, donor funding

from the German Technical Cooperation has been the backbone of the IBMC, but soon the BMC will need to find its own source of income. When questioned, respondents from the Cuvelai Basin office, DRFN, the Directorate of Rural Water Supply and the IBMC suggested that the funding will cease by the end of 2009. At the time of writing this thesis, there is little information on the latest developments of how the activities are to be financed. The current position is that representatives attending the forum meetings are not remunerated, although this may be considered for travel and accommodation costs for those from distant areas of the basin or beyond. Monies received from sponsorships or donations are paid into the IBMC bank account, from which the general administration costs of the meetings may be financed.

5.5.5 Operationalisation

The IBMC executive committees seem to have fulfilled their roles in the designated portfolios, especially in chairing meetings, financial management (budgeting for operational costs, purchases of equipment, signatory power to the bank account), and administrative issues. Updating the stakeholder information database, clarifying roles, identifying alternative donors by writing proposals for assistance, developing Terms of Reference for consultancies, developing strategic plans, building relationships with similar organisations, are among the activities carried out by the executive committees of the BMC. The IBMC, in collaboration with the Directorate of Rural Water Supply, conducts training and capacity-building workshops intended for the community members and stakeholder organisations involved. There is, however, room for improvement in the training and capacity building aspects. Extension officers from the directorate help the BMC in the training of rural communities in better water management practices to sustain the available water.

Courses covered involve and highlight resource protection and water-demand management, among other topics. Water allocation and equitable access to the resource is primarily a function of the Directorate of Rural Water Supply, but the BMC can make recommendations based on the issues identified within the basin. The above activities are done in cooperation with the MAWF and its directorates, and other existing water

organisations in the management area (e.g. water point committees), to ensure sustainability well into the future. The water point committees manage water points that cater for smaller, rural community units within the broader basin. This entails management and maintenance of the water point and the right to levy stakeholders for the service delivery.

5.6 The Omaruru-Swakop River Basin

5.6.1 Description of the Basin

The Omaruru-Swakop River basin is situated in the central western part of the country. Within the basin one finds to the east mainly commercial agriculture, in the middle communal areas, and to the west, desert. The Omaruru River, like most of Namibia's rivers, is ephemeral. The Omaruru River catchment comprises the economically most important water supply schemes in western Namibia. The coastal towns (Henties Bay and Swakopmund) and mines are supplied from water resources developed within the catchment. The town of Omaruru draws its water supply from boreholes in the Omaruru River. Karibib is linked by pipeline to the Swakopoort dam and draws water from this source**,** whilst Usakos relies on groundwater obtained from boreholes from the Khan River. Consumption by uranium mines, towns and farms along the ephemeral river's 350km stretch exerts pressure on the river as well as on the aquifers it replenishes. A description of the main socio-economic and water features, rainfall and river flow, current water utilisation of the Omaruru Basin, were presented at a workshop held during the initial phases of BMC discussions.

It was revealed that 8 million cubic meters (Mm^3) of water a year is captured from the Omaruru River Delta (Omdel) scheme, of which 4.5 Mm^3 is used by the towns (Henties Bay, Swakopmund and Arandis) and the rest (3.5 Mm^3) is used by the mines (Rössing and Langer Heindrich). Of a further 5 Mm^3 of water seized for the rest of the Basin, 2Mm^3 goes to towns (Omaruru, Uis and Okombahe), 1.5 Mm^3 to irrigation, less than 1 Mm^3 to farm dams, and the same amount for livestock and tourism. Very little is used

for rural domestic supplies (Omaruru Basin, 2007). Twelve (12) new mines are scheduled for establishment within the basin in the next couple of years. The area is well known for its uranium deposits and this makes it challenging to contest the sector that contributes greatly to the socio-economic development of the country.

Since aquifers are the main source of water in the basin, it is not known where the proposed mines will find alternative sources of water when current sources become insufficient

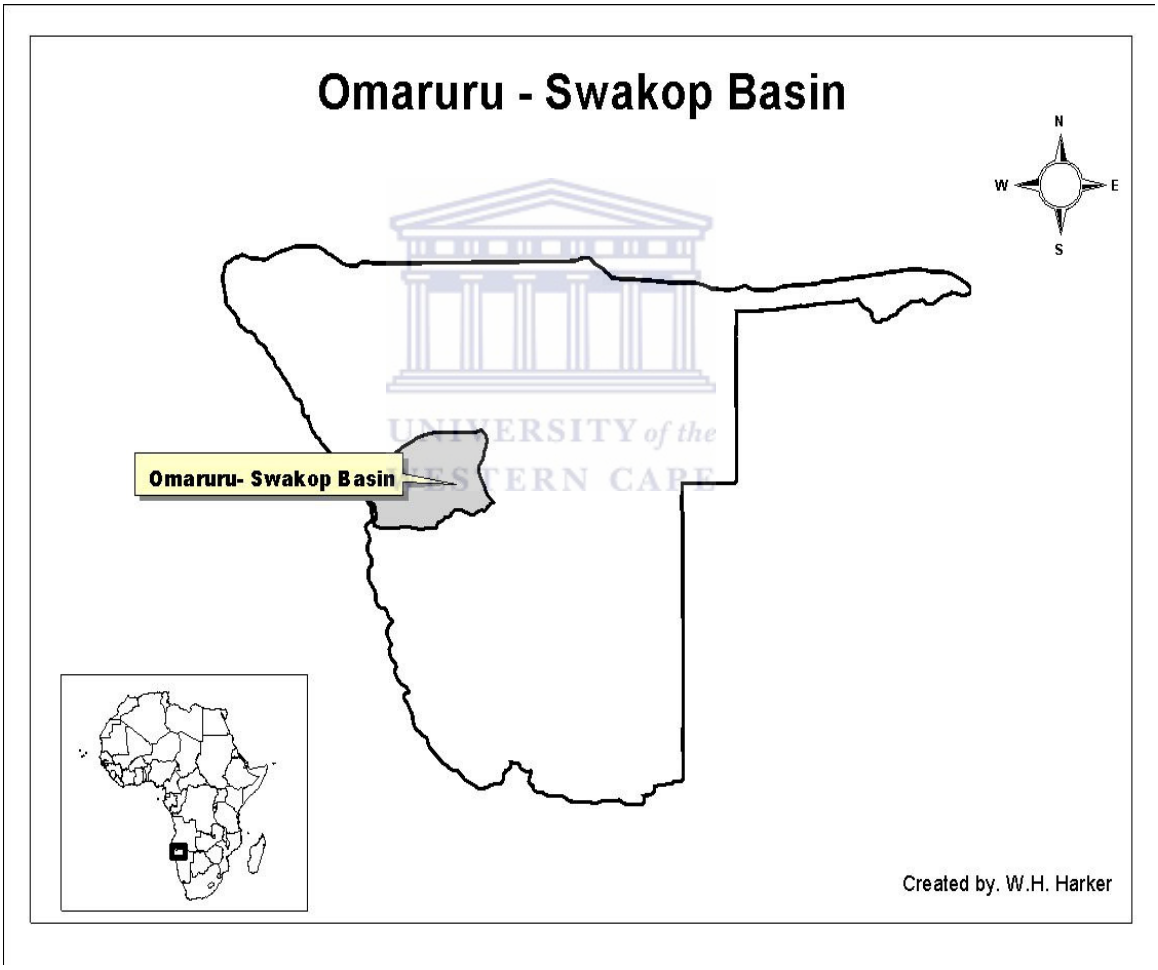

Figure 5. The Omaruru-Swakop River Basin

5.6.2 Issues of the Omaruru-Swakop

The main issue identified is the poor provision of water to marginalised individuals or groups. These individuals often do not attend the meetings at the regional council. To some extent, this might be attributed to the fact that the seat of the Regional Council, Swakopmund, is too far (for example approx. 230km from Omaruru, and 160 from Okombahe) to be accessed easily and regularly by most local individuals. The councillors who are expected to represent their interests at the Regional Council meetings have been accused by the community members of lacking in their responsibilities.

The reason for the establishment of a BMC was to help address the unequal access to the water in the area by applying integrated management approaches. Water demand by the mines and horticultural projects in Omaruru was and still remains the biggest threat to the availability of water, using more than $3.5mm^3$ of the $8mm^3$ from the Omdel scheme per annum. Not withstanding the importance of economic activities, inadequate monitoring and management thereof, (e.g. abstraction) becomes a challenge. A respondent of the GTZ, based in the MAWF, hinted that reports from the geohydrology department showed a great decrease in groundwater levels in the Omaruru-Swakop basin. This also contributed directly to the decreasing water quality.

> "*…surely nothing much is being done. The way these mines are popping up gives an indication that monitoring strategies are lacking, and if not given attention we are heading for disaster"* (KI 5, 6, 8 and 9), the OkBMC, Directorate of Rural Water Supply and the Cuvelai Basin office respectively, responded when asked what is being done to ensure enforcement of policies and compliance.

Communities at Uis and other scattered localities are involved in vegetable gardening projects for their livelihoods, and in livestock (sheep) rearing in the basin. Little recharge in the Omdel dam has been reported by the MAWF. This becomes an extreme challenge, given Namibia's aridity and highly variable rainfall conditions. Regular data analysis of water monitoring systems was lacking. Many surface dams exist along the

watercourse, decreasing the resource quantity and, ultimately, water quality. These suggest non-compliance with permit conditions in the area. Factors that contribute to conflict are the demand by mines for their activities, regardless of the proportion of water available within the basin. The Traditional authorities' view is that, as a pre-requisite to their ancestral land, they have the right to sufficient water for their livelihoods and livestock. These interests, as in other instances, are vested interests rather than interests that could be considered of mutual benefit (Omaruru Basin, 2007). Lack of information on water and water-related aspects of the basin was also highlighted as one of the many problems within the basin.

5.6.3 Process to establish the OmBMC

The Omaruru Basin initiative was funded by the Danish Development Agency through the South African Development Community Water Sector Programme after approval of a proposal from the Department of Water Affairs. The Namibia Nature Foundation was the implementing agent through a tendering process. Prior to the commencement of activities by the Namibia Nature Foundation, the Hydrology Division of the Department of Water Affairs held four Stakeholders Forum workshops, with a wide variety of stakeholders, in Omaruru River Basin to assess the interest in establishing the OmBMC. As a result of these workshops, Don Murorua from the Namibia Nature Foundation, project manager Shirley Bethune, and Aune Amwaama from the MAWF/German Technical Cooperation set about the task of assisting the Omaruru Basin stakeholders to form a BMC. The project team's task was to establish the committee, build stakeholder capacity to allow for effective management of the river basin, and implement two community-based IWRM projects (Namibia Nature Foundation, 2009). The IWRM projects were the Hakahana Women pilot project and the Eseb *Prosopis* pilot project, aimed at improving the livelihoods of participating communities.

The first and second of the four workshops took place in Omaruru (5 December 2006 and 4-5 July 2007 respectively), and primarily served to introduce the basin management and IWRM concepts. The content of the workshop was: an overview of the Water Resources Management Act, sharing of information between different

stakeholders, and also provision of information on the geography of Omaruru Lower-Swakop Basin. The third and fourth workshops, held on 6 September and 4 December 2007 respectively, confirmed the following: the stakeholders' commitment to the basin approach, agreement on criteria to guide the selection of pilot projects, and discussion of project indicators and cooperation for a socio-ecological survey. By June, 2008, the stakeholders had selected 14 organisations to serve on the executive committee, representative of local authorities, regional authorities, conservancies, the business community, mines, farmers, ministries, and Namibia Water Corporation. [4] A final stakeholder forum meeting was held in October of 2008, where the OmBMC was established with the Hon. Evaristo Shangombe, Regional Councillor for the Erongo Regional Council, as chairman. The office of the OmBMC is in Karibib, much to the dismay of most stakeholders. The frustrations stem from the fact that Karibib is over 60km away, which makes it not easily accessible to most stakeholders in the community of Omaruru.

5.6.4 Characteristics

The goal and vision of the Omaruru BMC is summed up as:

> *"the efficient and equitable access to water, ecologically sustainable use of the water and riparian resources, and sustainable, integrated use of related resources in the Omaruru Basin, to ensure wise management of the basin resources, to protect its biodiversity, vital ecological functions and life support systems for the current and future benefit of the people living in and dependent on the resources of the basin*" (Omaruru Basin, http://www.omaruru.na/html/ombmc.html).

The powers and functions of the OmBMC, as set out in their constitution, bear similarities to the blueprint of BMCs in other basins. These are to:

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[4] The other stakeholders were the Namibia Chamber of Commerce and Industry, Coastal Bulk Water Users Forum, Omaruru Town Council, Regional Conservancy Association, and the Chamber of Mines.

- protect, develop, conserve, manage and control water resources and water resource quality within its water management area;
- promote community participation in the protection, use, development, conservation, management and control of water resources in its water management area through education and other appropriate activities;
- pupervise the preparation of an integrated water resource management plan for the basin, which plan shall be submitted to the Minister for consideration when developing the national Integrated Water Resource Management Plan;
- make recommendations to the Minister regarding the issuance of licenses and permits under the Water Resources Management Act;
- promote the recovery of costs for operation and maintenance of waterworks;
- monitor and report on the effectiveness of policies and actions in achieving sustainable management of water resources and resource quality in its water management area;

- collect, manage and share such data as are necessary to properly manage the basin in coordination with the Ministry;
- develop a water research agenda, together with the Ministry, appropriate to the needs of water management institutions and water users within its water management area;
- help resolve conflicts relating to water resources and water resource quality in its water management area;
- determine an abstraction charge, based on the approved abstraction licence volumes in accordance with the approved policy, in concurrence with the Minister for data collection, resource monitoring and other approved purposes;

- investigate applications for licences to abstract and use water within the water management area, as forwarded by the Minister in accordance with the WRMA 24 of 2004, and after due consideration make recommendations to the Minister;

- perform any such additional functions as the Minister may direct or assign under the Water Resources Management Act.

According to the Omaruru Basin Project Report (Omaruru Basin, 2007), Danish International Development Agency funded the establishment of the OmBMC to the amount of US$150,000. The broader stakeholders of the Omaruru Basin are:

- Constituency offices: Omaruru, Okombahe/Duares;
- Directorates: Rural Water Supply (Karibib);
- Farmers: Okombahe, Omaruru Commercial and Irrigation;
- Mines: Rössing Uranium, Langer Heinrich;
- Municipalities: Omaruru, Usakos, Hentiesbay, Swakopmund;
- Regional Councils: Erongo;
- Town Councils: Uis Village;
- Traditional Authorities: Okombahe;
- Other: Namibia Chamber of Commerce and Industry, Coastal Bulk Water Users Forum, Namibia Water Corporation Office (Swakopmund).

The OmBMC executive committee consists of four (4) volunteers, and is led by the regional councillor of Omaruru from the constituency office. [5]Cooperation among the members is said to be good and efficient. Delays in appointing staff for the OmBMC were attributed to budgetary constraints of the MAWF. This was an obstacle in the smooth process of BMC activities. At one point, all four OmBMC executive committee

[5] These members are Councillor Evaristo Shangombe of the Erongo Regional Council as Chairperson; Sandra Muller of the Coastal Bulk Water Users Forum as Deputy Chairperson; Haynes McFadden from the Namibia Chamber of Commerce and Industry as Secretary; and Hanne Marrot Alpers from the Namibian Chamber of Commerce and Industry as Treasurer.

members threatened to resign due to the workload and a lack of staff. Of late, the MAWF has appointed a basin coordinator for the OmBMC. The official is based at the MAWF offices in Omaruru to support the basin committee in achieving its objectives. One would have expected the basin coordinator to be based in Karibib, since that is where the OmBMC offices are situated. The basin coordinator will thus have to rely on third-party means of communication with the basin office, or commute frequently thereto. This, too, may cause tension between stakeholders in the two towns.

The term of office for members of the executive committee is three years, and they cannot serve more than two (2) consecutive terms. Funding from the donors was due to end in November 2009. Provisions to fund BMC activities by the MAWF have not yet been made, hence the BMC will have to look into other means to finance their activities.

5.6.5 Operationalisation

Very recently established, the OmBMC is still finding its feet in the management of water resources. Upstream of the basin, irrigation farming and the Omaruru municipality are operating on about the maximum capacity of the aquifer, and this might lead to serious problems in the long term, especially with irregular rainfall patterns common to the area. Balancing the water needs of the various users and caring for the long-term health of the water resources is dependant on the activities of the basin. The operational process is still in the initial stages and may require certain changes in the way things are done. The OmBMC executive committee, with the aid of all concerned stakeholders within the basin, stands firm by its decision to halt the development of new mines in the basin, due to the overexploitation of the already scarce water resource. Their aim is to redress the unequal access of the resource and ensure sustainable use thereof. The mining sector will, however, fight this claim and, states its economic importance as a priority in the country.

Responsibilities of the committee members involve capacity building, developing action plans for sustainability, and training and engaging communities through implementation of pilot projects. The projects are, 1) Hakahana Women's Gardening project, where the

BMC was involved in financially assisting the replacement of the diesel pump with a solar pump, and improvement of garden infrastructure; 2) Eseb *Prosopis* Harvesting project, which involves harvesting of the alien *Prosopis glandulosa* bush for charcoal (Omaruru Basin, 2007). The two pilot projects[6] are being implemented by a women's group in Omaruru Town's peri-urban settlement and a youth group in Okombahe respectively. The former received training in agricultural practices from an expert official of the Department of Agriculture in the MAWF. One of the training sessions was on organic gardening, which equipped women of the community with gardening skills to sustain their livelihoods.

Some activities proposed for the OmBMC are water demand management for the basin and resource protection by developing monitoring mechanisms for floods and groundwater quality. These will be carried out in close cooperation with the basin stakeholder organisations and, where necessary, consultancy expertise will be called upon. The MAWF will continuously support the BMC with its technical staff. The budget, referred to earlier in section 5.6.4 (US$150000), will be used in implementing these activities, with some funding from the MAWF to address salaries of the secretariat, the portfolio holders representing the ministry directorates, and other administrative expenses.

5.7 The Okavango-Omatako River Basin

5.7.1 Description of the basin

The Okavango river basin is unique in that it is the largest endorheic river system in southern Africa, and does not discharge into the sea but rather into the Kalahari Desert. The Okavango-Omakato River Basin of Namibia forms part of the Okavango River basin, and its primary sources of water are the Okavango and the Omatako Rivers. The

[6] Both projects aim to contribute towards sustainable basin management, institutional development, poverty reduction and income generation for the local communities.

Okavango river basin extends across three countries, Angola (58% of the population), Botswana (15% of the population), and Namibia (27% of the population), covering approximately 700,000 $km^{2,}$ and is home to approximately 600,000 people (Lotfy, 2008). The Okavango River Basin comprises both perennial and ephemeral sub-catchments. The Okavango River rises in the highlands of Angola and flows over 1609 km, passing through Namibia before forming the Okavango Delta, a Ramsar site, in Botswana. The Okavango Delta swamp covers an area of about 15,850 km^2 (Pinheiro et al., 2003). The Omatako River catchment in Namibia is topographically linked to the perennial Okavango River, but due to the low mean annual rainfall of less than 400 mm in the headwaters, the river is ephemeral.

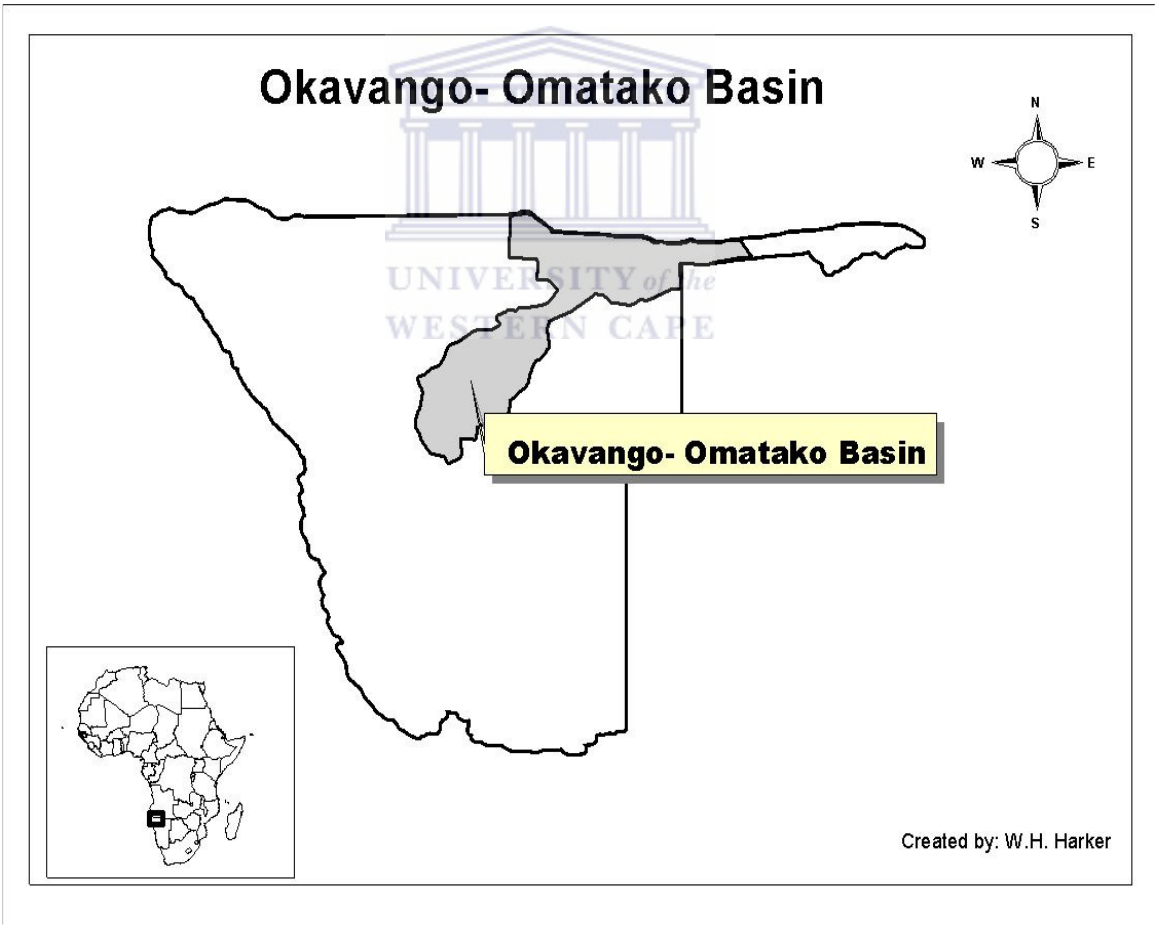

Figure 6. The Okavango-Omatako River Basin

The mean annual rainfall in the headwaters of the Okavango in Angola is 1,200mm, but decreases further southwards to precipitation between 300mm and 600 mm in Botswana and Namibia respectively. The Okavango yields on average 9,863 million m^3 of water per annum at Mohembo on the border between Botswana and Namibia just upstream of the Okavango Delta. Due to the topography of the catchment in Angola, there is good potential for hydropower generation and the soil is suitable for irrigation, especially on the plains along the river where it forms the border with Namibia (Bethune, 2006). A number of ephemeral watercourses flow eastwards from Namibian territory across the border into Botswana in the direction of the Okavango Delta, but these watercourse systems all disperse in the Kalahari Desert before reaching the delta (Pinheiro et al., 2003; Ashton and Neal, 2003).

Table 5 Watercourse states, Surface Area (km^2) and Rainfall contribution at Mohembo (km^3) (Pinheiro et al., 2003)

Watercourse state	Area (km^2)	Percentage of total area	Runoff contribution at Mohembo (km^3/a)
Angola	200,000	28	10
Botswana	340,000	46	0
Namibia	165,000	23	0
Zimbabwe	20,000	3	0
Total	725,000	100	10

Farming is the largest economic activity in the Okavango-Omatako River Basin, comprising small-scale farmers who are a dominant and very important group in the basin. With very fertile soil, the basin's agriculture includes crops such as maize, cassava, millet, and sorghum.

5.7.2 Issues of the Okavango-Omatako

The Okavango River Basin remains one of the least human-impacted basins on the African continent (Mbaiwa, 2004; Gorbadov, 2006; and the International Waters Learning Exchange and Resource Network, 2009). However, pressures of socio-economic demand on the basin by the riparian countries threaten to alter the characteristics of the overall basin. On one hand, the Namibian government is

considering extracting water from the Okavango River upstream of the Delta to supply the growing population in Windhoek and farming needs in northern Namibia. In addition, the government is looking into the feasibility of constructing a hydropower dam at Popa Falls, less than 50 kilometres upstream from Botswana. On the other hand, Botswana has a dire need to increase its outtake from the water system, for agricultural activities and subsistence use, but its tourism sector takes precedence. Tourism is a major source of revenue for Botswana, and the country will want to preserve the aesthetic value of the Okavango Delta despite the country's water needs. Long term projections reveal that irreversible environmental breakdown and loss of domestic and global benefits will result should the environment not be preserved and the resource be depleted. The nutrient load from agricultural runoff would be altered, thereby impacting the aquatic ecosystem functioning in the Delta.

Other examples provided by Gorbadov (2006) include threats to the relatively pristine and unique aquatic ecosystem by potential importation of alien biota and pathogenic organisms. The basin offers good conditions upstream for the development of agricultural projects (54,000 hectares for irrigated developments), with great potential for hydropower generation (350 Megawatts) in the Angolan portion of the Okavango catchment. If and when this is realised, it may have severe consequences on water availability for Namibian abstraction in the future, or for hydropower generation in the Okavango Catchment (Pinheiro et al., 2003; Mbaiwa, 2004). This is because the upstream riparian contributes the majority of the stream flow.

The lack of information in some areas of the Okavango Basin was mentioned as a major concern. Respondents working in collaboration with the OkBMC backed this up by saying:

> *"…as the BMC is still in its 'new' stages, no data is readily available about the BMC per se or little for the Namibian side of the greater catchment, but the guidelines on what is taking place is pretty much supplied by the BMA guidebook and OKACOM for the time being"* (KI 5 and KI 6, MAWF, 23 July 2009)

This is backed by Ashton and Neal (2003) and Gorbadov' (2006) views that the socio-economic data for the whole basin is generally poor. It is more evident for the upper catchment because the Angolan civil war prevented baseline data from being collected. In sum, the main challenge was getting a clear understanding of the basin conditions.

5.7.3 Process of establishing the OkBMC:

The establishment of the OkBMC was initiated by the MAWF in February 2008, and was realised in March 2009 after a year of hard work by the MAWF. The Namibia Nature Foundation was contracted by the MAWF to do the groundwork and gather the necessary documentation to facilitate the establishment of a BMC for the Okavango-Omatako River Basin. The processes involved in establishing the OkBMC, as with the OmBMC, were much faster and efficient, compared to the other previously established BMCs (the KBMC and the IBMC). A common vision was developed by the communities and relevant stakeholders, and the roles and responsibilities of the stakeholders on how they can contribute towards the long-term sustainable management of the river basin was agreed upon (Lotfy, 2008).

The Basin Management Approach guidebook was used to guide the process and existing mobilisation of stakeholders and information dissemination in the initial stages. Experience had also been laid by the existing structures operating within the basin. The project, "Every River Has Its People", which was already running in the basin, developed a basis of knowledge and information- sharing between water resource managers, government departments, local communities and traditional leaders, culminating in a Basin-wide Forum. Thus, the processes of mobilising stakeholders and disseminating information made the establishment of the BMC smooth and much faster than the other three basins.

5.7.4 Characteristics:

The exact characteristics of the OkBMC have not yet been clarified. However, a basin coordinator has been appointed by the Ministry and will be based in Rundu, a town in the Okavango region of Namibia. A constitution has not yet been developed for the

OkBMC. As for the functions, the stipulations within the Water Act of 2004 preside. Amongst others, they are to:

- protect, develop, conserve, manage and control water resources within its management area;
- promote community participation in the protection, use, development, conservation, management and control of water resources in its water management area, through education and other appropriate activities;
- monitor and report on the effectiveness of policies and actions in achieving sustainable management of water resources in its water management area;
- help resolve conflicts relating to water resources in its water management area;
- perform any such additional functions as the Minister may direct under section 9 or assign under section 10 of the WRMA of 2004.

The activities that have taken place with regard to water management are described under the existing projects and joint treaties that have been operational in the basin. Two such agreements are:

- the Joint Permanent Technical Commission. Established in November 1990 by the Republic of Botswana and the Republic of Namibia, to deal with the water resource of common interest;
- the Okavango River Basin Water Commission. Established on the 15th of September, 1994, in Windhoek, Namibia.

The Okavango River Basin Water Commission actually mobilised much international support by having taken positive steps to manage the affairs in the Okavango basin in an amicable way. The commission has had eight meetings since 1995, and today seeks financial support to develop capacity and to implement projects to avoid conflicts among the parties. The OkBMC will work closely with the Okavango River Basin Water Commission, but will incorporate their own strategies into the developmental,

operational and financial plans. Stakeholder member organisations in the OkBMC are: the Okavango River Basin Water Commission, MAWF, Ministry of Environment and Tourism, Chamber of Mines, Namibia Water Corporation, Namibia Nature Foundation, European Union, Farmers' Association, and the Regional Council. At the time of data collection for this study, an executive committee had not been elected.

5.7.5 Operationalisation

Thus far, since the establishment of the OkBMC, their operational activities have been from a perspective of integration with the already existing structures within the river basin, e.g., Okavango River Basin Water Commission. Resource protection, water demand management, and water allocation are crucial issues, especially when transboundary aspects are considered. With each member state having an interest in the water resource for socio-economic developments in their countries, it was clear that a more coordinated approach to the management of the water on the whole had to be addressed (Ashton and Neal,2003; Pinheiro et al, 2003). The Global Environmental Facility provided funding to carry out pilot projects through the Okavango River Basin Water Commission, looking at the biophysical, social and economic aspects of the basin.

This created an environment where the established OkBMC would not have to struggle with gathering a lot of information in order to prioritise and address problems that arise within the basin. Plans have been made on how best to utilise the water and the unique environment that the basin provides (Pinheiro et al., 2003), and to develop the necessary skilled human capacity required to tackle the new approaches at a basin level. As an integral part of the process, rural populations, who were mobilised by means of outreach programmes and workshops, are encouraged to participate in community project activities. The activities that have taken place so far are already building confidence, mutual understanding and trust between the parties, through the exchange of information, joint planning and the development of a shared vision for the future. Being only recently established, the functions as described in the WRMA (RoN, 2004) have not as yet been fully implemented.

The role that the BMCs play in the small community-based agricultural projects cannot be clearly distinguished; hence it is conclusive to say the operational status of the OkBMC is still being determined.

5.8 River Basin Organisations yet to be Established

To assist new and emerging BMCs the DRFN, in collaboration with German Technical Cooperation, produced a useful guidebook to explain a practical and tested *Basin Management Approach*. This booklet sets out the background to river basin management, the legal obligations and simple steps to raise interest, and the setting up of a basin stakeholder forum and eventually a BMC. This section gives a brief overview of the status of BMCs that did not fall under the scope of this study. The existing basins that have been the topic of the discussion follow the guidebook, yet these basins seem not to.

The Fish River Basin, in particular, has no committee established as yet, although a project, nearing its completion, is being carried out to investigate the feasibility of establishing a BMC within this basin. According to one of the respondents, the Norwegian government funded the five year-long project, coming to conclusion at the end of the year 2009, when a BMC framework was developed. The fact that the Fish River Basin spans two political regions of the country, further amplified the challenges faced by water managers and officials. This is due to the lack of cooperation between the two administrative authorities, with each pursuing what they perceive to be the best approach to managing the resource within the basin. With respect to water, one of the biggest issues is that of water quality. Much of the water supplied to communities and small towns in the Fish River Basin is from groundwater sources.

Other water concerns raised include pollution of surface waters with agricultural chemicals from irrigation farmers through return flows, specifically from the Hardap Scheme, but also from other irrigation schemes in the basin. In the greater Cuvelai basin, BMCs are yet to be established in the Olushandja, Tsumeb, and Niipele sub-

basins respectively, where extensive work and feasibility studies are currently underway. These studies are aided by funding from the European Union.

The Ugab River Basin is an important source of water for many rural and urban populations such as the town of Khorixas, villages in the basin, communal farmers, commercial farmers, and schools in the vicinity. The basin is also an important habitat and corridor for wildlife and plant species, and comprises unique ecosystems (wetlands) in an arid environment. Against this background, the stakeholders initiated and proposed the establishment of a BMC, due to increasing water demands and poor communication between resource users, which posed challenges to water management within the basin. Activities such as identifying different users, assessing the status of the resources in the basin, developing conservation measures, and raising awareness about wetlands have been undertaken. However, a BMC is yet to be formally established.

The main aim of the MAWF is to have a BMC established for all the river basins in the near future. The operations of the basin management committees in general are to administer the developments by the leading agency, review any development plans or other foreseen actions by responsible authorities having significant impact on the water resource in the basin, serve as a discussion platform on developments within the basin, and ensure that a consensus is achieved.

5.9 Summary

Low rainfall and high evaporation rates, typical of most of Namibia, indicate that surface water supplies are irregular and unreliable. This is characteristic of the relatively dry basins displayed in the case studies presented in chapter five. The Kuiseb River basin piloted the establishment of the first BMC in Namibia which was realised in October 2003, followed by the Cuvelai-Etosha River basin in October 2005. The third BMC was established in the Omaruru-Swakop River basin in November 2008, and then, in March of 2009, the Okavango BMC was established. On average the basin management committees took two years to establish, with the longest process (three years) being in the Kuiseb, and the shortest (just over a year) in the Okavango basin.

Seemingly, the DRFN played an immense role in spearheading and facilitating the initial processes, while the Namibia Nature Foundation was more prominent in the Omaruru-Swakop and Okavango River basins respectively.

Interestingly, although management at the basin level and the subsequent establishment of BMCs take precedence in the new approach, the government seems to have done little financially to assure the stakeholders in their commitment to this long-term goal. It is noted that even six years subsequent to the first established BMC, financial constraints still remain an issue in the established KBMC, as it is in the other basins.

Lack of skilled capacity and unclear mandates were some of the challenges highlighted, with financial shortages the main factor delaying progress in carrying out activities to manage the water resources. Donor funding from the German Technical Cooperation and the Danish International Development Agency mainly carried the processes until the realisation of the BMCs. This suggests gaps in the Ministry's priorities, thus failing to secure sufficient funds for this seemingly commendable approach of national importance, as well as establishing a Basin Management Unit within the central body to facilitate and coordinate activities at a national level for river basin management.

The decreased water quantities, owing to increased water demands by the various users within the basin, and unequal access to or allocation thereof, were the issues that seemed to have a strong hold on the challenges faced across the basins. The deteriorating quality of the water resources noted in the basins is not only directly linked to the population density of the area. There are also activities undertaken within the particular basins that are not being properly monitored, e.g., mining. The main concern that emerged from the data collected is that of mines and their water consumption and pollution. The mines seem to have a vested interest in taking part in the BMC's, and their presence was noted in three of the four basins (KBMC, OmBMC, OkBMC). This defies the government's aim of transparency and accountability by water management-related organisations because, as alluded to earlier, it was only in basins where their allocation was threatened that the mines participated.

The establishment process followed the three phases as outlined in the BMA guidebook, and each BMC incorporated specific challenges in a way best suited to the characteristics of the basin. Although the guidebook does exist, it seems that the BMC takes different approaches that are not always in harmony with what the guidebook proposes. These scenarios reflect on the notion that no one blueprint can be applied and succeed in every situation, even in those of a similar nature.

The Kuiseb is taken as a model that works, and it has been suggested that this is because it is small in size. This is misleading as, despite its size, the Kuiseb manifests a number of perturbing concerns. Nonetheless, lessons learnt from the Kuiseb steered the approaches and allowed for replication. Some of the notable lessons are cross-sectoral teamwork to create opportunities for capacity building approaches and projects, and facilitation of community-based natural resource management at community level for long-term sustainability. Exposure of community members to other parts of the basin was also a valuable lesson learnt from the Kuiseb as well as the international visits, (e.g. to Australia), because it raised substantial awareness with respect to the need for integrated water management.

For an organisation to be operational, it has to perform four organisational tasks: governance, administration, operation, and management. The governance task is advisory, and oversees the activities taking place in the organisation, while the administrative task encompasses general office administration such as filing, mail deliveries, and updating information databases. The operational aspect looks into the implementation of the set strategies and legal documents by the organisation. The management tasks involve a more hands-on approach, for example, resource monitoring and resource protection measures. The functions carried out by the BMCs reflect on these ‘organisations’ as governing bodies in terms of water governance, because of their dominant advisory role. The BMCs are hence viewed as mere committees and participatory platforms where stakeholder representatives present their achievements, failures and recommendations to the way forward, with regard to resource management.

The committee provides oversight and facilitation of developmental and management issues by the stakeholder organisations relating to water. Amakali and Shixwameni (2003) suggest that there are oversight mechanisms, and that BMCs are submitting reports to the Minister which provide the Minister with a means of seeing what, in fact, they are doing on the ground. Despite this 'ideal' in practice, there seems to be no easy way of monitoring performance, because reports are not being submitted. This is particularly true in that information (e,g. reports, documents) dating back to 2003 are either not readily available, limited in content where available, or not recorded at all.

CHAPTER 6: DISCUSSION AND CONCLUSION

6.1 Introduction

River basin organisations are viewed as umbrella organisations for basin management, and a 'voice' for the 'voiceless' within local communities on basin-wide water issues. The processes of devolving power to implement management of water resources at a basin level ground themselves strongly on the principles of IWRM, and are based on the Basin Management Approach guidebook, which outlines the three basic phases of BMC establishment and development. These steps are: i) the start-up phase, ii) the stakeholders' forum phase, and iii) the basin management committee phase. This Basin Management Approach led to the establishment and official launching of the four BMCs.

6.2 Basin Characteristics

The Namibian climate is generally dry, typical of a semi-desert country where droughts are a regular occurrence. Most areas of the country display arid landscapes and predominantly savannah and dry woodland biomes. With high evaporation rates (1680mm-2380mm/a), the annual rainfall increases from south to north (50mm/a to 335mm/a) and west to east (>100mm/a to 600mm/a). The climate of Namibia is such that rainfall is mostly in summer (November through to March), when evaporation rates are highest. The country's topography is mainly flat terrain, and on average 1100 meters above sea level. Two rivers, the Cuvelai and Okavango, do not end in the sea. The Cuvelai terminates in the Etosha Pan in Namibia, and the Okavango in the Okavango Delta in Botswana. The population density increases from the south to the north, where approximately half of Namibia's population resides, and from the west to the east. Economic activities are mainly livestock farming (Omaruru-Swakop, Kuiseb, Cuvelai-Etosha), rainfed and irrigated agriculture of maize, millet and sorghum (with the exception of the Kuiseb), and mining (Omaruru and Kuiseb).

6.3 Establishment of New Water Management Organisations (BMCs)

The establishment of BMCs was initiated by the MAWF through its Directorate of Water Affairs. Four BMCs were established through a participatory process that took between one and three years. The BMCs are Kuiseb (three years to establish), Iishana (two years), Omaruru (two years), and Okavango (one year). The MAWF engaged a private service provider to facilitate the establishment process. The DRFN facilitated the establishment of the KBMC and the IBMC, and the Namibia Nature Foundation the OkBMC and OmBMC. Funding for the process was sourced from the German Technical Cooperation, Danish Development Agency, with a small budget from the MAWF. Awareness of IWRM ideas was created, using study trips (to Australia-KBMC; to Calueque Dam, Angola- IBMC and at different locations within the individual basins), and through local radio stations where information was broadcast in the vernacular. The study validates Engel et al.'s (2005) statement that traditional leaders were observed to be the most stable or permanent stakeholders in terms of attendance at stakeholder meetings (the IBMC and OmBMC in this case).

Local communities are more likely to adhere to and trust their local leaders. The trust relationships exist readily between water users and their local leaders, but this trust becomes more tenuous when formal structures, such as the BMC, rely on an authority figure that is less familiar. At the outset the process is broadly participatory with all stakeholders involved. Then, when the BMC is established, representatives are elected to serve on the BMC. Hence, the process changes to representative participation, and broad participation is lost.

6.4 Characteristics of BMC

All the BMCs have a Constitution to guide the manner in which they function. The BMC election must include core members. The members are illustrated in the table below:

Table 6 Core Stakeholder Organisations of the Established BMC

KBMC	IBMC	OmBMC	OkBMC
Ministry of Environment and Tourism	Ministry of Environment and Tourism		Ministry of Environment and Tourism
Department of Water Affairs	Department of Water Affairs	Department of Water Affairs	MAWF
Directorate of Rural Water Supply	Directorate of Rural Water Supply	Directorate of Rural Water Supply	
Erongo Regional Council	Ohangwena Regional Council	Erongo Regional Council	Okavango Regional Council
Commercial Farmers, Communal farmers	Ministry of Fisheries and Marine Resources	Coastal Bulk Water User Forum	Farmer's Association
NamWater	NamWater	NamWater	NamWater
Directorate of Engineering and Extension Services	Directorate of Engineering and Extension Services		
Gobabeb Research and Training Centre	Ministry of Lands and Resettlement	Regional Conservancy Association	Namibia Nature Foundation
Rossing Uranium Mine		Chamber of Mines	Chamber of Mines
Walvis Bay Municipality		Omaruru & Okombahe Town Council	Okavango River Basin Water Commission
Khomas Regional Council	Traditional Authorities	Traditional Authorities	
Coastal Environmental Trust of Namibia		Namibia Chamber of Commerce and Industry	European Union

There is an imbalance of power among stakeholders in the processes. With the exception of the Namibia Nature Foundation, Okavango River Basin Water Commission, Chamber of Mines, Coastal Environmental Trust of Namibia, Coastal Bulk Water User Forum, European Union, the BMC in all basins seem to have government officials as the majority of their members. It appears that government is spending a lot of energy in establishing BMC, but that these organs consist of government officials who, in turn, advise government.

The basin management committee as an organisation has no decision-making powers where water management at the basin level is concerned. The functions for all the BMCs are the same namely, oversight, coordination, promotion, monitoring and development of activities regarding integrated water resources management in the basins. The functions appear to be the same as the functions of the implementing Water Management Agency. These functions are reflected in Table 7.

Table 7 Functions of the BMC and the Water Resources Management Agency

BMC	WRM Agency
Protect, develop, conserve, manage and control water resources within its management area	Integrated management of the water resources in Namibia
Promote community participation in water resources management	
Prepare a water resource management plan	Collection, analysis, and sharing of data on conservation and management of water resources
Make recommendations on issuance or cancellations of licences and permits under the Act of 2004	Technical analysis of applications and renewals for licences and permits (abstraction and use of water; discharge of effluent)
Promote community self-reliance, including the recovery of costs for the operation and maintenance of waterworks	Technical analysis of the need for water management areas; recommendations for establishment of such areas; their geographical boundaries
Monitor and report on effectiveness of policies and action in achieving sustainable management	Monitor and review water usage and effluent discharges to assess compliance with the Act
Collect, manage and share all data	Collection and analysis of information for the development of the Master Plan
Develop a water research agenda, together with the Water Resource Management Agency,	Guiding, assisting and coordinating the basin management committees
Help resolve conflicts relating to water resources	
Perform additional functions under section 9 or assigned under section 10 of the Water Act of 2004	
Facilitate establishment of an operational system and maintenance system of waterworks	

From Table 7 the following patterns emerge. BMCs advise, review development plans, and formulate policy, and the Water Management Agency implements. The former reviews plans in conjunction with the regional councils to incorporate BMC plans for water resources management within their jurisdiction. The latter provides supplementary support and guidance to the BMC, for example, collection and analysis of data for the development of the Master Plan. The BMC fulfils a 'legislative function' and the Water Management Agency an 'executive function'. Within this context, BMCs fulfil a cooperative governance role, and the function points to BMCs having to ensure good governance in the water management practices in the basin. However, the Water Management Agency is independent of the BMC and is therefore not accountable to the BMC. The Water Management Agency is accountable to the MAWF. The BMC advises the MAWF and makes recommendations, which are then delegated to the Water Management Agency to implement the policies.

The functions of the BMCs (Part IV section 13) and those of the Water Resource Management Agency (Part II section 7) in the Water Resources Management Act of 2004 bring about more confusion in the governance framework. The similarities spelled out in their functions create confusion as to what these individual bodies are to do, thereby disrupting aspects of accountability. Key informants from the Cuvelai Basin office, DRFN, and the DRWS also acknowledge that the functions for the BMCs are unclear in terms of what should be done and who is to do it. In particular, some said,

> "*The functions are rather vague and a bit too much for a small committee like this. Maybe directing various functions to specific organisations involved would work much better, with the BMC coordinating and overseeing these activities"* (KI 8 and 10, Directorate of Rural Water Supply/ IBMC, 20 July 2009).

6.5 Operationalisation of BMCs

The functions are stated in Table 7. These functions are to be performed by the executive committee on a part-time basis, remunerated by their organisations. The implication is that the members are answerable to their organisations, and not necessarily to the BMC. There is no budget allocated for BMCs, and no staff – the only

staff are the administrator (e.g. of the IBMC) and the basin coordinator (e.g. of OkBMC). These staff members provide administrative support to the BMC body, including agenda and minute- taking duties, as well as keeping a register of members of the BMC forum. KI 9 and KI 10 noted that the secretariat does most of the administrative and financial operations of the BMCs, with assistance from other members of the committee where required, and are accountable to the MAWF.

The operations, in most cases, have been only administrative. Implementation is carried out by the Water Management Agency and the relevant water-related institutions (e.g. NamWater – water quality monitoring, water allocation). The executive members of the committee develop water management plans for the basin in collaboration with the Water Management Agency, but contract out some work to private service providers. They do not do the actual work, but monitor the implementation. The activities involved are holding awareness raising workshops, developing newsletters on water supply and water payments, and management training in conjunction with the Directorate of Rural Water Supply (Klintenberg et al., 2007).

While the framework for a 'desirable' water management system exists, the situation on the ground does not reflect this common belief. Consequently, the reform process has not taken off as expected, owing to a combination of factors ranging from conflicting policies and weak institutional linkages, to insufficient funding. One might ask if it is the relevant water departments, consultants, participants, or the stakeholders, that should be held accountable for the final decisions taken. Consensus of what constitutes 'good water governance' is yet to be reached, and necessitates clarification around the meaning of good water management practices.

6.6 Are BMCs, then, the Way to Go?

Operationalisation of a river basin organisation encompasses governance, management, administration, and operations aspects, with the governing body providing oversight. The BMC presents a completely different picture in terms of being the lowest appropriate level for water management, in comparison with river basin organisations in South Africa and Zimbabwe.

Seemingly, the members serving on the committee do so voluntarily, and are remunerated by the respective organisations which the members represent. The BMC structure is then equated to the governing body in the South African context.

BMCs play an advisory role, and have the oversight of water management processes through stakeholder participation. In other words, the committee is seen as a platform for representative public participation where different stakeholder views and concerns are raised and discussed, but the various departments take on the functions in their respective capacities.

Challenges in full implementation of the strategies are hereby assumed to be in the structure of the BMCs. Evidently the structure does not allow for effective implementation of the functions of the BMC in the water sector reforms. Given the financial resources to carry out the functions required of the basin management committee, the sustainability of the new management organisations will be short-lived; or, if the organisation does proceed, it may not serve its initial purpose. The structural and human capacities will also determine the validity and sustainability of basin management committees as appropriate vehicles for water management in Namibia. The fact that basin boundaries do not correspond with political and administrative boundaries also could be a cause for potential conflict. Hooper's (2003) view is that it is difficult to advocate that river basin organisations will provide effective management of water and implementation of integrated water resources management.

The functions stipulated in the new water act (e.g. protection, monitoring, conservation) prove overwhelming for the number of individuals on these committees, and furthermore, there is the issue of how they are to be carried out. The number of meetings per annum then raises questions around the issue of implementation. Are four or five meetings per annum enough to address the challenges within the basins? Although the functions of the various organisations and government departments relating to water resources management are set out in their individual mandates, the revelation on the ground is a far cry from the government's aim of decentralisation through community- based initiatives for natural resources management. Delegated

governance, the decentralisation policy targeted by Namibia since independence, and the promulgation of the legal documents have not been a success. This is because the process is still much driven by the MAWF, and the power is still very much vested in its Department of Water Affairs. There are tensions, because the new dispensation calls for decentralisation to the lowest appropriate institutions for water management. The legitimacy of the representatives is also questionable.

According to KI 6, the BMA and, consequently, BMCs are a "*waste of time*" (Directorate of Rural Water Supply, 16 July 2009). He went on to say that attention and resources should be directed to existing organisations (e.g. water point committees) to boost water management activities, and not to create 'unnecessary'' organisations. Schubert (2008) agrees that making use of existing structures could offer easier implementation of new approaches, rather than inventing and creating new structures. Drawing on the data gathered from respondents, and backed by Schubert's views, this thesis argues that effecting implementation of the new approaches does not necessarily have to be through a BMC; rather, any entity capable of doing the management task can get on with the job. The gist of it is getting the job done rather than upon whom responsibility is placed encompassing best management practices and good governance at all levels of procedure.

6.7 Conclusion

As a result of the emergence of new paradigms (Hooper, 2003), substantial changes in water management approaches have been observed in recent years. The Namibian government chose water reforms which moved away from the traditional bureaucratic system to a more decentralised state. The main idea behind the Water Policy of 2000 is that of decentralisation, where responsibilities are delegated to lower levels for management. The process of devolving power to implement management of the water resource at a basin level is grounded on the principles of IWRM, and based on the BMA guidebook that has been developed for the purpose of establishing BMCs in Namibia.

The aforesaid guidebook outlines the three basic phases of BMC establishment and development: start-up phase, stakeholders' forum phase of development, BMC phase of development. The core argument of the thesis is that decentralisation might have been well developed as an idea but it has not yet been meaningfully applied. The institutional landscape of BMCs in Namibia, to date, reflects a number of formal organs (BMCs) that have been given numerous responsibilities. These are organs that, without real power or resources, simply cannot perform their duties effectively.

Although the Basin Management Approach was a breakthrough for Namibia, its sustainability is not certain. There appeared to be some indication at the early stages that the BMC might be a solution for decentralised water resource management, particularly, because there seemed to be a consultative process taking place, with efforts being made by both the stakeholders and the Department of Water Affairs to establish these organisations. However, as the BMC evolved, it became less evident that these institutions would be able to solve the problem of water resource management in Namibia.

There are a number of issues that need to be handled before BMCs are strengthened. Human and organisational capacity weaknesses need to be addressed, and financial support is critical for creating an enabling environment for these new river basin organisations. Legal instruments are necessary but not sufficient to ensure the success of these organs, and legal instruments require the right amount of both human and financial capacity in the right place at the right time. More clarity regarding the duties and responsibilities of BMCs, and the relationship between the various institutions is essential. The level of participation is very important, whether at national, regional, or any "lowest appropriate level" (Amakali and Swatuk, 2009). Accordingly, efficient, effective, and environmentally sound principles should be employed.

There is no doubt that the spatial unit for management is the river basin. BMCs are deemed to be the lowest appropriate institutional level for water resources management in Namibia. As a new water management organisation, the BMC has no real power, nor does it have the resources to function properly. As such, these organisations are not able

to manage the water resources of the country at the lowest appropriate level. Rapid population growth, and its consequent results, is the biggest threat to sustainable management within the country, more especially in the northern part of the country. In addition to getting the BMC environment right, there are other solutions that would help the country manage water more responsibly. This includes a more general public awareness programme, and a focussed effort on having water education integrated early on in school curricula. Water education should also be included in institutional networking and capacity building efforts that are taking place throughout the country in other sectors, because water is a cross-cutting theme.

The issues addressed in the paper fulfil the objectives of the study. These objectives are:

- to understand and compare the processes involved in the establishment of BMCs across Namibia;
- to determine the characteristics of the new organisations;
- to assess the way in which Namibia's water policy has been operationalised.

Namibia's vision for the management of the nation's water resources is to bring together all stakeholders in a process that is consultative. The purpose of consultation and engagement of all stakeholders is to ensure efficient, effective and environmentally sound water resource management. What is required is improved organisational and human resource capacity, and the vision of decentralised water resource management through stakeholder participation, which, although necessary, is not in itself sufficient to ensure effective, efficient and environmentally sound practices. The thesis concludes that the organisations that are being constructed for the purpose of water resource management do not yet have the financial and human capacity to do the job assigned them.

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