WOMEN'S ROLES IN INTEGRATED WATER RESOURCE MANAGEMENT: A CASE STUDY OF THE MUTALE WATER USER ASSOCIATION, LIMPOPO, SOUTH AFRICA

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February 2015

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DECLARATION

I, Faisal Elias, declare that this thesis submitted for the degree of Master of Philosophy in Integrated Water Management at Monash South Africa, Monash University Australia, is entirely my own work. This work contains no material that has been accepted for the award of any other degree or diploma in any university or other institution. To the best of my knowledge, this thesis contains no materials published or written by another person except where due reference is made in the text of the thesis.

15/07/2015

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Faisal Elias   **Date**

ACKNOWLEDGEMENTS

First and foremost, my sincere gratitude goes to Almighty Allah for leading me this far and for giving me strength and confidence throughout this programme. Secondly, my appreciation goes to the International RiverFoundation for awarding me the Ken Thiess Memorial Scholarship and the opportunity to attend the 17th International RiverSymposium in Canberra, Australia.

No two people deserve greater thanks for their tireless and enthusiastic support than my supervisors, Associate Professor Bimo Nkhata, the Director of the Water Research Node and Dr Richard Meissner, Senior Researcher at the Council for Scientific and Industrial Research (CSIR), South Africa, for their input and advice from the outset of the research. Appreciation also goes to Ms Linda Downsborough, Researcher at the Water Research Node, for her support and encouragement and Hester Stols, Research Coordinator at Monash South Africa. My gratitude also goes to Mr Divine Odame Appiah, KNUST, Ghana, for his encouragement.

The fieldwork was made possible with the generous cooperation and assistance of a host of people affiliated with the Mutale Water User Association (WUA). Special thanks go to Mr Nemaungan, the chairperson of the Mutale WUA, my assistant, as well as all the members of the Mutale WUA. This thesis could not have been achieved without their support; I'm truly indebted to them. I also thank Khomotso Bopape of Let's Edit (Pty) Ltd for editing my thesis.

To my family and friends, without whose love, prayers and support, I would not have realised this dream. Special thanks go to my mother, Bushura Elias; sister, Sadia Elias; aunt, Hajia Sawda Inusah; uncle, Dawud Inusah; and to all family members whom I could not mention by name. Their encouragement, support and personal sacrifice made an everlasting impression in my life.

DEDICATION

I dedicate this thesis to the memories of my father, Elias Inusah and brother, Dawud Elias, who passed away during the course of my study – seen no more but always remembered. Their love, concern and pride in whatever I did were always a source of strength to me.

ABSTRACT

The study examines the nature of women's roles in integrated water resources management (IWRM), with a focus on a water user association in the Limpopo province of South Africa. The study was based on the premise that the literature related to women's role and their involvement in the water sector has failed to explain adequately the nature and experiences of women, as they attempt to achieve productivity, decision-making and equity. Also, various studies assumed that women are only concerned about water for domestic purposes and men are responsible for productive water use. This underlying assumption has not only led to a number of unsustainable development interventions around water but has also underestimated women's role. The importance of women has been recognised in IWRM. IWRM is a set of ideas to help manage water holistically. It is an integrated approach with more coordinated decision-making across sectors, scales and genders. Despite the significance of women in IWRM, they face various challenges that hinder them from effectively performing their decision-making roles. In most rural areas, women are predominantly recognised as the ones primarily responsible for the management of domestic water supply and sanitation. In these societies, women also play the role of family caregivers in terms of provision of food and nutrition.

The design of the study was qualitative in nature. A grounded theory approach was used with semi-structured interviews as the main data collection tool. The interview involved 14 respondents from the Mutale WUA, Limpopo, South Africa. The results showed marked gender difference in terms of roles performed. Based on the study, three kinds of roles were revealed: domestic, productive and decision-making roles. Men were overwhelmingly involved in productive roles, giving low priority to domestic roles. The traditional view of a

domestic role being a feminine chore was well reflected in the data collected. Women were responsible, among other things, for collecting drinking water, cooking, laundry, and house cleaning.

The study also revealed that the decision-making role was dominated by men, with women having a passive involvement in IWRM. The key factors found to affect the role of women in decision-making in IWRM were cultural practices, low self-confidence, low levels of capacity, and high workloads. This study has significant implications for promoting gender equality, since it has unveiled barriers inherent within the specific society. The impact of culture on women in water management raises concerns about gender issues in rural and remote areas where people are poorer and more culturally conservative. The study recommended, among other things, capacity building to increase the understanding of gender implications for water management as part of an effort to empower women so that they can acquire knowledge and skills to participate meaningfully in water management issues. It is suggested that further studies should be conducted treating women as a heterogeneous group.

Keywords: Gender, grounded theory, role, water user association, women

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ABBREVIATIONS AND ACRONYMS

CMA   : Catchment Management Agency

CMS   : Catchment Management Strategy

CSIR   : Centre for Scientific and Industrial Research

DWS   : Department of Water and Sanitation

GAD   : Gender and Development

GWP   : Global Water Partnership

HDIs   : Historically Disadvantaged Individuals

IB   : Irrigation Board

IDWSSD   : International Drinking Water Supply and Sanitation Decade

IWRM   : Integrated Water Resources Management

LPG   : Limpopo Provincial Government

MUHREC   : Monash University Human Research Ethics Committee

NWA   : National Water Act

NWRS   : National Water Resources Strategy

RSA   : Republic of South Africa

StatsSA   : Statistics South Africa

UNCED   : United Nations Conference on Environment and Development

UNESCO   : United Nations Educational, Scientific and Cultural Organization

WID   : Women in Development

WMA   : Water Management Area

WUA   : Water User Association

CHAPTER ONE

INTRODUCTION

1.1 Overview

This study sought to examine the nature of women's roles in integrated water resources management (IWRM) in South Africa. Women's participation over the years has received considerable rhetoric; however, there has been less attention given to the disparities between women's and men's needs and priority with regard to resource use, and the barriers women face in terms of their decision-making role (Meinzen-Dick & Zwarteveen, 1998; Mjoli & Nenzhelele, 2009). Although the study sought to understand the nature of women's role in IWRM, the scope was limited to the level of water user association (WUA), i.e. the lowest tier of the water management structure in South Africa compared to the catchment management agencies which are higher.

This chapter serves as a background by providing a preview of the study context. It is made up of six sections. It starts by providing the background to women in water management and the water management structure in South Africa. It also includes a description of the National Water Act and some of its provisions. The research problem, aim and research questions were also laid out in this chapter. The chapter finally lays down the structure of the thesis.

1.2 Background to the Study

The quest for development has led to a consensus that participation by both men and women, not as objects of development but as equal partners, is essential for sustained interventions (Hamdy, Quagliariello, & Trisorio-Liuzzi, 2004). This has encouraged the promotion and use

of a gender-sensitive approach in the water sector and, more recently, in IWRM (Hamdy, Quagliariello, & Trisorio-Liuzzi, 2004). IWRM explicitly challenges conventional, fragmented water development and management systems and places emphasis on an integrated approach with more coordinated decision-making across sectors and scales. It recognises that exclusively top-down, supply-led, technically based and sectoral approaches to water management are imposing unsustainably high economic, social and ecological costs on human societies and on the natural environment (White, 2013).

Women and water are linked in several ways; an important linkage being their role in the management of water (Aureli & Brelet, 2004). Traditionally, and almost universally, women in rural areas are predominantly regarded as domestic water managers. However, their roles are neither limited nor static. It is known that women also play a substantial role in food production, although it varies regionally and from country to country. In Africa, women produce about 70% of the food, while in Asia, the figure stands at 60% (Aureli & Brelet, 2004). This makes women the primary water users and managers in the agricultural sector (Singh, 2006a). Over the last three decades, there has been an overwhelming significance placed on the involvement of women in water management from mere users to managers of water, with increased choice and voice in the water resources management process (Singh, 2006a).

Acknowledgement of the role of women in the management of water (domestic water) can be traced to the UN Water Conference, in Mar del Plata, Argentina, in 1977. That conference prompted the United Nations (UN) to declare the period 1981-1990 as the International Drinking Water Supply and Sanitation Decade (IDWSSD). The UN Water Conference aimed, among other things, to better facilitate women in the role of water managers and also to help

bring safe water and adequate sanitation to half of the world's population. These policies promoted women's involvement in the operation and maintenance of water supplies and the sanitation infrastructure of local communities (Singh, 2006a). This was further expanded to acknowledge the role of women in other spheres of water management, as well as to deepen their stake in the sector in order to promote their participation. The concepts and principles of IWRM adopted at the International Conference on Water and Environment (ICWE) and the United Nations Conference on Environment and Development (UNCED) advocate for a holistic management of water as an essential finite resource of socio-economic value. Both the ICWE and the UNCED stressed that water resources should be managed in a participatory way and at the lowest appropriate level, with women playing a pivotal role in water management, since they are the main providers and users of water in rural areas around the world (Gender and Water Alliance, 2006). The Ministerial Declaration that was recently adopted at the International Conference on Freshwater in Bonn states:

> "Water resources management should be based on a participatory approach. Both women and men should be involved and have an equal voice in managing the sustainable use of water resources and sharing the benefits. The role of women in water-related areas needs to be strengthened and their participation broadened." (Federal Ministry for Economic Cooperation and Development, Deutsche Gesellschaft fur Technische Zusammenarbeit, & Federal Ministry for the Environment, 2001, p. 21).

However, the lack of effective participation and the suppression of women's interests and voices in water management are still recurring themes. Contrary to international consensus and agreements achieved at numerous well-intentioned summits and conferences, evidence shows that inequity in representation and decision-making is still a major problem in developing countries (Bowmer, 2008).

In South Africa, WUAs) are statutory bodies established under the National Water Act (Act 36 of 1998) (Republic of South Africa, 1998). They are cooperative associations of individual water users that undertake water-related activities for the mutual benefit of their members. The idea of such associations is for communities to pool resources to carry out water-related activities more effectively (Ackerman, Nortje, Belcher *et al.*, 2009). The National Water Act is underpinned by the principle of equity in terms of class, gender and race (Mjoli & Nenzhelele, 2009). WUAs are required by law to include women in decision-making structures so that women's needs could be taken into consideration. It is expected that access to water resources could contribute to the improvement of the socio-economic status of women. However, traditionally, they are very male-dominated with inequity in representation and decision-making (Ackerman, Nortje, Belcher *et al.*, 2009; Mjoli & Nenzhelele, 2009).

1.3 The National Water Act

The National Water Act (Act 36 of 1998) is one of the most ambitious and liberal water policies in the world. The National Water Act (NWA) is regarded as a major step forward in the translation of the concept and principles of the IWRM into legislation (Schreiner, 2013). In a speech presented by Professor Kader Asmal, the former Minister of Water Affairs and Forestry, at the International Conference on Integrated Water Management held in Cape Town in March 2008, he noted, "apartheid South Africa's water management was not equitable, not efficient and not sustainable. It was grounded in race-based privilege, with a perhaps inevitable resultant decadence in water management practices by the haves." (Asmal, 2008, p. 663).

The Constitution of the Republic of South Africa, 1996, provided the framework and the enabling environment for an egalitarian Water Act. It formed the foundation on which all the policies, laws and practices regarding water management were developed (Asmal, 2008). Though the National Water Act was promulgated in the year 1998 (Brown & Woodhouse, 2007), it took over three years for the Act to come into law (Asmal, 2008). The NWA introduced provisions that were considered innovative. Some of these provisions include:

- The Minster of Water Affairs acting as the custodian or trustee of all water resources in the country. This provision resolved the clause in the apartheid laws such as the 1956 Water Act (Brown & Woodhouse, 2007), which was based on the riparian right system, with no single institution having authority over all the water resources in South Africa (Asmal, 2008).

  "Public trusteeship does not mean that government owns the water, since the Preamble to the Act recognizes that 'water is a natural resource that belongs to all people', but it does mean that the Minister has overall responsibility and, importantly, the authority to ensure that all water everywhere in the country is managed for the benefit of all persons." (Asmal, 2008).

Thus, the Act gave the Minister the duty to regulate all the water resource use for the benefit of all citizens in the country, taking into account the public nature of water resources and the need to make sure that there is fair access to these resources and that they are beneficially used in the public interest (Muller, 2009).

- The introduction of the concept of reserve as a way of prioritising human as well as ecological/environmental needs first relative to other uses (Asmal, 2008; Herrfahrdt-Pähle, 2010). The basic human needs reserve guarantees a minimum of 25 litres of

water per person per day (Herrfahrdt-Pähle, 2010), while the ecological reserve is fundamental to the principles of conservation and sustainability (Asmal, 2008).

- There was a change from "water rights" to "water-use rights", where all water users are charged depending on the amount of water consumption. It was a step that is crucial for equity and efficiency, and is in the enlightened self-interest of all (Asmal, 2008). The Act clearly stated that water-use right should be temporary, that is, having a limited lifespan, thereby ending the concept of fixed, permanent allocation (Muller, 2009).

- The incorporation of the principle of subsidiarity – decentralising activities which can be performed at the lowest appropriate level without interference from the central authority (Schreiner, 2013), thus the delegation of powers to water users at the local level to take an active part in the governance process (Asmal, 2008). This was done through the creation of user-driven and user-funded institutions, namely, the catchment management agency and the water user association (Faysse, 2004).

The NWA, 1998, aims at redressing the results of past racial and gender discrimination in South Africa. The country still has a huge burden of past apartheid period which created a highly uneven distribution of land and water rights between the large-scale farmers and the Historically Disadvantaged Individuals (HDIs), usually located in the rural areas of South Africa. HDIs include all people who were deprived of certain rights during the period of apartheid, that is, blacks, coloureds, Asian people as well as women (Faysse, 2004).

1.4 Water Management Structures in South Africa

The National Water Act promotes integrated and decentralised water resources management. The National Water Act, among other things, calls for the transformation of the water management system based on administrative boundaries towards management along hydrological boundaries. This includes the Department of Water and Sanitation (DWS) at the national level, with the Catchment Management Agencies (CMA) at the intermediate level and the WUAs at the lower levels (Herrfahrdt-Pähle, 2010) as shown in figure 1.1.

1.4.1 Department of Water and Sanitation

The Department of Water Affairs and Sanitation is the organisational body under the Ministry of Water and Sanitation (Herrfahrdt-Pähle, 2010). In accordance with the National Water Act, the DWS serves as the overseer of water resources in South Africa (Brown & Woodhouse, 2007) with the responsibility of ensuring equitable, sustainable and efficient use of the country's water resources (Herrfahrdt-Pähle, 2010). DWS is responsible for the implementation of the provisions of the National Water Act (Brown & Woodhouse, 2007). As a way of ensuring effective water governance, the responsibilities of DWS has been decentralised to the provincial level with the aim of increasing efficiency and inclusiveness (Herrfahrdt-Pähle, 2010).
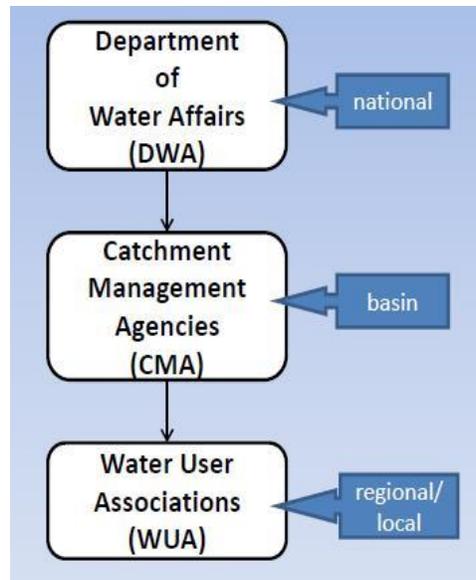
Figure 1. 1: Water management structure in South Africa

Source: Forster (2011)

1.4.2 Catchment Management Agencies

As indicated in figure 1.2, South Africa is divided into nine Water Management Areas (WMAs), with each managed by a CMA (Department of Water and Sanitation, 2012). This was according to the National Water Act, which sets the legal basis for their establishment (Schreiner, 2013). South Africa was previously divided into 19 WMAs. However, in 2012, the Minister of Water and Sanitation, Mrs Edna Molewa, approved the reconfiguration of the 19 WMAs to nine as follows: Limpopo, Olifants, Inkomati-Usuthu, Pongola-Mzimkulu, Vaal, Orange, Mzimvubu-Tsitsikamma, Breede-Gouritz, and Berg-Olifants. The boundaries of these water management areas take into account catchment and aquifer boundaries, financial viability, stakeholder participation, and equity considerations. As a result, they are not aligned with provincial or local government boundaries. According to the Department of Water and Sanitation (2013), the need to reduce the number of WMAs from 19 to nine has been based upon the new thinking on management model and viability assessments with respect to water

resources management, available funding, capacity, skills and expertise in regulation and oversight, as well as to improve integrated water systems management. Despite this reconfiguration, only two CMAs have been operationalised by the DWS, which includes the Ikomati-Usuthu and the Breede-Gouritz CMA.

The CMAs were mandated to manage the water resources within their jurisdiction. The allocation and management of water resources for different uses is their main responsibility in coordination with water users. All CMAs, as a way of accomplishing their mandate, were obliged to develop catchment management strategies (CMSs) to guide and direct their activities as well as sourcing for funds for their implementation (Faysse, 2004). The CMAs are also responsible for issuing and modifying water licences within their jurisdiction. However, this function is currently carried out by the DWS, until a time when all the water allocation patterns have been completely reviewed (Faysse, 2004).

1.4.3 Water User Associations

The National Water Act outlines the establishment of WUAs as a management institution that operates at a restricted local level. They are made up of individual water users within a community who undertake water and water-related activities for their common benefit and are also supposed to serve as a mechanism for the implementation of the Catchment Management Agency's CMSs for the area in which they operate (Manzungu, 2002). Irrigation boards, which currently manage water resources at the local level on behalf of the commercial agricultural sector, are to be transformed into more inclusive WUAs (Brown, 2011).

The management and administration of the WUAs are the full responsibilities of the water users within the locality of that catchment area, with monitoring and supervision from the

DWS. The main function of WUAs is to operate the waterworks under their responsibility and to monitor the allocation of water among their members (Faysse, 2004). The WUAs provide a local institution through which the catchment management strategy can be implemented at a local catchment level. WUAs may be represented in the CMA board and catchment management committee to ensure that the interests of their members are taken into consideration in the decision-making processes (Mjoli & Nenzhelele, 2009).

A WUA may be concerned with a single purpose such as controlling recreational activities on a river or providing water for emerging farmers. Alternatively, a WUA may be multi-sectoral, dealing with a variety of water uses within its area of operation (Department of Water and Sanitation, 2011).
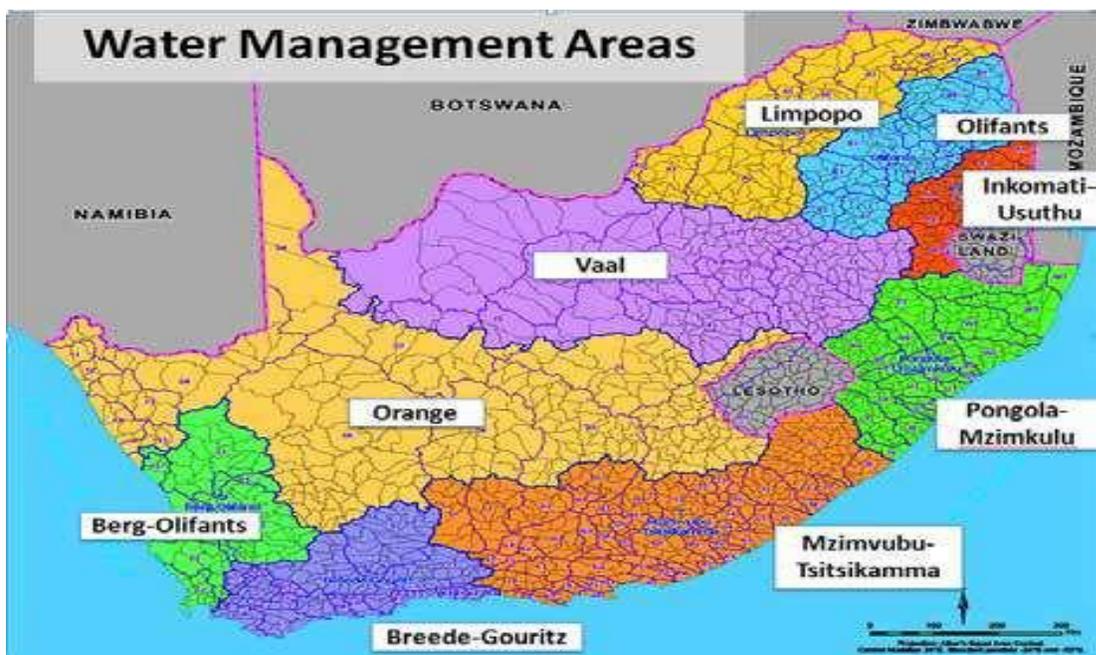
Figure 1. 2: Map showing the new water management areas of South Africa

Source: Department of Water and Sanitation (2013)

1.5 The Research Problem

The devolution of natural resource management responsibilities from the state to communities or local user groups has become a widespread trend that cuts across countries and resource sectors (Meinzen-Dick & Zwarteveen, 1998). Nevertheless, devolution of control over resources from the State to local organizations does not necessarily lead to greater participation and empowerment of all stakeholders. While there may be many ways of identifying groups that are frequently marginalised, gender differences in power and influence are a recurring pattern (Meinzen-Dick & Zwarteveen, 1998). Women's involvement has received considerable rhetoric, but there has been less careful attention paid to the differences between women's and men's needs and priorities as regards resource use, and the barriers women face in achieving control over resources, especially within local organisations (Meinzen-Dick & Zwarteveen, 1998; Mjoli & Nenzhelele, 2009).

There is growing literature on the involvement of women in natural resources management such as forestry and water on how they distribute and use such resources within the domestic sphere (Meinzen-Dick & Zwarteveen, 1998; Caizhen, 2008). Nonethless, literature related to women's participation, role and their experiences in water resources management fails to explain adequately the nature and experiences of women as they attempt to achieve productivity, decision-making and equity (Cleaver, 1998; Meinzen-Dick & Zwarteveen, 1998; Caizhen, 2008). As Meinzen-Dick and Zwarteveen (1998) asserts, due to the lack of research on gender dimension on community organisations for irrigation and other water management activities, it has virtually become impossible to draw firm conclusions about the nature and forms of women participation, roles as well as their impacts on water management activities.

1.6 Research Aim and Questions

The aim of the study was to explore the nature of women's roles in IWRM, with a focus on WUAs. Specifically, the study sought to develop an understanding of the role of women in water management activities and the contextual factors affecting women's roles in decision-making. The study, therefore, posed some questions to help address the aim of the research. These questions include:

1. What are the productive roles of women and men in IWRM?

2. What are the domestic roles of women and men in IWRM?

3. What are the barriers affecting women's decision-making roles in IWRM?

4. What practical measures are needed to remove women's constraints and strengthen their roles in IWRM?

1.7 Structure of the Thesis

The structure of the thesis will be discussed in this section. This thesis is organised into six chapters. Chapter 1 presents the context of the study by highlighting the background of women in water management. It also gives an overview of the water management structures in South Africa and a brief description of the National Water Act. The research problem is stated in the chapter, including the aim of the study, detailing the research questions that the study focused on.

Chapter 2 presents the literature review of the study, which is based on the directions of the research findings. It starts by giving an account of IWRM and its implication on women. The concept of participation, feminist theory and approaches related to gender have also been discussed.

Chapter 3 is divided into two sections: methodology and the study area. The first section examines the methodology utilised in the study. It highlights the methods used and the techniques employed in data collection and analysis. An overview of the paradigm is presented. Grounded theory, the method that was used, is described as well as reasons for its use. The chapter also presented how the issue of reliability and validity of the research results have been achieved. Ethical issues and the limitations of the study have been presented. The second section of the chapter provides a description of the context of the study. First, a country profile of South Africa is given, highlighting the socio-economic and physical context before focusing on the regional context, i.e. Limpopo. The geographical and the socio-economic description of Limpopo were briefly elaborated. Lastly, a description of Mutale WUA is presented.

Chapter 4 presents the research results of the data gathered. The results of this study are based on interviews conducted in Limpopo. The chapter explores the role played by both women and men in WUA. Also, factors affecting women's decision-making role are examined with interpretations.

The discussion of the research results is presented in Chapter 5. The discussion particularly focuses on the research aim and questions with the use of existing literature. The final part of this thesis, Chapter 6, draws some conclusions and implications for the study. It also provides recommendations for future research and policy improvement.

CHAPTER TWO

THE LITERATURE REVIEW

2.1 Introduction

The previous chapter gave an introduction and background to the study. The second chapter will be a literature review. Literature review is regarded as an essential step in most research, since it allows the researcher to learn what has already been learned in that field so far (Babbie, 2011). However, the original founders of grounded theory, Glaser and Strauss, explicitly advised against conducting a literature review at the early stages of the research process (Dunne, 2011). This stance, however, contradicts most methodologies which view literature review as a critical foundation upon which to build a study (Dan-Azumi, 2009; Dunne, 2011). Nevertheless, the crux of the matter is not whether a literature review should be conducted, but rather when it should be conducted and how extensive it should be (Dunne, 2011). The idea of reviewing literature about whatever one is researching is referenced after, not before, one goes to the field. The founders recommend this because they wanted the data to speak to the researcher rather than for the researcher to impose his or her theoretical knowledge on the data (Urquhart, 2013).

While some relevant literature was accessed, care was taken to make sure that the researcher's theoretical knowledge of the literature did not constrain the process of coding. Therefore, a limited review of the literature was conducted before fieldwork and continued after the analysis of the data. The literature reviewed in this study is treated as a background in order to give the researcher a view of women's experience in general. This chapter starts by providing

a general discussion of IWRM and its principles. It also gives an account of the concept of participation, feminist theory and approaches used in the integration of women into development.

2.2 Integrated Water Resources Management

Although its history goes back much further, a more recent manifestation of integrated water resources management (IWRM) can be traced back to the United Nations' (UN's) Mar del Plata conference of 1977 and the principles adopted in Dublin in preparation for the 1992 Earth Summit held in Rio de Janeiro (Butterworth, Warner, Moriarty *et al.*, 2010). It is argued that in order for water resources to be managed effectively and sustainably, the use of economic and policy instruments cannot be considered in isolation, but rather should be considered in terms of their broader impact on society and the environment. Effective water management, therefore, requires planners and policymakers alike to take into account the "triple bottom line" and evaluate policies in terms of their economic, environmental, and social impacts. In order to deal with this complex nature and coordinate policy effectively, it is often argued that economic and policy instruments should be used as part of a wider framework to manage water resources (Allabadi, 2012; White, 2013).

The global response to challenges in water resource management has been to encourage what was – at the time of the Rio Earth Summit in 1992 – a novel approach called IWRM. The technical advisory committee of the Global Water Partnership (GWP) defined IWRM as "a process, which 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 ecosystem" (GWP, 2000, p. 22).

Within the framework of sustainable management of water resources, IWRM is regarded as an appropriate approach to address threats posed to water resources, as it takes into account a broad spectrum of social, economic, and ecological factors and their links. The IWRM process depends on collaboration and partnerships at all levels, based on a political commitment to and wider societal awareness of the need for water security and the sustainable management of water resources. Implementing IWRM therefore requires a change from a single sector, centralised delivery-oriented management to a sector-integrated, locally focused management which incorporates the interests of diverse stakeholders. The overall goal is to ensure sustainable water resource use through multi-disciplinary and interdisciplinary approaches.

IWRM is a framework designed to improve the management of water resources based on four key principles adopted at the 1992 Dublin Conference on Water and the Rio de Janeiro Summit on Sustainable Development (GWP, 2000). These principles hold that:

Principle 1: Freshwater is a finite and vulnerable resource that is essential to sustain life, development and the environment. Water is necessary for existence as well as vital for the health of the planet. Freshwater, because of its scarcity, is an extremely valuable economic good, resulting in high levels of competition (GWP, 2000). Currently, water supply services as well as water and sanitation infrastructure are economic activities. Perhaps, at some future date, this will change. Until then, water use and sanitation within the household realm should become factors that are recognised when assessing economic values of water. These domestic responsibilities tend to fall into the category of women's work despite women generally having no rights in terms of land or water. An additional key point is that the development of a water source has the potential of negatively affecting the livelihoods of women and eventually their children. Price, for example, may limit the number of individuals accessing the water.

Women need to have a say in determining the price of water, since it is often their responsibility to pay, and they generally lack control over funds. While considering pricing for human consumption and use, understanding the amount of water required locally to maintain the health of the ecosystem also needs to be established. Although historically in many parts of the world a river reaching the sea was seen as a waste, humans are beginning to understand that they should not completely deplete a freshwater resource for their own gain (UNEP, 2009).

Principle 2: Water development and management should be based on a participatory approach, involving users, planners, and policymakers at all levels. Water is a resource that concerns and affects everyone. Multiple stakeholders such as water users, planners and policymakers at all levels and of all social structures must be involved and be part of the participatory decision-making process (GWP, 2000). Water not only brings economic benefits but also social ones regarding equity, poverty alleviation, the safeguarding of human well-being, and environmental protection and security (GWP, 2000). When all individuals with a vested interest in the management of water resources are empowered to participate democratically, the management programme is more likely to be sustainable, equitable, and successful overall. Women are especially capable of lending vital information and knowledge to the planning and practice of water management because of their traditional responsibilities. At this lower level, full support by members of society is necessary, and this public investment can manifest in boards that have strong ties to the community. In particular, female-headed households generally have lower power levels than male-headed households, and specific effort for their inclusion and empowerment should be implemented.

Principle 3: Women play a central part in the provision, management and safeguarding of water. It is widely acknowledged that women play a key role in the collection and safeguarding of water for domestic and agricultural use, but that they have a much less influential role than men in management, problem analysis and in the decision-making process related to water resources (GWP, 2000). Because of their experience, women have an understanding of water that is generally unparalleled. Incorporating them into the more central role of decision-making aspects of water is extremely important. The skills acquired by women can be of particular effectiveness, and their knowledge can be essential to efficient water management at higher levels as well. The fact that social and cultural circumstances vary between societies suggests that a need exists to explore different mechanisms for increasing women's role in decision-making and widening the spectrum of activities through which women can participate in IWRM.

Principle 4: Water has an economic value in all its competing uses and should be recognised as an economic good. In the past, the economic value of water resources was not adequately recognised, resulting in inefficient water use. As IWRM emphasises economic and financial sustainability, water resources should be managed as an economic good so as to achieve efficient and equitable use while also conserving and protecting water resources at the same time (Xie, 2006). Although it is important to recognise access to clean and sufficient water and sanitation at affordable prices as a human right, the scarcity of water resources demands that economic perspectives should not be ignored (Xie, 2006). Furthermore, the management of water resources as an economic good through water pricing greatly contributes to achieving financial sustainability of water service provision that ensures full cost recovery. Additionally, water charging contributes to efficient use and water savings, providing incentives to manage

demand (Cap-Net, 2009). The economic value of water is generally more appreciated in water-scarce countries than in water-abundant countries because the need to manage the scarce resource is more urgent.

Access to water and sanitation is declared a universal human right by the United Nations, and while some aspects of these principles might be applicable irrespective of the economic, social and environmental context, other aspects differ greatly between countries and regions (UNEP, 2009). Differences in the physical environment and natural conditions, character and intensity of water problems, institutional capacities and human resources, the characteristics of the public and private sectors, the cultural setting, and many more aspects all require different ways of how water should be managed. Hence, there can be no universal design on how to implement IWRM but rather, the implementation of IWRM must involve consideration of different regional aspects (UNEP, 2009).

IWRM is not, therefore, a prescriptive description of how water should be managed but rather, it is a broad framework in which decision-makers can collaboratively decide the goals of water management and coordinate the use of different instruments to achieve them. Given that each country differs in terms of history, socio-economic conditions, cultural and political context, and environmental characteristics, there is no single blueprint for IWRM, and it can be adapted to resolve the problems faced in each local context (White, 2013).

2.3 The Concept of Participation

The concept of participation is not new, neither is participation in itself a panacea for achieving project or programme objectives. Participation is often seen as synonymous with empowerment, but participatory processes do not necessarily challenge internalised oppression

or lead to self-efficacy (Ahmed, 2005). Participation is an all-encompassing concept which has been defined and interpreted in various disciplines and by numerous actors (Cornwall, 2008; Heyda & Neef, 2008), hence its ambiguous nature. Pretty (1995) and Siraj (2002) posited that, with regard to participation, there are two schools of thought that have evolved with overlapping viewpoints. Participation is seen as a way to achieving sustainability; the main idea is that if people or communities are involved in undertakings, they are more likely to accept and support a new development initiative. Neef (2008) stressed that participation is seen as an instrument for government to attain better policy outcomes. Participation is also seen as a fundamental human right, whose main purpose is predominantly concerned with equity, empowerment and strengthening of institutions. It is seen as a process of changing power relation between the governed and the governing (Pretty, 1995; Siraj, 2002; Neef, 2008).

This division of participation in terms of sustainability and equity resonate quite well within the growing literature on participatory governance within natural resource management. Natural resource sociologists seem to be more focused on the outcomes of participatory process (participation as an end), whereas deliberative democratic theorists place more prominence on the processes of participation (participation as a means) (Neef, 2008). In the natural resource literature, there is a persistent orientation towards improved decision-making that is consistent with the typologies of participation. That is, higher levels of participation which are characterised by collaboration and partnership are preferred to the lower levels, which are characterised by manipulation and information sharing (Parkins & Mitchell, 2005). However, being on the upper side of the typology does not always lead to positive outcomes.

Accordingly, Parkins and Mitchell (2005) point out that throughout the natural resource literature, this emphasis on shared decision-making and shared control forms the basis for empowerment and local control. The emphasis on participatory outcome in the natural resources discourse functions on reasoning that participation is a means to improve decision-making. Such decisions are expected eventually to lead to improved quality of life, efficiency, improved drinking water, conservation, and environmental quality.

Deliberative democratic theorists, on the other hand, place emphasis on the "procedures" to achieving improved decision-making that is on deliberation itself. Rather than on public participation to improve decision-making, the deliberative democratic theory functions on reasoning that understands public participation as an opportunity for public debate, personal reflection, and informed public opinion. It is recognised that the public will not sustain an interest without an expectation of influencing a decision or changing a condition. Such prospects may be realised through rational and consistent procedures deliberated and accepted by the public (Parkins & Mitchell, 2005).

Despite the foregoing arguments and the proliferation of scholarly works on participatory governance which makes it difficult to define (Neef, 2008), there is no single explanation of what participation actually means. Politically, participation is regarded as a tenet of democracy which involves the right of citizens to be part of the governance process of the State through elections and referendums (Heyda & Neef, 2008). Based on the perspective of development, participation is recognised as the process of involving stakeholders in the decision-making of programmes and projects that affect their lives. This goes beyond just being part of the decision-making process, but stakeholders are included in the planning, implementation, monitoring and evaluation of development projects (Heyda & Neef, 2008). This definition of

participation is similar to the one given by Narayan (1995, p. 7) who defined participation as "a voluntary process by which people, including the disadvantaged (in income, gender, ethnicity, or education), influence, or control the decisions that affect them". The shift from the top-down to bottom-up approach to decision-making has been promoted to empower local people who have been neglected. The emphasis on local public participation emerged due to the issue of trustworthiness and trust that are often associated with centralised government control. Participation of individuals in issues pertaining to their communities allows them to resolve their own problems, thus overcoming the issues of distrust and rhetoric associated with central government (Larson & Lachb, 2008). Larson and Lachb (2008) further contended that the involvement of an individual in the governing processes of an organisation is dependent on the income, age, gender, marital status and the period of years one has lived in that community.

2.4 Typologies of Participation

Defining participation is not only problematic; it is also difficult to measure the nature and extent of one's involvement in a group or in a development process. As Siraj (2002, p. 5) recounted, "apart from problems in defining participation, the real challenge is to measure it in terms of the extent of its effectiveness and the influence that a participant exerts on decision-making. The complexity in its measurement becomes difficult to simplify due to differences in perceptions about its meaning, its context-specific rationale, and unclear path of the influence exerted by participants."

However, scholars as well as institutions have tried to categorise the concept of participation in different types or levels to define and distinguish the various ways in which people participate. These typologies are valuable in differentiating the extent and levels of

participation (Siraj, 2002; Cornwall, 2008). The level of people's participation, according to Morrison and Dearden (2013), has been commonly characterised by a ladder of participation, each rung signifying the amount of weight given to them. Singh (2006b) broadly divides participation into three main categories: (1) individuals basically receiving information about planned activities, (2) individuals at this level are consulted and may have a degree of influence on activities, and (3) the level where individuals are active participants in the development process, contributing to decision-making and also sharing responsibilities in implementation. Arnstein (1969), on the other hand, delves much deeper into the processes and identifies various other levels of participation.

Arnstein (1969), in the 1960s, developed a typology of participation that provides an outline of different ways in which the public can be involved in decision-making as shown in figure 2.1. She describes eight levels of participation which are divided into three broad categories (Cornwall, 2008; Neef, 2008). The first category, non-participation, occurs where the public is not directly involved and may be manipulated into believing they are part of decision-making, and where authorities have created a pretentious form of participation, possibly around a decision already made (Arnstein, 1969). Within this category, she described two levels: manipulation and therapy (Arnstein, 1969). Manipulation occurs where people are "educated" and may be advised to sign an agreement they believe to be in their interest. Therapy involves authorities "curing" the people. The authorities give an assurance to assist the citizens and have them engage in different activities where their opinions may be "cured" and, in the end, accepted by the citizens (Arnstein, 1969). It is assumed that powerlessness is synonymous with mental illness. With this assumption, under the pretense of involving citizens in activities, authorities subject the citizens' therapy in order to cure their illness (Lithgow, 2006).

The second category which Arnstein (1969) described as tokenism consists of three levels. This is where the public becomes involved but only to a certain extent. The informing level is where the public is just informed of what is happening. This is a one-way information process where people receive the information in the media and other sources. This level is considered as the first step towards genuine participation. Consultation is the next step in which public opinion starts to affect the authorities' opinion. This is a common form of participation utilised in development projects. This level entails two-way communication, where the public or stakeholders have the opportunity to express suggestions and concerns but have no assurance that their input will be used at all or as they intended. However, if the consultation and information are not taken into consideration at the end of the day, this step will be of limited value and could therefore fall back into the non-participating level. The last step in this category of participation is where the people's opinion will start influencing the decision of the authorities. Arnstein (1969) calls this level in the ladder, placation. At this level, people may be chosen to sit on a governing board that makes decisions in the organisation. According to Arnstein (1969), this process is more likely to work if the board members are equally split, so the public cannot be outvoted in the process.

The last category in the ladder is what Arnstein (1969) calls citizen power. This is where people get to influence decision-making directly. At this level, the authorities and the people create a partnership. This level entails exchange among equals working towards a mutual goal. Equal as applied here is not in terms of form, structure, or function, but in terms of balance of respect. Arnstein (1969) considers partnership quite high on her ladder, as she believes this can keep both the people and the authorities satisfied. The next level is what Arnstein (1969) calls delegated power. At this level, the people start to take control, and the authorities need to

start negotiating with the people. The final level is what Arnstein (1969) calls citizen control. This is where the people are given the power to decide.
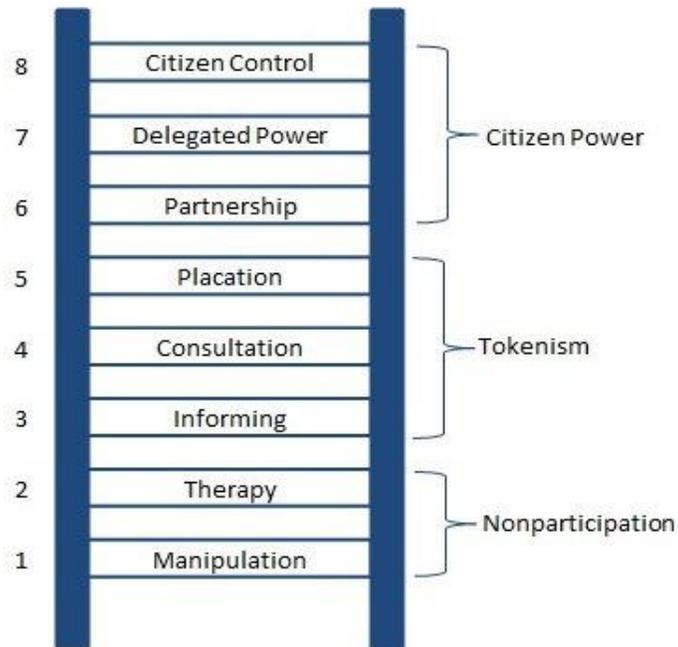
Figure 2. 1: Arnstein's ladder of citizen participation

Source: Arnstein (1969)

The limitation of the typology of participation of Arnstein (1969) is obvious. Each of the steps represents a very broad category within which there are likely to be a wide range of levels. For example, at the level of informing, there could be significant differences in the type and quality of the information being conveyed to the public. Realistically, levels of participation are likely to reflect a more complex continuum than a simple series of levels depicted by Arnstein (1969).

While the typologies of participation are useful in differentiating the levels and meanings of participation, they fall short in revealing the kind and nature of various participants that are

involved in the development process (Cornwall, 2008). As Cornwall (2008, p. 275) noted, "the question of who participates – as well as who is excluded and who exclude themselves – is a crucial one".

2.5 Feminist Theory

Feminism is a theory, a world view or paradigm that seeks to challenge the prevailing notions concerning women in society (Abbott, Wallace, & Tyler, 2005; Babbie, 2011). Feminism is a social movement that started in the 1960s in the United States of America (USA). It was a social response to the post-World War II characteristics of the society where women were only expected to be mothers and wives. These expectations therefore degraded women to roles of subordination to men (Kritzinger, 2002).

The feminist theoretical perspective addresses, above all, the questions of women's subordination to men: how it arose, why and how it is perpetuated, and how it might be changed. With that said, it serves a dual purpose as guides to understanding gender inequality and guides to action (Acker, 1987). However, this perspective is not a unified one; there are different perspectives on the ways in which women's oppression or subordination can be explained or how women can be emancipated or even what constituted oppression (Abbott, Wallace, & Tyler, 2005). At the core of feminist theory is the focus on women's inequality and how that inequality is structured and experienced at the macro and micro levels (Dillon, 2010). Early second wave feminism (between 1960 and 1970) underscored the role of structural and material factors in understanding the inequalities that exist, whereas contemporary approaches have shifted the feminist focus to symbolic and representational issues, addressing questions of power, knowledge and subjectivity (Abbott, Wallace, & Tyler, 2005).

Because of the different perspectives regarding women's oppression or subordination, several feminist paradigms can be identified, namely, liberal, Marxist, radical, socialist, postmodernist, critical, and black/post-colonial. All these perspectives tend to explain the factors leading to women's oppression and ways to overcoming it. They all agree that women are oppressed, but they all differ in their explanations of the cause and their suggested strategies for overcoming such oppression (Abbott, Wallace, & Tyler, 2005).

2.5.1 Liberal Feminist Perspective

Liberal feminism, having its root in liberal political thought (Abbott, Wallace, & Tyler, 2005), considers the social system to be essentially just and that all deviations from desirable conditions are due to lack of information about the problems facing women and lack of adequate legislation to deal with them (Stromquist, 2006). It believes that men and women are the same, and that both men and women have equal human capacity for rational thought and action. Liberal feminists place great emphasis on the right of individuals to compete in the public sphere and also on what they see as corresponding responsibilities of individuals to take part in public life (Abbott, Wallace, & Tyler, 2005).

Liberal feminism provides the argument that women's subordination is due to the artificial barriers to women's full participation in the public sphere (beyond the home and the family), and hence their inability to accomplish their potential as human beings (Abbott, Wallace, & Tyler, 2005). Liberal feminism looks at the explanation of gender inequalities in social and cultural attitudes. For instance, they are concerned with sexism and discrimination against women in the workplace, educational institutions, the media, and elsewhere that are artificially constructed (Giddens, Duneier, Appelbaum *et al.*, 2008). This perspective considers the State as a key institution that will both design and implement legislation to ensure women have

equal rights, politically, economically as well as socially (Stromquist, 2006). Critics of this perspective see these as the very fundamentals that ensure the continued existence of inequality within society, as laws are mostly applicable to the public sphere and not the private sphere, as it would be unconstitutional. This means that the State in forming pieces of legislation may not legislate on areas concerning the body, sexuality and sexual division of labour (Kritzinger, 2002).

To liberate women, it is necessary to demonstrate that women and men are equal in potential and that women are fully human; the difference between men and women in society are due to the different ways in which boys and girls are socialised and the different social expectations they face, together with discriminatory legislation (Abbott, Wallace, & Tyler, 2005). The liberal feminist perspective has been criticised for not really explaining women's inequality; it merely describes and challenges it (Abbott, Wallace, & Tyler, 2005). Liberal feminists are unsuccessful in dealing with the root cause of gender inequality and do not acknowledge the systemic nature of women's oppression in society (Stromquist, 2006; Giddens, Duneier, Appelbaum *et al.*, 2008). Despite these criticisms, Kritzinger (2002) asserted that liberal feminism has made very important strides in the fight against gender discrimination, thereby improving the quality of life of women through education and legal reforms.

2.5.2 Radical Feminist Perspective

Radical feminism is concerned with women's rights rather than gender equality; it emphasises the difference between women and men (Giddens, Duneier, Appelbaum *et al.*, 2008). As such, it is also known as gynocentrism (a women-centred approach). Patriarchy, an elaborate system of male domination which pervades all aspects of society and culture, is regarded by radical feminist as the root cause of women's oppression. The family is seen as a key instrument of

the oppression of women, through sexual and maternal obligation (Abbott, Wallace, & Tyler, 2005; Stromquist, 2006; Giddens, Duneier, Appelbaum *et al.*, 2008). It is argued that men exploit women by relying on their free domestic labour that women provide in the home and that as a group, men also deny women access to the position of power and influence in society (Giddens, Duneier, Appelbaum *et al.*, 2008).

One of the key concerns of radical feminists is the extent to which women themselves become so oppressed by patriarchal ideologies that they perpetuate men's control of their bodies (Abbott, Wallace, & Tyler, 2005). The central tenet of radical feminism is that gender inequalities are the outcome of an autonomous system of patriarchy and are the primary form of social inequality. Abbott *et al.* (2005) maintain that there has always been a sexual division of labour underpinning and reinforcing a system of male domination. Patriarchy is a universal system in which men dominate women (Abbott, Wallace, & Tyler, 2005). Sexism is at the core of patriarchal societies and all social institutions reflect that sexism which is embedded in every social institution (Abbott, Wallace, & Tyler, 2005; Giddens, Duneier, Appelbaum *et al.*, 2008). That being the case, inequality against women cannot be solved by any other male-dominated system such as capitalism or socialism. Women, as a solution, must create a separate institution – a woman-centred institution that relies on women rather than men (Kendall, 2012).

Unlike the liberal perspective where the State is considered a key institution for ensuring gender equality, the radical feminist stance considers the State a key agent in the perpetuation of women's inequality through its strong defence of the family as the core unit of society (Stromquist, 2006). Stromquist (2006) argued that the defence of the family by the State is associated with the identification of women as mothers and housekeepers, thus creating a

private but overwhelming strong realm for women and a public sphere for men. Radical feminists do not believe women can be liberated from sexual oppression through reforms or gradual change. Because patriarchy is a systemic phenomenon, they argue that gender equality can only be attained by overthrowing the patriarchal order (Giddens, Duneier, Appelbaum *et al.*, 2008) or through its abolishment (Kendall, 2012). Moreover, because men dominate women even in the most intimate relationship, women must live separately from men in order to be able to liberate themselves (Abbott, Wallace, & Tyler, 2005).

2.5.3 Socialist Feminist Perspective

Socialist feminism connects the oppression of women to Marxist ideas about exploitation, oppression and labour. It sees an interconnection between ideological and economic forces, in which patriarchy and capitalism reinforce each other (Stromquist, 2006). Socialist feminists think an unequal standing in both the workplace and the domestic sphere holds women down. The inequality against women is simply due to the dual role (paid and unpaid workers) women play in a capitalist economy. In the workplace, women are exploited by capitalism; at home, they are exploited by patriarchy (Kendall, 2012).

Socialist feminists see prostitution, domestic work, childcare and marriage as ways in which women are exploited by a patriarchal system that devalues women and the substantial work they do (Giddens, Duneier, Appelbaum *et al.*, 2008). Socialist feminists focus their energies on a broad change that affects society as a whole, rather than affecting only individuals. They see the need to work alongside not just men, but all other groups, as they see the oppression of women as part of a larger pattern that affects everyone involved in the capitalist system (Abbott, Wallace, & Tyler, 2005; Giddens, Duneier, Appelbaum *et al.*, 2008). According to

socialist feminists, the only way to achieve gender equality is to eliminate capitalism and develop a socialist economy that would bring equal pay and rights to women (Kendall, 2012).

2.6 Structural Functionalism

Structural functionalism, also known as the social systems theory (Babbie, 2011), was very much popular in the 1950s and 1960s (Fiorentine, 1993). This theory grew out of a notion introduced by Auguste Comte, Talcott Parson, Emile Durkheim and others (Giddens, Duneier, Appelbaum *et al.*, 2008; Babbie, 2011). They believe that a social entity such as an organisation or the whole society can be viewed as an organism. Like organisms, a social system is made up of parts, each part contributing to the functioning of the whole (Babbie, 2011). That is, society is a system that is linked together to produce a social solidarity (Giddens, Duneier, Appelbaum *et al.*, 2008). The structures of the society were seen as mutually supportive and tending towards a dynamic equilibrium (Ritzer, 2008).

In relation to inequality, structural functionalists stress that people's socialisation into prescribed roles is the major impetus behind gender inequality (Andersen & Taylor, 2007). The functionalist perspective on gender inequality is that gender difference contributes to social stability and integration. According to Talcott Parson, a leading functionalist thinker, the family operates most effectively with a clear-cut sexual division of labour in which women act in expressive roles (expressive roles implying taking care of children, doing all the domestic work, providing emotional support and confining themselves to the private sphere) and men perform instrumental roles (instrumental roles being usually associated with activities that occur in the public sphere which are designated for only men, since they are regarded as the breadwinners of the family) (Giddens, Duneier, Appelbaum *et al.*, 2008). The survival of any group, organisation, or society requires the performance of both instrumental and

expressive functions. Reproductive difference, according to Fiorentine (1993), exempts males from the demand of pregnancy and nursing; the activities of a husband-father will be directed towards economic, political, and other extra familial activities, whereas the wife-mother will be responsible for domestic activities. Also, due to the stressful nature of the man's role, women's expressive and nurturing tendencies should be used to stabilise and comfort men. This complementary division of labour, according to Parson, will ensure stability in the family system and the society at large (Giddens, Duneier, Appelbaum *et al.*, 2008).

The division or segregation of gender into roles, according to Fiorentine (1993), leads to significant gender differences in occupational attainment. This is because men will hold high-status, high-authority positions, while women will either not be employed or will be employed in occupations that have a large expressive component and that do not interfere with their domestic responsibilities.

Functionalists have been criticised for their interpretation of gender as a fixed role in society by purporting that men fill instrumental roles in society, whereas women fill expressive roles; the theory presumed that this arrangement worked to the benefit of society (Andersen & Taylor, 2007). Similarly, Fiorentine (1993) criticised this perspective as unable to handle social changes, that is, it is static in its description of society based on division of labour. Feminists also objected to this characterisation, arguing that it is presumed that such arrangements were functional for society. They view limiting women's role to expressive functions and men's to instrumental functions as dysfunctional, both for men and women (Andersen & Taylor, 2007).

2.7 Gender

Gender is a social construct of the roles and responsibilities women and men play in society (Ahmed, 2005). It does not simply refer to women or men but also the relationship between them as well as their behaviour and attributes (International Women's Rights Project, 2010). Gender is the way women and men including children (girls and boys) are perceived, evaluated and expected to behave and that societies differ with respect to the cultural phrasing of the relations between the two (Singh, 2006b). Gender, as a social construct, includes the norms and expectations regarding behaviour with men and women in particular societies at particular times (Willis, 2011). The unequal power relations and the ability to access resources between women and men are influenced by historical, societal, economic, religious and cultural realities (International Women's Rights Project, 2010). This power relation between women and men is called gender relation (International Women's Rights Project, 2010). Gender is a dynamic concept, changing from time to time and within spaces. Gender and sex are considered to be synonymous, yet they are two distinct concepts. People are born into a society that is highly polarised and highly stereotyped, not only into male and female, but into man and woman (Prince, 2005). Sex, on the other hand, refers to biological differences between males and females. Unlike gender, it is not determined by society's construction of people.

2.8 Gender Equality

According to Panda (2007), gender inequality occurs at any stage of society; hence, solving inequality requires a change in intra-household gender relations, decreasing domestic violence, enhancing the confidence of women through education and capacity building and increasing their participation in all aspects of the society. Women and men have different capabilities and

different needs and interests as well, thus having equal chances to realise their full human rights and to benefit equally from society; this is the priority of gender equality (Moser & Moser, 2005). Gender equality does not mean women and men will become the same but rather denotes giving equal chance to both women and men to participate or take part in development activities and benefit equally. It is assumed that once the barriers to participation are removed, equality between women and men will be ensured (De Waal, 2006). This is in line with the liberal feminist standpoint that women will be able to achieve the feat of men when obstacles to their progression are removed. Liberal feminism upholds the assertion that women and men are not so distinct from each other; rather, they have similar aptitude or potential to triumph. Nevertheless, women are faced with social restrictions that encumber upon their potential to achieve. Hence, removal of such restrictions will result in a level playing field for all (Alexander, 2010).

On the other hand, gender parity refers to women and men having equal numbers in development activities as well as in benefit sharing (De Waal, 2006). Gender parity is mostly used as an indicator to measure how mainstreaming the gender perspective has been achieved. However, critics argued that numbers alone can hide facts as much as they reveal them (De Waal, 2006). Because of that, the use of qualitative indicators together with a quantitative indicator is the ideal way of assessing the progress of gender mainstreaming policy and strategy (Moser & Moser, 2005).

2.9 Gender Division of Labour

Gender roles are a set of perceived behavioural norms associated with women and men. The roles performed by both males and females are not determined biologically; rather, they are constructed socially. That is, they are based on the societal norms as well as historical

antecedents of people (Kabeta & Gebremeskel, 2013). In examining the different roles of women and men, the gender division of labour provides the underlying principle for differentiating the water-related work that men and women do. However, there is nothing natural about the task and responsibilities that women and men are assigned on the basis of their gender. Feminists submit that it is the penetration of Western culture that has historically and artificially separated the roles of women and men, leading to the subordination of women (Ahmed, 2005). Roles performed by men and women can broadly be categorised into reproductive and productive roles. Reproductive roles include childbearing and related responsibilities as well as domestic tasks. However, the reproductive role extends beyond biological reproduction and also includes the care and maintenance of the home (Tasli, 2007). These roles, according to Ahmed (2005), are largely unpaid activities which go into the maintenance and reproduction of the household. In relation to water management, domestic roles involve responsibilities for collecting water for household purposes.

Productive roles, on the other hand, refer to activities that involve the production of goods and services and related activities. Both women and men use water for productive purposes, whether it is for subsistence, rain-fed agriculture, irrigation of crops or for livestock (Ahmed, 2005). Upadhyay (2003) postulated that women use water not only for domestic purposes but also for significant, productive uses. Productive uses include small-scale activities that enable women to grow a wide range of agricultural produce, from homestead vegetables and fruits to subsistence crops, livestock rear and running micro-enterprises. Despite women's significant involvement, they are often denied equitable access to water, membership and irrigated land.

A third dimension of gender roles, community management role, is presented by Tasli (2007) and Peter (2006). Community management roles are activities performed not for family gain

but for the well-being of the community (Peter, 2006). This is an extension of women's domestic role at the community level and covers activities which ensure the provision and maintenance of scarce resources of collective consumption, such as water, health care and education; it is voluntary and unpaid work (Tasli, 2007). These roles are not entirely distinct and may overlap. Men are mainly involved in productive and community tasks, while women play these triple or multiple roles.

2.10 Approaches to Gender

Development started out in the late 1950s as a largely male-dominated field, operating on the assumption that development affected women and men in exactly the same way, and the approach was therefore essentially gender-blind. However, this did not remain the case. Since the 1970s, when Esther Boserup first put the issue of women in development (WID) on the agenda with her book "Women's Role in Economic Development", a lot of literature on the topic of women in development has been produced (International Women's Rights Project, 2010; Willis, 2011). The focus of the literature gradually progressed from WID to gender and development (GAD), and other approaches such as empowerment, anti-poverty, efficiency and gender mainstreaming. This section has discussed these approaches to gender from the welfare approach until GAD.

2.10.1 Welfare Approach

This approach emerged in the 1950s until the 1970s, where development policies were targeted to address the needs of the poor women in the context of their role as wives and mothers (Willis, 2011). The focus on development policies included education on childcare and health, nutrition as well as home economics. The focus was on women's needs as domestic managers, and that benefits resulting from economic growth will trickle down to the

poor and women through their husbands who are engaged in income-earning activities. Women are passive recipients of benefits resulting from development (International Women's Rights Project, 2010). However, the welfare approach failed to recognise that the social arrangement in society is the basis for the prevailing inequalities and that its existence perpetuates further inequality (Willis, 2011).

In the water sector, water and sanitation services were defined in the perspective of health care and hygiene, which were seen as the responsibilities of women. Women were only seen to be concerned with water at that most basic level such as the home (International Women's Rights Project, 2010). Policies and programmes implemented during this period tend to only fulfil the practical needs of women, with the neglect of their strategic needs (Chauraya, 2012). This can be said of today's gender policies of developing countries whose focus is the practical needs of women; hence, the status quo of women remains unchanged. Practical needs relate to the fulfilment of women's immediate needs such as the provision of drinking water. Strategic needs, on the other hand, refer to the transformation of the social status of women through increasing their participation in development as well as influencing the processes that affect their lives (Willis, 2011; Chauraya, 2012).

2.10.2 Women in Development

The WID approach surfaced to replace the welfare approach in the late 1970s and lasted into the early 1980s with the aim of integrating women into development processes. As the name suggests, the emphasis was only on women and their inclusion in the development process. However, like the welfare approach, WID views women also as passive recipients of benefits (Manase, Ndamba, & Makoni, 2003; De Waal, 2006). This approach emerged from a liberal feminist perspective (De Waal, 2006).

Although this approach led to the improvement of income, health or resources, it was not sustainable. WID failed to recognise the power relationship among different genders by including only women with the neglect of men. The multiple roles played by women in society were not integrated as part of the approach (International Women's Rights Project, 2010). Development projects and programmes are essential for the progress of every nation, most importantly in developing countries that are trying to catch up with developed countries.

Nevertheless, such aforementioned changes in developing countries failed to bring about a change in the status of women both at the domestic and community levels. This approach was unable to achieve its target; hence, it was unsustainable. Power relations among both genders were not incorporated into that intervention, hence inequality perpetuated (Panda, 2007). The involvement of women was regarded as the only way to achieve equality. Men were considered the problem; consequently, they were not engaged in any development intervention specifically designed for women (Willis, 2011). More emphasis was placed on the question of "how women could be better integrated into ongoing development initiatives" without challenging the existing structures in which the sources of women's subordination and oppression are embedded. Finally, the WID concept focused entirely on the productive aspects of women's work and ignored the reproductive aspects of their lives (Tasli, 2007).

2.10.3 Gender and Development

The GAD approach emerged in the 1980s out of the criticisms of the WID concept (Tasli, 2007). The GAD approach is based on the assumption that the disparities between women and men in terms of economic, political, and social status are the root cause of unequal power relations; hence, removing such obstacles is the re-condition for achieving development (International Women's Rights Project, 2010). Addressing the disparities in the public and

private spheres among women and men is the prerequisite for achieving human-centred development. This is the basis of the GAD approach. Unlike the other approaches, women are active forces in any development process and outcomes (Gender and Water Alliance, 2006). Much of the works in the water sector is informed by this approach (Gender and Water Alliance, 2006; International Women's Rights Project, 2010). The WID approaches assume that any improvement in women's economic situation will automatically lead to advancement in other spheres of their lives. The GAD concept, however, is not that optimistic about this assumption. Women's weakness in socio-economic and political structures as well as their limited bargaining power puts them in a very disadvantageous position. One of the strategies suggested by the GAD approach is the self-organisation of women at the local, regional and national levels (Tasli, 2007).

2.11 Conclusion

This chapter has presented a review of literature based on the direction of the study. While literature was accessed before fieldwork, most of the literature review was conducted after the analysis of the data. Concepts such as IWRM and the principles guiding it were reviewed. The concepts of participation and its classifications were presented. Furthermore, a concept on gender and gender roles as well as approaches used for women inclusion in development was elaborated. The literature has provided some light through which the study was conducted and reported findings of previous studies related to the research theme. The literature review was used as a background tool considering the method used for this study. The chapter that follows presents a detailed account of the methodology used for the study as well as a description of the study area.

CHAPTER THREE

RESEARCH METHODOLOGY AND STUDY AREA

3.1 Introduction

The preceding chapter reviewed literature relevant to this study. Chapter 3 will focus on the research methodolody used in this study. Research methodology refers to the procedure used by an inquirer to investigate a research topic and answer research questions (Nkonya, 2008). The success of a research project is dependent upon the selection of appropriate research methods. Considering this fact, various methods and techniques have been used in this research. This chapter starts with the research paradigm that guided the study as well as the approach that was used. It also outlines the techniques that were employed during data collection and how the data collected was analysed. Issues of validity and reliability are also discussed. Every researcher is faced with ethical issues; hence, this chapter concludes with a discussion around ethical issues encountered.

3.2 Research Methodology

3.2.1 Research Paradigm: Social Constructivism

The research paradigm denotes the dominant framework in which a research project takes place. Guba and Lincoln (1994, p. 105) defined a paradigm as "the basic belief system or worldview that guides the investigator, not only in choices of methods but in ontologically and epistemologically fundamental ways". Such a framework is composed of and differentiated based on four aspects: ontology, epistemology, methodology and axiology (Wahyuni, 2012; Creswell, 2013). Ontology is concerned with the nature of reality and what is there to know

about it (Guba & Lincoln, 1994). Ontological questions concern whether or not there is a social reality that exists independently of human conception and interpretation (Hammond & Wellington, 2013). Social research is shaped based on two ontological positions: realism and idealism. Realism is based on the idea that there exist realities that occur independently of people's belief, that is, there is a difference between the way the world is and the meanings and interpretation of that world. Idealism, on the other hand, asserts that reality is based on human conception and is socially constructed (Ormston, Spencer, Barnard *et al.*, 2013).

Epistemology is concerned with the ways of knowledge generation and learning about the world (Hammond & Wellington, 2013). It focuses on issues such as how people can learn about reality and what forms the basis of people's knowledge (Wahyuni, 2012). On the basis of epistemology, there are two ways to generate knowledge. Knowledge can be acquired either inductively or deductively (Ormston, Spencer, Barnard *et al.*, 2013). A deductive approach is a process of reasoning that flows from an idea to systematic empirical observation to conclusion. Induction approach, on the other hand, is a process of reasoning that follows a reserve path; observation precedes theory and interpretation (Johnston & Vanderstoep, 2009).

Axiology, as a fundamental research assumption, is concerned with the value system regarding reality, that is, the role of the researcher and the researcher's position in relation to the phenomena being studied (Wahyuni, 2012). In a qualitative study, the researcher admits the value-laden nature of the research and actively reports their values and biases as well as value-laden nature of the data gathered (Creswell, 2013). Lastly, methodology, as a philosophical assumption, is concerned with the research processes to be used to come to a conclusion about reality (Wahyuni, 2012). It is concerned with the question of how a researcher goes about

finding out whatever he or she believes to be knowledge. This process can either be quantitative or qualitative (Guba & Lincoln, 2004).

To understand the experiences of women in an integrated water resources management context, the study adopted a social constructivist approach. Social constructivism is a research paradigm that denies the existence of an objective reality, emphasising instead that realities are social constructions of the mind and that there exist as many such constructions as there are individuals (Mills, Bonner, & Francis, 2006). According to Willianson (2006) and Pouliot (2007), constructivism and interpretivism can be used interchangeably as they are founded on the same philosophical assumptions. Social constructivism, originally known as the naturalistic inquiry (Appleton, 1997), therefore relies on the multiple views of participants to construct reality. The goal of this study, therefore, was to rely on the views of participants (Creswell, 2013) of women's involvement in order to create an understanding of their roles in IWRM. Table 3.1 gives a summary of basic assumptions or philosophical beliefs regarding social constructivism.

Table 3. 1: Philosophical beliefs of social constructivism

Philosophical beliefs	Social Constructivism/Interpretivism
Ontology	Relativist: Multiple realities are socially constructed through people's lived experience and interaction with others.
Epistemology	Transactional and subjectivist: Reality is co-constructed between the researcher and the phenomena being studied and shaped by the individual experience.
Methodology	Qualitative: Use of an inductive method of emergent ideas obtained through methods such as interviewing, observing and document analysis.
Axiology	Value-bound and emic: The researcher is part of what is being studied, cannot be separated and so will be subjective.

Source: Guba and Lincoln (2004), Wahyuni (2012) and Creswell (2013)

3.2.2 Qualitative Approach

Anyone who sets out to research or investigate any subject or phenomena must make certain decisions. In most instances, the first step that a researcher must take in deciding to undertake a research project is selecting between qualitative and quantitative methodologies (Palys, 1997). Over the years, there has been a debate between quantitative and qualitative approaches in academic circles as to which approach is the best. Both approaches aim to contribute to the knowledge about phenomenon (Begley, 1996). Begley (1996) maintained that while quantitative methods are more useful, if one knows something about the phenomena, qualitative methods are suitable when one wishes to extensively explore a phenomenon. The debate as to which method is best is fruitless, as both methods are different, not only in the use of techniques, but in that they are based on different ontological and epistemological

assumptions (Begley, 1996). The choice between these two methodologies is not about supremacy over the other, but rather the identification of the method that is most suitable for a kind of study. The final choice of the research approach to be used should depend, therefore, on the research question to be answered. Nevertheless, constraints of time and resources and the researcher's particular abilities may influence the decision (Begley, 1996).

In relation to the aim of this study, taking a strictly passive position would not be useful; therefore, a qualitative approach was employed. According to Straus and Corbin (1998), a qualitative study is a type of methodology that produces findings or outcomes not by statistical techniques or means of quantification. Rather, it studies the aspects of human beings, which quantitative methods cannot investigate adequately (Fischer, 2004), such as behaviour, experience, feelings and emotions about phenomena, interactions between actors and organisational functioning (Straus & Corbin, 1998; Fischer, 2004). Thus, qualitative researchers are concerned with an in-depth study of humans and their experiences in order to comprehend the nature of these experiences and the effect they have on individuals (Begley, 1996). Though qualitative research is non-statistical, Straus and Corbin (1998) pointed out that some of the data in a qualitative study may be quantified, such as the background information about the phenomena; however, the greater part of the data analysed is interpretative.

3.2.3 Grounded Theory Method

Since the development of grounded theory by Barney Glaser and Anselm Strauss in the 1960s, it has gradually been used in qualitative research. It is particularly suited for the purpose of theory generation or theory development (Straus & Corbin, 1998; Nieuwenhuis, 2007b). The aim of grounded theory, according to Bailey (1997), is to develop or reconfirm a theoretical construct in order to enhance a further understanding of the phenomena.

Grounded theory derived its theoretical foundation from pragmatism and symbolic interactionism. However, one does not need this orientation to use this method (Corbin & Straus, 1990). Unlike other methods where the research moves deductively (from the general to the particular), a study based on grounded theory proceeds inductively (from the particular to the general) (Stern, 1985, cited in Dan-Azumi (2009). As such, theory is generated from data, and no effort is made to impose theory on data. A study based on grounded theory does not start with a preconceived theory in mind; rather, the study begins with an area of study and allows the theory to develop from the data (Straus & Corbin, 1998; Dan-Azumi, 2009). Simply put, it is concerned with expanding an explanation of a phenomenon through the identification of the phenomenon's key elements and then categorising the relationships of those elements to the context and process of the experiment. It pays attention to the specific while not ignoring the uniqueness of the subject of the study (Dan-Azumi, 2009).

At the heart of grounded theory research is constant simultaneous comparison and analysis of data which is compared with every other item of data and from which a theory is then generated. Thus, it combines data collection, analysis and theory formulation, all of which are seen as connected in a reciprocal sense (Straus & Corbin, 1998; Urquhart, 2013).

Since the inception of the grounded theory method in the 1960s, it has taken a divergent direction (Urquhart, 2013; Charmaz, 2014). Glaser remained unswerving with his previous work of the method and consequently defined grounded theory as a method of discovery, treated categories as developing from data, relied on empiricism, and analysed a basic social process. Strauss (1987), on the other hand, moved towards verification, as compared to Glaser, who was fixed on theory construction (Charmaz, 2014).

This study therefore adopted the procedures of grounded theory method put forward by Strauss (1987) and Straus and Corbin (1998), though not all its procedures were rigidly adhered to. This was further supplemented by the works of Glaser (1978) and Charmaz (2014) in order to make the study a rigorous one. Grounded theory method was also chosen as a basis for this research, as it is the most appropriate for areas where little is known or written about a phenomenon, and because the aim of the study is to move the analytical process beyond simple description through exploration.

3.2.4 Selection of Respondents

The study uses a non-probability sampling technique in the selection of respondents to be part of the research. Non-probability sampling is a method of choosing respondents that is not based on random selection, that is, respondents do not have equal chances of being selected; rather, respondents are chosen purposefully (Kumar, 2011). In this study, respondents were selected from among the members of the Mutale WUA. The selection of respondents was aided by the chairperson of the Mutale WUA. This was due to the fact that the respondents were considered to be knowledgeable about the phenomena under consideration. Fourteen members of the Mutale WUA were considered for the study, though more could have been selected. The unwillingness on the part of some respondents, time constraints and costs involved, especially as the respondents involved in the study had to be reimbursed their transport costs, as that was one of the conditions upon which they agreed to be part of the research, were all limiting factors. Four respondents were members of the Mutale WUA management committee, while the other 10 members were non-members of the management committee.

3.2.5 Data Collection Technique

Methods are simply tools, with some of these tools better suited than others in a given context. While a method provides the researcher with a tool to enhance what is being studied, methods alone do not generate good research and astute findings. How the researcher uses a method matters (Charmaz, 2014). Grounded theory, argued Charmaz (2014), allows the researcher to employ flexible ways of data collection rather than be constrained by rigid prescriptions. This flexibility of methods has resulted in grounded theory researchers collecting data through the use of a wide variety of data collection tools (Straus & Corbin, 1998). In this study, primary data was gathered through the use of a semi-structured interview. Secondary data was also used in this study. When selecting a method for a study, one needs to reflect the appropriateness of such a method in addressing the research question that is posed. Effective methods answer the research question with ingenuity and incisiveness. How the data is collected will also have an impact on which phenomena the researcher will see (Charmaz, 2014).

3.2.5.1 Interview and Procedure for Interview

An interview is a two-way conversation between the interviewer and the respondents (interviewee), where questions are asked about the phenomena under study to collect information and learn about their perceptions, beliefs, and behaviour (Nieuwenhuis, 2007b). The interviews in this study were purposefully semi-structured, since the intent of the interviews was to explore issues of women's roles and the influencing factors in that water setting. The interviews were used to understand the nature of women roles in a water user association (WUA), as well as the contextual factors influencing their roles. The choice of this data collection tool was due to its flexibility, as it offers rich and detailed data. Interviews,

Charmaz (2014) emphasised, allow an in-depth exploration of phenomenon or experience and thus are a useful tool for a constructivist study. The in-depth nature of an interview enables eliciting each respondent's interpretation of his or her experience or reality. Interview was also appropriate for this study because the phenomenon under study involved sensitive topics such as power relations and gender, which are better explored individually than in a group (Charmaz, 2014). However, these advantages as is true for all social science methods are not gained without cost. Because of the large amount of time and effort involved, interviewers cannot usually study a very large sample of people, hence making it difficult to make generalisations.

In-depth interviews were held with the members of the Mutale WUA and the management committee members to gather information about their perceptions of gender roles and the constraints women face in the management of water resources. A total of 14 respondents were identified through the Mutale Water User Association. Contact with respondents was made by telephone and also in person. These contacts served as an opportunity to brief respondents on the research, obtain their consent, and set a date for the interview. Respondents were interviewed, with each interview lasting between 20 to 35 minutes. All the interviews were audio-recorded with the aid of a digital recorder. The interviews were conducted at the conference hall of the Department of Water and Sanitation office located in Thohoyandou, Limpopo. The interviews were conducted in the English language. Field notes were also used during and after the interview session.

3.2.5.2 Secondary Data

To complement the primary data, review secondary materials were conducted. Materials from scholarly literature such as books, journal articles, published and unpublished dissertations,

reports, conference proceedings, government policies and pieces of legislation were used in this study. The use of secondary data affords the researcher access to information already processed and thought out than data from primary sources. These data enriched the researcher's understanding of the context and objectives of the subject matter under study.

3.2.6 Data Analysis

The purpose of qualitative data analysis is to organise, categorise and elicit meanings from the data collected from the field (Straus & Corbin, 1998). In a qualitative study, Straus and Corbin (1998) posit that the researcher is considered an instrument of the research process and, as such, data analysis is dependent on his or her analytical skills and creativity so that meaning and the relationships in the data can be interpreted to expand an understanding of the phenomenon under investigation. In this study, a constant comparative method of data analysis was employed, as this is in line with the grounded theory method, which has at its heart constant, continuous and simultaneous interaction between data collection and analysis.

Constant comparative analysis is the process of comparing the similarities and differences between the categories that emerged from the data collected (Straus & Corbin, 1998; Harding, 2013). The key reason for using the constant comparative analysis, according to Dey (2004, as cited in Harding (2013), is that comparison is the engine through which we can generate insights, by recognising patterns of similarities or difference within the data. Making comparisons, according to Corbin and Straus (1990), assists the researcher in guarding against bias, as the researcher is then challenging concepts with fresh data. However, procedures were not rigidly observed.

Willig (2014) asserts that in studies like this, interpretation of data is not theory-driven; instead, it is based on evidence at face value. It is assumed that participants mean what they say and say what they mean. Thus, one attempts to refrain from theory-driven interpretation of data, preferring instead to take evidence as it is. Therefore, the results presented in Chapter 5 follows that assertion.

3.2.7 Initial Procedure

The interviews were transcribed verbatim by the researcher. To ensure accuracy of the transcriptions, interview audios were replayed while rereading the transcribed interviews. The transcripts were then read several times before coding began. This approach assisted the researcher to become fully immersed in the data collected from the field. Field notes were also used, as this allowed the researcher to write reflective notes about the interview responses (Charmaz, 2014).

3.2.8 Coding

The process of coding data in a qualitative study is regarded as one of the difficult steps in research (LaRossa, 2005). Coding, according to Nieuwenhuis (2007a), is marking a segment of data with symbols, descriptive words or unique identifying names. The study made use of the three-stage coding system proposed by Strauss (1987), that is, open coding, axial coding and selective coding. This coding system was chosen because it has become the most widely accepted and used in grounded theory method due to its simplicity (LaRossa, 2005). The transcripts were coded line by line as well as word by word. These were then labelled based on similarities in terms of meanings. Codes with commonalities were then grouped together.

3.2.9 Validity and Reliability of the Study

Unlike in quantitative research where validity and reliability can be established through statistically or mathematically established procedures, in qualitative research there are no exact procedures or processes in establishing trustworthiness or rigour (Fischer, 2004). That being so, most researchers and academics alike continue to raise epistemological issues about the problems of objectivity and validity of qualitative research findings (Cutcliffe & McKenna, 1999; Tobin & Begley, 2004). Stated below are the procedures used in the study in order to establish rigour.

Reliability in this study was ascertained through the triangulation of data sources. Triangulation involves the use of different methods of data collection within one study in order to ensure that the data and findings are accurate. Multiple sources led to a better understanding of the phenomena being studied (Begley, 1996; Cutcliffe & McKenna, 1999). In this study, triangulation was established by comparing the data collected from interviews with participants, informal discussions as well as field notes.

Peer review was employed by the researcher to establish credibility of the study. A peer review or debriefing is the review of the data and research process by someone who is conversant with the research or the phenomenon being explored (Creswell & Miller, 2010). Chapters of the thesis were examined by colleagues as well as scholars who are well adept in research methodology. This procedure, Creswell (2013) asserted, provides support, plays devil's advocate, challenges the researcher, and asks hard questions about methods and interpretations.

3.2.10 Limitations of the Study

Sample size can be considered as a limitation of this study due to the fact that this research had a sample of 14 participants from the Mutale Water User Association. However, in qualitative research, the focus is not on the size of the sample but rather on the quality and depth of the information obtained. It is only necessary to continue sampling until theoretical saturation occurs.

The members of the Mutale WUA were scattered all around in different locations within the Vhembe District Municipality. As a consequence, this and the financial and time constraints allowed for a limited number of participants to be interviewed. Although it would have been preferable to include more participants and thereby increase the total number of interviews, the above factors had to be taken into consideration. Another limitation of the study relates to the unavailability of secondary information needed to supplement the primary data.

3.2.11 Ethical Considerations

All research studies present a number of ethical and moral dilemmas which must be identified and addressed prior to carrying out any research in order to shield all respondents from potential harm (Wassenaar, 2008). According to Orb, Eisenhauer, and Wynaden (2000), three types of problems that may affect qualitative research include the researcher/respondent relationship, the researchers' subjective interpretation of the data, and the design itself. As such, steps, as discussed below, were followed by the researcher in order to ensure that an ethical study was conducted.

Ethical issues may arise at any point during any study. This is irrespective of the meticulous planning that could be made. Because of that, it is important that potential ethical issues are recognised, prevented, and reviewed as best as possible prior to, during and after the study.

Ethical clearance to conduct this research was sought and obtained from the Monash University Research Ethics Committee (MUHREC) with evidence of the approval shown in Appendix I (Ethics approval number CF14/1464 - 2014000691). The study was classified as a low-risk research, implying that questions asked were less sensitive and posed virtually no risk to participants.

For better understanding, the study was explained to respondents in their local language, Tshivenda, through an explanatory statement as shown in Appendix II and the researcher's contact details were provided to enable respondents to access further information if they required it. Written informed consent (shown in Appendix III) was obtained from respondents prior to the commencement of the interviews. Respondents were fully informed of the voluntary nature of the research and that they could withdraw at any time without penalties.

The issue of anonymity and confidentiality was addressed in a variety of ways throughout the study. To assist in the maintenance of confidentiality, the recorded interviews were transcribed by the researcher himself. Additionally, all identifying information was removed from the data, with each respondent being assigned an alphanumeric code. These codes were assigned at random to respondents and do not represent the sequence in which the interviews occurred.

The study also took into account the sensitivity of the respondents' culture during the process of interviews. The selected assistant was a respected member of the community who was

recommended by the facilitating field organisation. The assistant was an indigene of the community with knowledge of the society.

A digital audio recorder was used in the process of interviewing the respondents. However, before it was used, permission was sought from the respondents individually. It was clearly indicated to respondents that the audio recorder was only for capturing information and also to avoid misrepresentation of facts.

3.3 The Study Area

In this section of the chapter, the researcher gives a general background to South Africa as a country and the province of Limpopo. He begins with a brief comment on the geography and demography of South Africa as well as that of Limpopo province. The last part of this section gives a description and the operational areas of the Mutale WUA with the aid of a map.

3.3.1 South Africa

3.3.1.1 Size and Location

South Africa occupies the southern tip of Africa, its long coastline stretching more than 2 500km from the desert border, with Namibia on the Atlantic coast, southwards around the tip of Africa, then north to the border with sub-tropical Mozambique on the Indian Ocean. South Africa is a medium-sized country, with a total land area of about 1.2 million square kilometers (SAinfo, 2012b).

South Africa has nine provinces which vary considerably in size (as shown in figure 3.1). The smallest is tiny and crowded Gauteng, a highly urbanised region, and the largest is the vast, arid and empty Northern Cape, which takes up almost a third of South Africa's total land area. On dry land, going from west to east, South Africa shares long borders with Namibia and

Botswana, touches Zimbabwe, has a longitudinal strip of border with Mozambique to the east, and lastly curves in around Swaziland before rejoining Mozambique's southern border. In the interior, nestled in the curve of the bean-shaped Free State is the small mountainous country of Lesotho, completely surrounded by South African territory (SAinfo, 2012b).
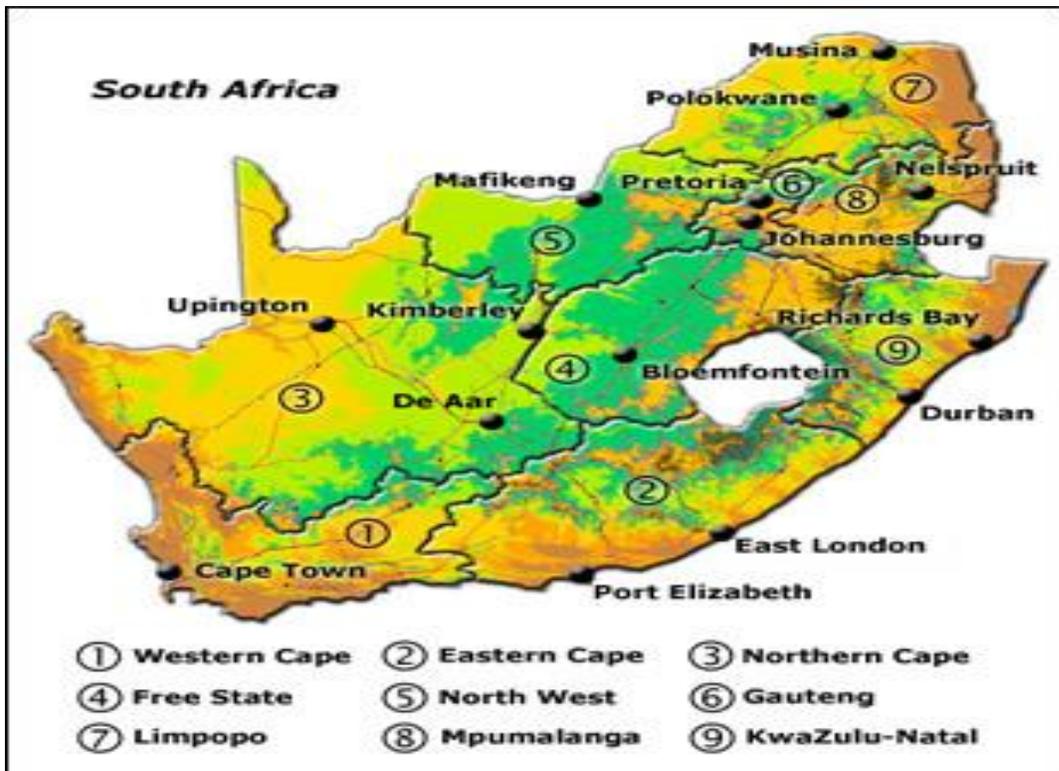
Figure 3.1: Map of South Africa showing the provinces and major cities

Source: SAinfo (2012b)

3.3.1.2 Climate and Topography

Although the country is classified as semi-arid, South Africa has considerable variation in climate as well as topography. The great inland Karoo plateau, where rocky hills and mountains rise from sparsely populated scrubland, is very dry and gets more so as it shades in the north-west towards the Kalahari Desert. Extremely hot in summer, it can be icy in winter.

In contrast, the eastern coastline is lush and well-watered – a stranger to frost. The southern coast, part of which is known as the Garden Route, is rather less tropical but also green, as is the Cape of Good Hope – the latter, especially in winter. This south-western corner of the country has a Mediterranean climate, with wet winters and hot, dry summers. Its most famous climatic characteristic is its wind, which blows intermittently virtually all year round, either from the south-east or the north-west. The eastern section of the Karoo does not extend as far north as the western part, giving way to the flat landscape of the Free State, which though still semi-arid receives somewhat more rain. North of the Vaal River, the Highveld is better watered and saved by its altitude from sub-tropical extremes of heat. Winters are cold, though snow is rare.

Further north and to the east, especially where a drop in altitude beyond the escarpment gives the Lowveld its name, temperatures rise; the Tropic of Capricorn slices through the extreme north. This is also where one finds the typical South African Bushveld of wildlife fame.

The highest temperature recorded in South Africa was in Dunbrody, in the Sunday River Valley in the Eastern Cape: 50ºC on 3 November 1918. The hottest place in South Africa is Letaba in the province of Limpopo, with a mean annual temperature of 23.3ºC and an average annual maximum temperature of 35ºC. The coldest temperature ever recorded in South Africa was on 28 June 1996 at Buffelsfontein, near Molteno in the Eastern Cape: -18.6ºC. In fact, Buffelsfontein is the coldest place in South Africa, with a mean annual temperature of 11.3ºC and an average annual minimum temperature of 2.8ºC (SAinfo, 2012b).

3.3.2 Limpopo Province

3.3.2.1 Geographical and Physical Background

Limpopo is the most northern province of South Africa. Limpopo covers an area of about 123 910 square kilometers, representing about 10.2% of the country's total land area (StatsSA, 2004). The province shares borders with Gauteng province in the south, Mozambique and the Kruger National Park in the east, Zimbabwe in the north, and Botswana in the west (see figure 3.2) (LPG, 2005).

Figure 3.2: Map showing Limpopo province and its neighbours

Administratively, the province consists of five district municipalities and 23 local municipalities (Aurecon, 2010). Polokwane is the capital and the centre of government and

commerce. As such, the city serves as the regional hub for the whole of the province including the neighboring countries of Zimbabwe and Botswana.

The province has three distinct climatic regions: the Lowveld region which is characterised by a semi-arid climate(s), the Middle and Highveld that is considered semi-arid, and Escarpment that experiences sub-humid climate (Tshiala, Olwoch, & Engelbrecht, 2011). The province is located in an area with a summer rainfall pattern, with the western side and far northern areas being semi-arid and vulnerable to recurrent droughts, while the eastern side is mainly sub-tropical. Mean annual rainfall ranges from 300mm to 500mm, although it is relatively higher for the southwestern and Lowveld areas (Rampedi, 2010). The province experiences long sunny days and dry weather conditions on most days. During the summer months, warm days are often interrupted by a short-lived thunderstorm. It can get very hot in summer (October and March), with average temperatures rising to 27ºC in summer and 20ºC in winter (Tshiala, Olwoch, & Engelbrecht, 2011).

Because of prevailing climatic conditions, the province has limited surface and groundwater resources. However, given its biogeographical attributes and varied topography and landscapes, the province has a rich plant biodiversity. Natural vegetation belongs to the savannah (bushveld) biome, with 15 different natural vegetation types and three centres (Drakensberg Escarpment, Sekhukhuneland and Soutpansberg) of endemism (Rampedi, 2010).

3.3.2.2 Socio-Economic Background

Limpopo has the fourth largest population in South Africa. It is considered to be a poor province, with about 87% of its people living in rural areas. The province had a population of

about 5.5 million people in 2013, representing approximately 10% of the population of South Africa (see figure 3.3). The population density was 43 people per square kilometer in 2001, somewhat higher than the average of 37 people per square kilometer for South Africa as a whole (StatsSA, 2004). Limpopo consists predominantly of black Africans who accounted for 97.2% of its population. It also has the lowest percentage of other population groups, with the Indian/Asian population constituting only 0.2% of the entire population. Limpopo has a higher proportion of women (54.6%) compared to men (45.4%) (SAinfo, 2012a). This is largely due to male out-migration in the province (Wisborg, Hall, Shirinda *et al.*, 2013).
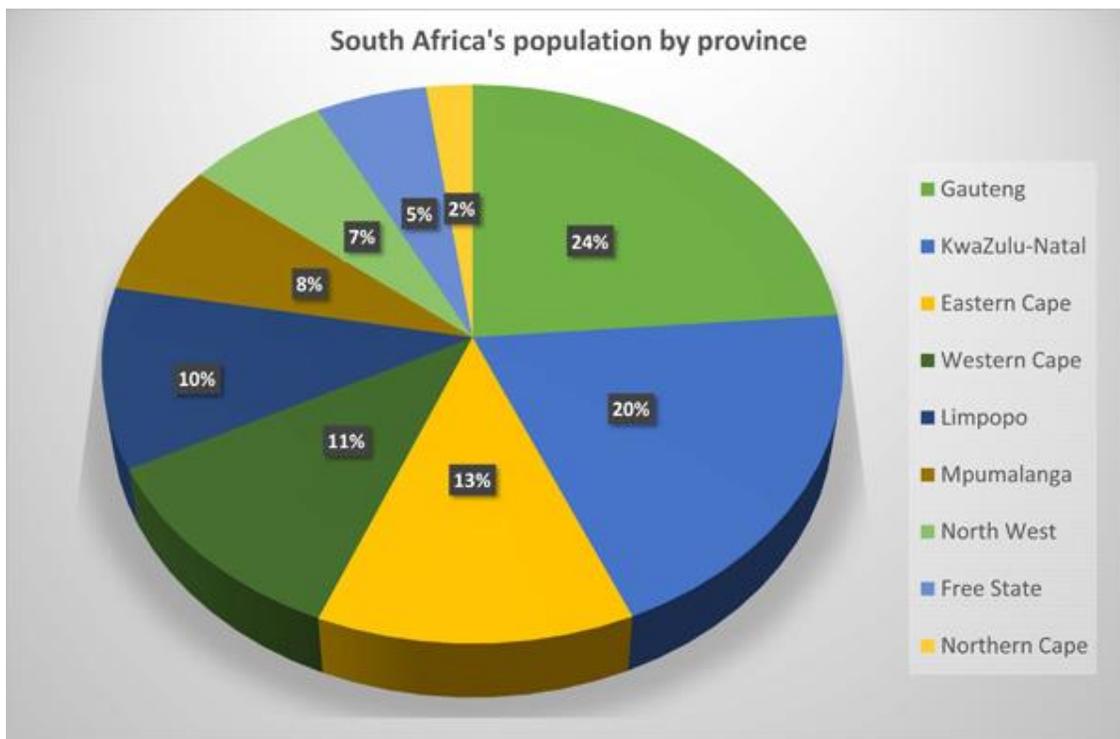

Figure 3.3: Pie chart showing South Africa's population by province

Limpopo is the second poorest of the nine provinces. This economic status is attributed to high unemployment rates (30.8%) and poverty levels (48%), unequal access to basic amenities (such as water and electricity) and unequal distribution of land resources. Despite increasing

urbanisation rates in South Africa, most of the inhabitants of the province live in areas which are predominantly rural, with the majority of settlements located in former homeland areas such as Venda, Gazankulu and Lebowa. People in such homeland areas are for the most part poor and in certain areas, they depend on the extraction of wild plant resources, rearing of traditional livestock as well as subsistence crops (Rampedi, 2010).

3.3.3 Mutale Water User Association

Mutale WUA was established by the Ministry of Water and Sanitation, according to the National Water Act (Act 36 of 1998), on 24 March 2006, after an extensive public participation that included local government, civil society, farmers and women, among other stakeholders. It is situated in the Limpopo water management area of South Africa in Limpopo (Department of Water and Sanitation, 2006). The Mutale WUA can be found within the Vhembe District Municipality of the province of Limpopo. However, its operational area covers three local municipalities, and they include Mutale local municipality, Makhado local municipality and Thulamela local municipality, all in the Vhembe District Municipality as shown in figure 3.4.

The drainage area consists of the Mutale River, which starts from the Thononda and Tshiheni villages and Thathe forestry, where the Mutale River and its uppermost tributaries originate. The area of operation of the association includes all areas that are supplied with water from upstream and downstream of Mutale River. The southern border starts at Tshatshingo and includes Tshiombo and Makonde, while the northern border starts at Shakadza and includes areas such as the Mbodi River, Tshivhongweni Mountains, Tshipose, Ha-Manenzhe, Tshenzhelani, Masisi, down to the Kruger National Park. The eastern border starts from Sambandou and ends at the confluence of Mutale and the Luvuvhu River. The western side

starts from Tshiheni and includes areas such as Thononda, Thengwe and Tshikundamalema (South Africa, 2006).

The Mutale WUA is divided into nine sub-areas, each managing an irrigation scheme. These sub-areas are Matangari, Tshilavulu, Mianzwi, Tshipise, Tshiombo, Rambuda N.T.K., Pile, Makuya and Thengwe. These sub-areas are autonomous and are all represented on the management committee (South Africa, 2006).

The WUA's main task is to manage, operate and control water use, ensure equitable distribution of water to all water users in the area as well as to oversee the management and control of any source within the catchment of the Mutale River. WUA's have been delegated the management function by the Minister according to Section 36 of the Act, because the Limpopo CMA is not operational yet. The WUA has a total of 1 319 members on its register. Farmers within the areas of operation are registered members based on occupation and water usage. Each community within the area of operation has a representative who is chosen by the community's tribal leaders (South Africa, 2006).
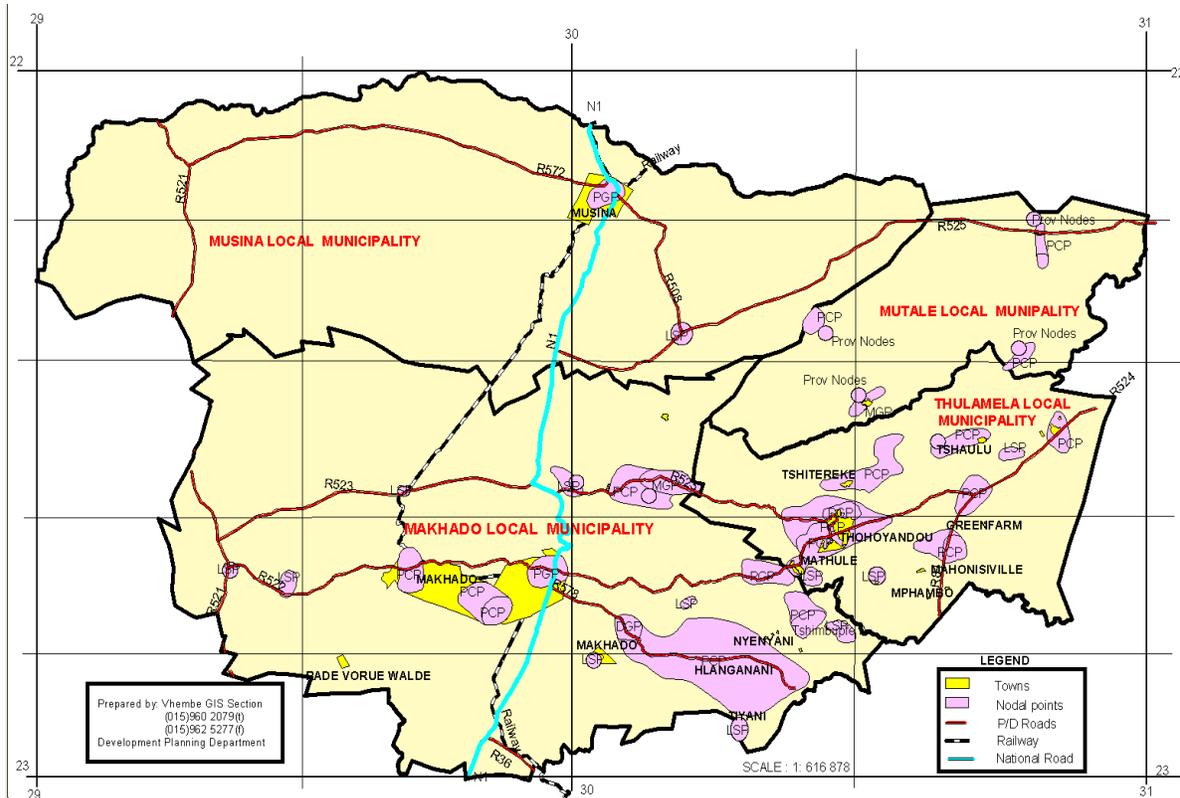
Figure 3.3: Map showing the operational areas of the Mutale WUA

The management committee of the Mutale WUA consists of 14 voting members. Nine members are elected from each of the irrigation scheme, one farmer representative elected at an annual general meeting of members of the association, one representative nominated by the Vhembe District Municipality, one representative nominated by the individual users of water, and one representative nominated by emerging farmers (South Africa, 2006) as shown in table 3.2.

Table 3. 2: Composition of management committee of the Mutale WUA

Position	Gender	Irrigation Scheme
Chairperson	Male	Matangari coordinator
Deputy Chairperson	Female	Tshilavulu coordinator
Secretary	Female	Mianzwi coordinator
Treasurer	Female	Tshiombo coordinator
Nominated Member	Female	Tshipisie coordinator
Nominated Member	Female	Rambuda N.T.K. coordinator
Nominated Member	Male	Pile coordinator
Nominated Member	Male	Makuya coordinator
Nominated Member	Male	Thengwe coordinator
Nominated Member	Male	None
Nominated Member	Male	None
Nominated Member	Male	None
Nominated Member	Male	None
Nominated Member	Male	None

3.4 Conclusion

This chapter presented the research methodology used in the study and the study area. It started with the research approach and paradigm that guided the study. The methodology was qualitative in nature using interviews and documentary sources as data collection tools.

Constant comparative analysis was the method of analysis utilised in the study. The research adhered to all ethical considerations as prescribed by the MUHREC. The second section of the chapter provided a description of the location and physical characteristics of South Africa. It also provided the physical and socio-economic description of the province of Limpopo, since the main case study was located within it. Lastly, a brief description of the Mutale WUA was provided as well as its area of operation. This was aimed at providing the context in which the study was conducted. The following chapter will present the research results obtained through the field research phase.

CHAPTER FOUR

RESEARCH RESULTS

4.1 Introduction

The foregoing chapter discussed the research methodology employed in this study. The purpose of this chapter (Chapter 4) is to present the research results of this study. The aim of the study was to examine the nature of women's roles in IWRM with a focus on the Mutale WUAs. Roles are a set of perceived behavioural norms associated with males and females. The roles performed by both males and females are not determined biologically. Rather, they are constructed socially. That is, they are based on the societal norms as well as historical antecedents of the people (Kabeta & Gebremeskel, 2013). Therefore, in examining the different roles of women and men, division of labour provides the underlying principle for differentiating the water-related work that men and women do (Ahmed, 2005).

This chapter provides clarity and explains the phenomenon under study; the role of women in IWRM. The results presented are based on in-depth interviews of 14 selected respondents from the Mutale Water User Association in the Limpopo province of South Africa. Results are qualitative and include quotes from respondents. The chapter has been sub-divided into six sections. The first section gives a brief description of how the codes in the study emerged. The second section provides a background description of respondents interviewed. The third and fourth section presents data on productive and domestic roles, respectively, of women and men in the Mutale WUA. The fifth section presents data on decision-making roles and factors

affecting women's decision-making role in the Mutale WUA. The last section presents a summary of the research results of the study.

4.2 Emergence of Codes

This section provides a brief description of how codes emerged and used in the study. The first step was to group the codes with a common theme together. Codes grouped together have commonality, and the emerging group is called a concept. These concepts are then grouped together to form a category, which is a theme that makes sense of what the respondents have said. It is from the concepts and categories that a theory emerges. Thus, the analysis proceeded by looking for new key points with the aim of comparing them with the concepts and categories already established. Table 4.1 presents a summary of how the codes were grouped based on commonalities.

Table 4.1: Summary of the codes that emerged during analysis

Codes	Concepts	Category
Farming, job, money	Productive roles	**Role**
Housework, duty of a woman	Domestic roles	
Shy, fear, undermine, neglect	Low self-confidence	
Tradition, culture	Culture	**Barriers to Decision-making roles**
Capacity, understand, education	Low capacity	
Time, fatigue, lots of work	Workload	

4.3 Background of Respondents

This section provides a summary of respondents selected to be part of the study. Table 4.2 gives a summary of respondents' background, which included their gender, race, ethnicity, marital status, educational attainment as well as the size of their household. All the names of respondents were removed from the data, with each respondent being assigned an alphanumeric code. These codes were assigned at random to participants and do not represent the sequence in which the interviews occurred.

Table 4.2: Background characteristics of respondents

Respondents	Sex	Ethnicity	Race	Marital Status	Educational Level	Household Size
A001	Female	Tshivenda	Black	Married	Grade 4	7
B002	Female	Tshivenda	Black	Single	Grade 7	6
C003	Female	Tshivenda	Black	Married	Grade 12	5
D004	Female	Tshivenda	Black	Married	Grade 10	3
E005	Female	Tshivenda	Black	Married	Grade 12 with adult education certificate	8
F006	Female	Tshivenda	Black	Married	Grade 6	7
G007	Female	Tshivenda	Black	Married	Grade 6	4
H008	Female	Tshivenda	Black	Married	Grade 5	6
I009	Male	Tshivenda	Black	Married	Grade 5	5
J010	Male	Tshivenda	Black	Married	Grade 12 with a diploma	8
K011	Male	Tshivenda	Black	Married	Grade 12	7
L012	Male	Tshivenda	Black	Married	Grade 12	5
M013	Male	Tshivenda	Black	Married	Grade 11 with adult education certificate	5
N014	Male	Tshivenda	Black	Married	Grade 12 with a training certificate in water	7

Respondents were drawn from both genders, but females comprised the majority compared to their male counterparts; there were nine females and five males. All the participants selected for the study were of the Tshivenda ethnicity. Also, all the participants were of the black race. Thirteen of the respondents interviewed were married, while only one was single. The household size of respondents ranged from three to eight members, with eight being the highest number of household. The level of education among the respondents was generally low. Some of the respondents interviewed did not complete their primary education. Some of the male Respondents had an adult education certificate, with only one female on the list having an adult eductation certificate.

4.4 Productive Role

The study revealed that women and men perform different roles with respect to water use and management. Respondents interviewed associated productive roles with activities leading to the production of goods and services, such as farming and livestock rearing and the use of water in such activities. This role, according to respondents, is very important to their livelihood. These roles influence interaction with other people and resources, and how changes in the resources impact men and women. For that reason, it is important to understand these roles performed by both men and women. As stated in Chapter 1, the study sought to find out the kind of productive roles performed by men and women in IWRM.

The study showed that productive roles are performed by both men and women; however, they were regarded as the domain of the men. The main occupation of the members of the Mutale WUA is farming. They further indicated that farming is their main source of livelihood without which they would find it difficult to fulfil their needs. Most of the participants interviewed were involved in small-scale farming, with the irrigation schemes managed by the

Mutale WUA as their main source of water. Several respondents recounted that productive roles were performed by both men and women, but they are mostly regarded as the domain of men. These were expressed in the statements of some male members of the WUA:

> "I work in the farm with my wife and sometimes my children help me. That is what we do to eat and get money to do everything."

> "My job is farming and that is why I am part of the association. I am the one who do the farming; I plant, I water and I sell the agricultural produce. Sometimes I let my wife help me if I have plenty work."

A key female member of the management committee of the WUA claimed that most of the members of the Mutale WUA are small-scale farmers and earn their livelihood from the sale of agricultural produce. She further stated that, not only are the farmers part of the WUA, but they are also part of an association which deals specifically with agricultural activities. Though most of them are men, she claimed that there is a growing number of female members since the inception of the WUA. This was captured during an interview session:

> "Most of the people in the Mutale WUA are small-scale farmers. Farming is the main our occupation and our main source of livelihood. The members of the WUA are also members of an agricultural association which deals with farming activities, but the WUA is the organisation that deals with our water needs on the farm. Most of the members are men. The number of women is small, though that number has been growing."

The study showed that household work was regarded as the domain of women, while farm work is the sphere of men. Although women are involved in farming activities, it is only as a result of been married to men who are already engaged in farming activities. As one male respondent stated:

> "My father was a farmer and currently unable to work, so I decided to follow his footsteps by also becoming a farmer. Farming is my life and my only source of livelihood. I started farming before I got married to my wife, so she is now part of the farming activity. But I am the person who does most of the farming."

These statements show that productive roles are performed by both men and women. However, women are nominally involved in productive roles. Productive roles are regarded as the preserve of men, with women having little or no influence. This may be because Limpopo, mostly regarded as a conservative, traditional society, has its culture playing a significant role in their activities. The people have a more traditional view of how roles between women and men should be divided.

4.5 Domestic Role

The second purpose of this study was to explore the domestic roles in terms of water use performed by women and men in IWRM. Respondents described domestic roles as encompassing all the activities which go into the maintenance and reproduction of a household. The majority of respondents interviewed reported that domestic roles are primarily the responsibility of women. These were characterised in words such as "housework" and "duty of a woman". Women have the primary responsibility for domestic roles. This includes, among other things, cooking, fetching water for household, and cleaning the house. Water is considered an important resource in the performance of some of the domestic roles.

Most of the respondents reported that the collection of water for domestic use was exclusively women's role, meaning that women are solely responsible and men are excluded from such a domestic role. For instance, some respondents stated:

"Fetching water and doing the activities in the house is the role of the woman. A man is not supposed to do that."

"According to my tradition, the woman is the one who is supposed to wash plates, cook, and fetching water for the house. My culture has a place for a woman and a man."

"As a woman, it is my responsibility to do all the housework, and I make sure I do it. I don't expect the men to do it because it is a sign of disrespect in our place here."

Surprisingly, the researcher gathered from a woman during an interview that the majority of women are responsible for domestic work and that they would not allow men to help them with such a role. She stated:

"I wouldn't let my husband cook, wash dishes, or fetch water. It is my role as a woman to do it. It is a shame for a man in our community to do that, and the whole people will talk about it if that happens."

Men give low priority to domestic roles. Such roles are limited to overseeing the welfare of the family, fetching water and household maintenance. Most of the male respondents that were interviewed were not in favour of equally sharing domestic tasks with women, except if

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they were very sick and they could not find someone to help. This view was also given by some women during the interviews. Women said that before they can let men do domestic work when they are very sick, they will try and find someone to help first. These reasons suggest that most men believe that they are better than women. They think domestic roles are degrading and embarrassing to them. Some men also felt that women feel loved and respected when they are left with the role of domestic work. Men are typically protected from most domestic responsibilities because of sexual division of labour, combined with other socially constructed hierarchies that make domestic roles extensions of women. Still, they become so when they establish hierarchies of responsibilities that value masculine work over feminine work.

4.6 Decision-Making Role

The study shows that women tend to have limited access to the decision-making role in the WUA. The category, barrier (see table 4.1), elucidates on the factors hindering the effective role of women in the decision-making process of the WUA. The factors discovered were identified by both male and female respondents as the reason for the low level of women roles in the WUA. The study showed that the confidence levels of women and the cultural practices of the people are reigning factors hindering women's decision-making roles in the WUA. In addition, the low levels of capacity and the high volumes of workload are identified as obstacles hampering the effective role of women in the WUA. These obstacles are presented in detail in the next subsection with illustrations from selected respondentss.

4.6.1 Low Self-Confidence

In analysing the interview data, the study discovered that women members of the water user association lacked self-confidence. The word "association" refers to the Mutale Water User

Association. Participant's associated low self-confidence with people exhibiting signs of fear and shyness in expressing their view. The study showed that women were unable to express their views freely during the WUA's meetings when men are involved. The words "shy", "fear" and "undermine" were frequently used in most of the interviews conducted. This was captured in the statements of some of the non-members of the WUA management committee as shown in table 4.3.

Table 4.3: Selected comments from respondents on low self-confidence

"Yes, some of the women feel shy but we are trying to learn those things because it is new to us as a woman to participate in the association and to talk to men."
"No, it's because when they nominate a woman, she tends to be shy in accepting it. Other women have a shy problem so they cannot lead bigger men. When you are in the midst of men, most of the women tend to be shy but as for me, I always try my best to put that aside."
"Sometimes some women are too shy, and they don't want to participate and talk, but we as a gentlemen, we like them to be part of the meetings but most of them are too shy."
"First, they don't want to participate in the association activities. Second, they are shy and afraid. They don't want to contribute their opinion. I don't know what they are afraid of. Maybe because they are shy to talk, women do not really participate."
"The women are filled with fear; they are still living in the past where women fear men. The women still fear the men in the association."
"They must participate in any event that happens in the association. They must be strong to talk and do everything even if they don't have money."

One male member of the WUA management committee shared similar sentiments and posits that the problem of confidence among women stems from their lack of involvement in management activities in the past, which they still regard as an issue. The respondent stated:

"That is because in the past, women never had the privilege of participating in

such organisations. This was due to the fact that women were regarded as the

domestic caretakers. Therefore, their current involvement in the WUA makes

them shy and unable to challenge men during proceedings of the association."

Most female respondents further claim that men are not supportive of whatever idea women bring on board, and they most often undermine them. This is contained in respondents' statements as shown in table 4.4.

Table 4.4: Selected comments of women members on low self-confidence

"Sometimes women are been undermined in the meeting. Men sometimes take women down by neglecting what women say. They don't take what we say serious; they don't believe we can do good things."
"They use to be undermined because whenever a woman is talking, men don't take that thing serious."
"Yeah, some men have pride, so they take women as if they can control the women, but in these modern times, we women have improved that circumstances of allowing men to do what they think are right or undermining us. We are trying to be strong."
"Women have got problems because when they go home, they go empty-handed. They don't get paid or whatever thing, so their husband said is better to be ploughing or doing some work at the home."

However, one male respondent asserted that no woman is being undermined; rather, they undermine themselves. Over and above that, he explained that they believe in gender equality and are in no way undermining the role of women in the WUA. He said:

"The women themselves, some of the women they are undermining themselves.

They say in culture women are under men, that's why they undermine

themselves. But as men, we don't allow women to do that situation because there is gender equality. Even we busy teaching them. You have the right to do anything."

Women do not enjoy support from their male counterparts within the WUA. They are less familiar with the public sphere and have little experience in public debates. Even women have been found to express themselves less freely or frequently than men. Women's low confidence level may be due to cultural restrictions which, according Nkonya (2008), prohibit women from freely expressing themselves and participating in discussions at public gathering of men and women.

4.6.2 Culture

The study shows that the cultural practices in Limpopo constitute an obstacle for women to enter the public arena at large and specifically to participate in the WUA. First and foremost, these practices originate in deeply rooted socially constructed roles that heavily favour men, thus creating a strongly male-dominated society. According to most of the respondents, though some of their traditional practices have been scrapped due to democracy and education, there are still practices in place. Table 4.5 captures comments of respondents on the influence of culture in their society.

Table 4.5: Selected comments of respondents on culture

"In our place here, we respect our culture. But some of them are not here again. In our place here, you have to respect the man because culture here. So sometimes in the meeting, we don't talk even if what they say is not good. They will say you don't respect, and they will tell your family."
"I will not let my husband cook food, wash plates, or go and watch water; it is my duty as a woman to do it. Even our people here will not agree; they will say that is not our culture, a man is a man, and a woman is a woman. It is shame for a man to do the work at home, and the village will talk about that thing. I will not let my husband do it, maybe if am sick or I travel."
"It is respect for a woman to keep quiet when a man is talking. Women don't have to talk like we men. I am a Venda man, so I don't play with my culture. But certain things, we don't do now."

The norms and traditions of the people play an instrumental role in terms of the way women and men interact in society. Respondents believe and practice their culture. Two female members of the management committee of the WUA explained that it is disrespectful to express one's view in the presence of a man. They stated:

"It is tradition among our people. It is not good for a man to look after the children and do washing. It is the job of the women. You have to respect the man and do what they tell you."

"I cannot stand and talk in front of a man, that is not respect. Our culture
teaches us to respect men and not to talk when they are talking."

A male member of the management committee of the WUA succinctly stated that such
practices were of the past, hence are not being practised any longer, but women are still afraid
to go contrary to what traditions says. This was captured in the quote as follows:

"The women themselves, some of the women, they are undermining
themselves. They say in culture, women are under men, that's why they
undermine themselves. But we as men, we don't allow women to do that
situation because there are gender equality. Even we busy teaching them. You
have the right to do anything."

The culture of the respondents dictates that women are subordinate to men. Women are not
supposed to speak up in a group of men because it is considered disrespectful, so what they
say may not be acknowledged. Similarly, women stated that they would feel uncomfortable
voicing their opinion in front of men. As a result, even women who attend meetings may not
be able to voice their opinions and therefore are excluded from decision-making. These
cultural norms assign women to certain roles, consequently restricting women from
participation effectively within the WUA and the public sphere at large. The norms are
reproduced through generations and are assumed to be normal procedures of society. Thus,
discrimination against women and gender disparities are often deeply inherent in these cultural
norms and traditions.

4.6.3 Low Capacity

Almost all the respondents interviewed asserted that women not only have low capacity but
also lack the experience in dealing with technical issues related to water and the activities the

WUA is involved in. Respondents described low capacity as the inability to read and understand technical issues concerning water management. These were characterised by words such as "capacity", "capability", "educate" and "understand" which were continuously being repeated during the interview session. These were captured in respondent's statements as shown in table 4.6. The "department" referred to in table 4.6 refers to the Department of Water and Sanitation

Table 4.6: Selected comments on low capacity

"We want women to be members of the association because it is not only the man that use water in the farm. The association is for all of us, but the women don't have the capacity and some of them don't understand what we talk about in the meetings. The department said they will start doing workshop for women but they have not start yet. They always say there is no money. The women need more education."
"Yes, sometimes I don't know what they talk about. I don't know anything about the water things they discuss."
"I am the secretary here, but I don't do anything. I can speak English but not very well, and I cannot write in English well so someone else writes the minutes during the meetings but am the secretary."
"… It will be wonderful if a woman also is given the opportunity to become a chairperson because I believe we can do the job. But we need more education because most of the women in the WUA do not have any form of education, so they find it difficult to understand certain issues when they are been discussed."
"We don't participate as much as we should, so we need the government to help in educating us about the issues so that we can participate well like the men do."

A key member of the WUA management committee explained that becoming a leader requires understanding and the ability to steer proceedings. Women members of the WUA, according to him, lack the capacity and ability to comprehend technical issues. This was captured in his statement as follows:

> "… women must know what the meaning of the chairperson is and have to be able to understand and work with people. For this kind of job, one has to be patient and compassionate because to being a chairperson is difficult. It is difficult to be a chairperson. To be a chairperson, you must have a heart because you are working with people, and you must have the spirit of a leader just because to be a chairperson, you are a leader of the people. The women, most of them, did not go to school. They are members of the association because they are farmers who use water of the association. Sometimes, if some people from the department come to speak to us, they don't understand the meaning, so we explain to them again."

Another WUA management committee member interviewed further explained that women don't have the capability to represent the WUA in any capacity. However, the WUA tends to place women in what he termed "small position" in order to train them to assume bigger roles. This was captured as follows:

> "I have nothing to complain about that but if she has capability to lead, that is not a problem. Sometimes, we select them in small position for them to grow her intellectual mind and also we need women but men must guide wherever possible."

It was quite clear that in almost all of the interviews, the level of capacity was fairly low among women members of the Mutale Water User Association. Most of the women had low capability and the capacity to understand certain issues, especially technical ones, due to perhaps their low level of education and the low exposure of such practices. The male respondents who were also interviewed concurred with what the women stated during the interview session.

4.6.4 Workload

Several of the female respondents who were interviewed explained that, though their involvement in the activities of the WUA was essential, especially since they are farmers, they are most often overwhelmed with activities at the home as well as on the farm, which sometimes limits their participation. Respondents described these in several words such as "time", "lot of work" and "tired". These words appeared frequently in most of the interviews held with the participants selected from the WUA. One respondent described her experience as follows:

> "You see, the problem is that I go to the farm every day as well as do the
> domestic work, though sometimes my children help me. I don't get the time to
> go to the association because I have a lot of work and sometimes I get so tired.
> That is the reason why I don't involve myself much in the activities of the
> WUA."

Other female respondents who were interviewed also recounted similar issues about their experience as shown in table 4.7.

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Table 4.7: Comments of selected respondents concerning workload

"Sometimes am in the farm working and they will say there is meeting. The time they put the meeting is not good. I am tired, and I even sleep in the meeting. Me, I work in the house and I also work in the farm with my husband. My husband told me to come so I cannot say anything."
"Sometimes the meeting affects my farming activities. They organise meetings without taking into consideration our occupation. Farming is the only thing I do and disrupting it sometimes affects me and also I get tired when I have to go to the meetings straight from the farm."
"Although the men work at the farm, the women work both on the farm and also engage in domestic activities. As a woman, I clean the house, wash, cook, fetch water, and take care of the children and go to the farm with my husband. Going to the WUA sometimes is impossible for me because I get overburdened by all the work I do. The work I engage in are a lot, but that is the role of a woman."
"You see, the problem is that, we spend many hours at the meeting, sometimes three hours. If I stay home or if I go to the farm, I can do many works there. Sometimes I go but if I don't go, I ask some of my friends what they say in the association."
"I want to attend meetings, but it is difficult for me because I have responsibilities in the house, the farm, and the children. I can only manage a limited number of things in a day."

However, a few of the female respondents maintained that, though it is a challenge combining house and farm work as well as attending to the activities of the WUA, they are able to manage the situation. Two participants noted:

"… no, it doesn't disturb me; I try to balance my domestic work, farming as well as participating in the activities of the WUA. I do my housework and I also go to the farm. Sometimes I stay long in the farm because it is my job. I always involve myself in the activities of the WUA because it is important. The WUA helps us to get water for the farm and our community too, so I try to manage it."

The results of this study indicated that balancing work and family obligations seriously constrained the women's fulfilling their roles within the WUA. It is unsurprising that the women in this study had a heavy workload due to the effort involved in balancing domestic roles with their work as farmers. Men, on the other hand, were not faced with multiple burdens. This can be traced back to the cultural norms assigned to women within that locality. Obviously, these women had to shoulder the dual burden of responsibilities on their farm and at home and were under great pressure to meet the norms, which forced them to place family and collective's interests ahead of their own. This burden carried by women limits their participation in the WUA's activities.

4.7 Conclusion

This chapter dealt with the research results of the study based on in-depth interviews with respondents of the Mutale WUA in the Limpopo province. It explored the productive and domestic roles of members of the Mutale WUA. Men and women were found to perform different roles in IWRM. The roles for men were found to be more on productive activities, while women played more domestic roles. The roles were mostly influenced by societal norms and had implications on women's decision-making roles. The chapter also looked at the decision-making roles as well as factors impeding women in the performance of such roles in

IWRM. Decision-making roles were mostly dominated by men, with women having a passive role. The study also found that low confidence level, societal culture, low levels of capacity and workload were the main factors affecting the effective performance of women respecting decision-making. The following chapter attempts to apply the research results within the context of existing literature.

CHAPTER FIVE

DISCUSSION

5.1 Introduction

The preceding chapter presented the research results in line with the research questions of the study. While the aim of that chapter was to present the results obtained from the analysis that was conducted using qualitative means and the interpretation thereof, this chapter sets out to present a discussion of the findings and draw conclusions from it. This is done by synthesising the findings in the context of existing literature on women in natural resource management. This chapter is divided into three sections. The first part of this chapter discusses the nature of women's role in IWRM. The subsequent sections present a discussion on productive and domestic roles in the Mutale WUA in light of existing literature. The last segment discusses women's decision-making roles and the barriers affecting their performance of such roles.

5.2 The Nature of Women's Roles in IWRM

The aim of this study was to explore the nature of women's roles in IWRM, with a focus on the Mutale WUA. The roles of women and men in relation to water resources differ in most societies, and this is also the case for the case study of Mutale WUA. Men typically require water for productive works and other related activities. Women, on the other hand, also use water for productive activities as well as domestic roles. The study revealed that women's role in IWRM can be considered to be passive. This assertion is in line with other studies on gender and natural resources management such as that of Agarwal (2001), who found that the nature of women's involvement was often characterised by invisibility, where women were nominal members who were often not made aware of meetings, and when they did attend

meetings, they would rarely speak up, and if they did speak up, their opinions carried little weight. Frequently, male executive committee members choose women members in their absence and without consulting them. Agarwal (2001), in her studies of natural resources management in South Asia, further submits that women are involved in environmental institutions, yet simultaneously excluded due to traditional practices and established norms of gendered exclusion, social perceptions of women's ability to contribute to user groups, among other things. In like manner, Chifamba (2013) described the role played by women in water and the productive use of water as nominal. Chifamba (2013) further stated that women's role in WUAs and the associated access to irrigation assets is always lower than men's, and where it does exist, it tends to be irregular, partial or decreasing over time.

The nature of women's role in IWRM, as revealed by the study, was largely influenced by the cultural norms of the people. Cultural norms and traditions define and shape behaviours of men and women (Nkonya, 2008). In many countries, existing norms present obstacles to involvement in a resource management effort. Norms shape gender divisions of labour, and women often cannot spare time from domestic duties to engage in community work and in attending meetings. Prokopy (2004), in her studies, stressed that women are not allowed to speak in front of people older than them, which prevent younger women from coming forward in a participatory effort. What is more, men are considered responsible for community development and governance. On that account, women are disinclined to participate in an effort that is seen to go against traditionally defined roles.

5.2.1 Domestic Role

One of the objectives of this study was to explore the domestic roles among the members of the Mutale WUA. The study, therefore, revealed that women were the main people responsible for water collection for household use although some men would help their wives when they fell sick or they were not at home. These study findings confirm that women are the principal water collectors. Men believed that engaging themselves in domestic roles is humiliating and embarrassing to them. This view is confirmed by Kikhi and Kikhi (2011) in their studies in Nagaland, northern Indian, where they found that the role of domestic work such as water collection and its management at the household level, and ensuring its adequate supply, storing and keeping it clean is predominately the role of the woman. In general, if water resources are scarce, it affects both men and women negatively due to reduced productivity. At the same time, it affects women more with more workload and drudgery as compared to men. These findings also corroborate with study findings by Upadhyay (2004) in his research in northern Gujarat, where he noted that rural women disproportionately bear the burden of the unpaid chore of fetching water for domestic uses. Women are almost exclusively responsible for domestic roles and for maintaining hygiene in their households. Water scarcity has a direct impact on the time that women spend in water collection and hence on the time available for other work as well as on their access to water within the household.

Ahmed (2005) also noted that water collection as well as water for sanitation and household related activities, especially in the rural areas, is the sole role of women. This role performed by women is unaccounted and unpaid despite the fact that it is recognised globally as one of the most time-consuming and arduous tasks. Not only do women suffer acute physical problems as a result of this role, but the drudgery of water collection constrains their time for

productive and decision-making roles. Where men do engage themselves in domestic roles such as fetching water for the household, according to Ahmed (2005), it is usually the results of seclusion norms restricting women's mobility in the public domain. Domestic roles, especially the collection of water for household use, are predominantly the role of the woman. According to Nkonya (2008), men believed that they were more suited for roles in the public sphere and that the Africa culture dictates what a woman should do. Men in rural Tanzania felt that they paid bride price and they are breadwinners. Also, some men felt that women feel loved and respected when they are left with the role of domestic activities.

5.2.2 Productive Role

Women need access to water resources not only to carry out their domestic roles but also to undertake potentially productive works for themselves and their families. The study revealed that both men and women members of the Mutale WUA were engaged in productive roles. The main productive activity that both genders engage in is farming, which uses water from the irrigation scheme managed by the Mutale WUA. However, the study showed that men were more engaged in productive roles than women. Although women do use water for productive roles, their role is often undervalued or unrecognised. Likewise, in her studies, Nkonya (2008) found that productive roles were performed by both men and women in rural Tanzania. Neverthless, the performance of productive roles by women is subject to approval from their husbands.

Women do not only engage in domestic roles, but they are also involved in productive roles alongside men. Upadhyay (2004) revealed in his study that women were significantly involved in livestock rearing and small-scale farming, with irrigation water serving as the main source of water.

In contrast, Hope, Cofie, Keraita *et al.* (2009) reports that men in rural Accra, Ghana, were predominantly engaged in productive roles such as farming and livestock rearing, while the domestic roles were regarded as the domain of the woman. They further stated that these roles that men and women perform were defined by the tradition of the people. Apart from taking children to school, attending parent-teachers meetings, and going to hospital, which are jointly decided by couples, all other activities are executed based on norms in the society. Furthermore, in rural Bangladesh, just like in the case study, Rabiul Karim, Emmelin, Resurreccion *et al.* (2014) discovered that women were primarily responsible for domestic water use and men are mainly engaged in irrigation. However, technology-intensive water development initiatives have largely put emphasis on irrigation, thus facilitating men's water needs. Women's water needs were mostly related to their domestic obligations, whereas men's water needs were mostly related to irrigation.

5.2.3 Decision-Making Role

The study showed that although women are equally represented in the management committee of the Mutale WUA, however, their number is much less in the general assembly. It can be argued that women were nominally represented in the WUA, with no influence on decision-making roles. The findings as revealed in Chapter 4 about women's nominal role are corroborated with other studies on gender and natural resources management such as that of Agarwal (2001), who found that the nature of women's involvement in decision-making is nominal, where women are often not made aware of meetings, and when they did attend, they would rarely speak up, and if they did speak up, their opinions carried little weight. Frequently, male executive committee members choose women members in their absence and

without consulting them. In her studies of natural resources management in South Asia, Agarwal (2001) further contends that women are involved in participatory institutions, yet simultaneously excluded due to traditional practices and established norms of gendered exclusion, and social perceptions of women's ability to contribute to user groups, among other things.

The research results showed that traditional norms and practices in the area constitute a major obstacle for women to enter the public arena and specifically perform their decision-making role effectively in the WUA. These traditional norms and practices were found to originate in deeply rooted socially constructed roles that heavily favour men, thus creating a strongly male-dominated society. The traditional notions of participation are worked out through patronage systems and kinship structures which put women far down on the class hierarchy. It is within such unequal set-ups that the women were found to be socially and culturally constrained from performing their decision-making role. Socio-cultural norms and traditions define and shape behaviours of men and women (Nuggehalli & Prokopy, 2009). In many countries, prevailing norms present obstacles to women in resource management efforts. Norms shape gender divisions of labour, and women often cannot spare time from domestic duties to engage in community work and to attend meetings. Behavioural norms that expect women to display "shyness" prevent them from taking initiative to engage in decision-making activities. For instance, Prokopy (2004) noted in her studies in India that women are not allowed to speak in front of people older than them, which prevents younger women from coming forward in decision-making efforts. Additionally, men are considered responsible for community development and governance. Hence, women are disinclined to participate in an effort that is seen to go against traditionally defined roles.

Patriarchy and traditions have had a negative effect with respect to how women view themselves (Nkonya, 2008; Moyo, 2014). Gender perception has a great impact on the decision-making process because it dictates who has the right to make decisions. Women place an emphasis on domestic roles and problems that women face every day. Women view themselves as mothers and wives, but also as being powerless and inferior, with responsibility for the family and domestic work. Although both men and women view men as powerful and as heads of the household and decision-makers, some women view men as controllers and oppressors. By contrast, men view themselves as superior, with the ability to make appropriate decisions (Nkonya, 2008). Irounagbe (2010) hold a similar view and emphasises that cultural attitudes towards women have contributed to and perpetuated the image of women as inferior in most African countries. Furthermore, culture has made women to believe that decision-making and issues of development are masculine, meaning that they are a preserve for men. Men are believed to be endowed with all knowledge and wisdom, while women, on the other hand, are associated with their domestic roles, which include taking care of the family, cleaning and looking after the elderly. This state of affairs makes women view themselves as lesser beings who have nothing significant to contribute. The way society views women and how women ultimately view themselves has an effect in as far as women's role in development issues is concerned, specifically with reference to IWRM. According to Nkonya (2008), women's low level of confidence is mostly due to cultural constraints, which prohibit women from freely expressing themselves and involving themselves in decision-making roles where men are involved. This is similar to the findings of the study where women tend to obey men and rarely challenge them when they think men are not on the right track. Women are supposed to be subservient to men in all aspect.

Budlender, Goldman, Samuels *et al.* (1999) note that while women's interests, like men's, vary according to their circumstances and identities by class, race, ethnicity, occupation, and the fact that most women tend to be constrained in their life choices to a range of reproductive and or domestic functions in the private sphere, marginal positions in public arenas of society suggest that gender affects the way other social cleavages are experienced and hence generates specific interests. This is to say that perceptions of women's role by both men and women coupled with women's traditional domestic responsibility impede their ability to participate in the water management processes. Women feel that men should be the ones who lead in political issues. Most participants in the research agreed that women focus their attention on domestic work in order to assist their families. Also, the study revealed that men tend to undermine women. It is clear that the WUA is not promoting local democracy where both men and women could really see the importance of equality so that they will be able to encourage women to be more involved.

The low level of capacity among women is another factor that militates against their meaningful role and involvement in IWRM. Studies conducted in South Africa have shown that there is a high rate of illiteracy in the rural areas, particularly among women (Acharya, Yoshino, Jimba *et al.*, 2007). In this study, the research results showed that most of the women members of the Mutale WUA were unable to read and write, found it difficult to comprehend water-related issues, and also found it difficult to access information that they needed. Lack of education impedes women's understanding of issues and consequently limits their desire to participate in discussions related to water management. When women have the requisite skills and are able to comprehend issues, it becomes much easier for them to deliberate on crucial issues. Kongolo and Bamgose (2002) concur and assert that literacy is a mechanism that can

transform and boost women's role and involvement in development because it can stimulate and enhance individual initiatives. Similar sentiments are shared by Acharya, Yoshino, Jimba *et al.* (2007), who alludes to the fact that education helps bring rural women's productive potential and enables them to contribute more equitably in the growth process of the country. It is therefore critical that women's education and capacity building be strengthened in order to allow them to participate more meaningfully. Education may help build skills and confidence. It can also influence attitudes towards gender roles and increase acceptance of women's ability to represent household interests even in the public sphere.

In addition to the foregoing, the research results also show that women do carry heavy workloads. They are therefore unable to attend meetings and events organised by the Mutale WUA when they are busy with household work, farming activities or childcare. Thus, the women explained that they tend to find their involvement in the activities of the WUA to be of higher opportunity costs than it is beneficial to them. The roles women play in society is very relevant in understanding the main factors impeding women's involvement in the public sphere and in making them appear invisible. One of the manifestations of such structural barriers is women's workload. Thi Phuong Tam (2012) claim that many policymakers in the areas of development policy, especially in the water sector, enthusiastically promote the involvement of women in this area, but then they fail to pay sufficient attention to the roles that women have traditionally committed to and on how these roles interact in building a complex set of role expectations that diminish possibilities of women's decision-making abilities.

5.3 Conclusion

This chapter presented a discussion on the nature of women's role in IWRM. This was done in relation to existing literature in the natural resources management. It also highlighted the roles performed by women in water management among the members of the Mutale WUA. Barriers affecting the decision-making roles of women within IWRM were also discussed with respect to existing literature. The final chapter will look at the conclusion, research implications and recommendations of the study.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The preceding chapter discussed the findings of the research with reference to existing literature around women in natural resources management. This chapter closing chapter presents the conclusion and recommendations that arose from the study as well as the study implications. The study reviewed a wide range of secondary literature and collected primary data on which the conclusion and recommendations are based. This was done in order to help advance further the understanding of women in IWRM.

The study was based on the premise that literature related to women's experience has failed to explain adequately the nature of women's involvement and roles in water management as they attempt to achieve productivity, decision-making and equity. In this thesis, the study attempted to explore the nature of women's role in IWRM, with a focus on a WUA. Particularly, the study looked at the productive and domestic roles performed by women and men in IWRM. The study also considered the decision-making roles and factors affecting women's performance of such roles.

The argument in the study was that the roles of women and men in relation to water resources differ in most societies, and this is also the case for the case study of Mutale WUA. The study has found that women are often the ones responsible for household activities and spend several hours every day on domestic roles which negatively impact women and hinders their involvement in more productive and decision-making aspects. Men were predominantly

involved with productive water roles and other related activities. In contrast, women also use water for productive activities as well as for domestic roles. Members of the WUA were predominantly involved in small-scale farming as their main livelihood activity, with irrigation managed by the WUA as the only source of water. The study also revealed that the decision-making role was dominated by men, with women having a passive involvement in IWRM. The key factors found to affect the role of women in decision-making in IWRM were cultural practices, low self-confidence, low levels of capacity, and high workloads. This study has significant implications for promoting gender equality, since it has unveiled barriers inherent within the specific society. The impact of culture on women in water management raises concerns about gender issues in rural and remote areas where the people there are poorer and more culturally conservative.

6.2 Study Implications

The study involved the patterns of divisions of labour with respect to water resources management that define women's and men's roles. Domestic roles were regarded as the domain of women with decisions related to domestic work. Men, on the other hand, were more concerned with productive roles – water management issues outside the domestic sphere as well as on their farms. However, the reality is that using irrigation water is not confined to men only; women use irrigation water for agricultural purposes. Gender perception has an impact on the decision-making process because it dictates who has the right to make decisions. Women are perceived to be inferior to men with emphasis on domestic responsibilities, while men are considered to be superior with decision-making powers. The perception of gender roles is strongly rooted in society's customs and traditions.

Although the involvement of women in water user associations provides them with opportunities to manage water, in reality, they remain largely excluded. Based on evidence and analysis of the study, men dominate in decision-making roles in IWRM. In the study, it was brought out that women experience significant restrictions from participating in water management activities where cultural factors and their confidence level constitute the main cause of their low levels of involvement in IWRM. Because of that, appropriate institutional development is required to counter those traditions and norms constricting women's potential and hindering the attention of relevant gender perspectives as well as help uplift their confidence levels. The capacity and ability to comprehend technical and pertinent issues related to water management among women was also discovered to be an obstacle to their decision-making role. Workload, which is also a stumbling block to women's participation, was also a barrier to their participation. Compared to men, women were engaged in both domestic as well as productive roles. The domestic roles, which include family care, washing clothes, fetching water, house chores and others, were regarded as the preserve of women.

This study has significant implications for promoting gender equality, since it has unveiled barriers inherent within society. The impact of culture on women in water management raises concerns about gender issues in rural and remote areas where the people there are poorer and more culturally conservative. This study of women's participatory experiences in water management paves the way for more research of this kind in order to empower women. Women's poor representation in water management and gender equity in general can be improved if the deeply embedded assumptions about gender, which underpin culture, are exposed and addressed, as done in this study.

The limited role of women in decision-making regarding water management means that women's perspectives, needs and knowledge, ideas, experiences, concerns, and proposed solutions are often ignored. Because women are recognised as major resource users, they are the ones who are directly affected by water management policies. Understanding gender difference is crucial for developing policies aimed at sustained resource use and improved health and well-being. Thus, women should be treated as partners in the development of natural resources management policies, and they should be involved at all levels. The goal of development cannot be achieved if specific plans and expertise do no work to improve women's position and condition. There is a need to have an approach that can facilitate a balanced community where men and women will be treated as equal partners.

The study found that women have lower levels of capacity compared to men. Capacity building and education are very important dimensions of development. Increasing women's capacity and education are crucial for women's empowerment. The low levels of capacity among women, especially rural women, increase their dependency on men and their vulnerability to gender discrimination. They also reduce their ability to participate in water management issues and increase their likelihood of being excluded from new opportunities. Even if women are given the chance, they cannot take advantage of participation opportunities because of their low capacity to interact in the settings in which they are placed.

6.3 Recommendations

Based on the findings of the study, recommendations for improving the role of women marginalised in IWRM have been offered. This section is divided into two subsections that provide recommendations for policy in order to enhance women's role in IWRM and suggestions for further study.

6.3.1 Recommendations for Policy

In line with the research results presented in chapter four and the discussions in the preceding chapter, the study proffers the following recommendations that are likely to enhance women's role and inclusion in IWRM:

- The determination and allocation of roles along gender divides, men and women, should be treated equally at all times in IWRM. People's gender should not be used in the allocation of roles. They should also be given an equal opportunity to participate in all the processes of the water committee, especially those who are willing to do so. Moreover, both men and women should be trained in order for them to be able to execute the allocated roles in the water resources management. After training, the ability to perform the duties can also be used to allocate roles in the water resources management.

- Building capacity to increase the understanding of gender implications for water management, as part of an effort to empower women so that they can acquire knowledge and skills to ensure efficiency in their decision-making role in water management issues. This includes the development of skills in financial management, decision-making, community participation, leadership, confidence building and communications. Not only should there be capacity building for women, but there is a need for investment in women because women are recognised globally as major users of water and are responsible for drawing water for family and for productive uses too. Therefore, there is an urgent need to increase access to education for all, particularly girls.

- Moreover, women themselves need to learn about their rights and take charge in the process of change. Women's active involvement in water management requires a strategy of empowerment. Empowerment combines education and capacity building in the water sector with participatory processes that give women the opportunity to participate in decision-making. The government needs to facilitate the empowerment of women by formulating development policies that increase the knowledge and skills of both women and men.

- There is a need to improve gender mainstreaming through the establishment of appropriate policy and guidelines that enable women and men to have equal opportunities in resources allocation and management and to share their views and concerns in decision-making. Ensuring that both women and men will be able to influence decisions and resource allocations in water management would, according to Panda (2007), imply going beyond increasing the number of women in different positions only. If gender equality in water management is a political project, it is essential to provide substantial opportunities to both women and men for influencing agendas, institutions and processes of water management.

- There is need for a change of mindset on the part of women in order to realise that change begins and ends with them. Women need to realise that they are responsible for their own empowerment and also to believe in themselves that they have what it takes to improve their situation.

6.3.2 Suggestions for Further Study

It is worth mentioning that although the research endeavoured to cover most aspects in this study, it falls short of some insights that can enlarge the understanding about women participation in integrated water resources management (IWRM). As such, the following are the suggestions that are made for future study:

- This study should be done again considering more than one case study so that there is improved generalisability of the findings. The scope of the study can be enlarged to consider other aspects of gender as well as increasing the number of women for the study and also increasing the number of WUAs.

- The study treated women as a homogeneous group when, in reality, the story is much more complex. Disparities among women may exist, where poorer women may be edged out by others less poor or by those better connected to positions of influence. There is therefore a need for a study with a focus on women as a heterogeneous group.

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APPENDICES

Appendix I: Human Ethics Approval Certificate

MONASH University

Monash University Human Research Ethics Committee (MUHREC)
Research Office

Human Ethics Certificate of Approval

This is to certify that the project below was considered by the Monash University Human Research Ethics Committee. The Committee was satisfied that the proposal meets the requirements of the *National Statement on Ethical Conduct in Human Research* and has granted approval.

Project Number:	CF14/1464 - 2014000691
Project Title:	Women Participation in Integrated Water Resources Management: A Case Study of Mutale Water User Association, Limpopo
Chief Investigator:	Dr Bimo Nkhata
Approved:	**From:** 14 May 2014 **To:** 14 May 2019

Terms of approval - *Failure to comply with the terms below is in breach of your approval and the Australian Code for the Responsible Conduct of Research.*

1. The Chief investigator is responsible for ensuring that permission letters are obtained, <u>if relevant</u>, before any data collection can occur at the specified organisation.
2. Approval is only valid whilst you hold a position at Monash University.
3. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval and to ensure the project is conducted as approved by MUHREC.
4. You should notify MUHREC immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.
5. The Explanatory Statement must be on Monash University letterhead and the Monash University complaints clause must include your project number.
6. **Amendments to the approved project (including changes in personnel):** Require the submission of a Request for Amendment form to MUHREC and must not begin without written approval from MUHREC. Substantial variations may require a new application.
7. **Future correspondence:** Please quote the project number and project title above in any further correspondence.
8. **Annual reports:** Continued approval of this project is dependent on the submission of an Annual Report. This is determined by the date of your letter of approval.
9. **Final report:** A Final Report should be provided at the conclusion of the project. MUHREC should be notified if the project is discontinued before the expected date of completion.
10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by MUHREC at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.

Professor Nip Thomson
Chair, MUHREC

cc: Mr Faisal Elias

Appendix II: Consent Form

MONASH University

Project: Women's Role in Integrated Water Resources Management: A Case Study of the Mutale Water User Association, Limpopo, South Africa.

Chief Investigator: Dr Bimo Nkhata

I have been asked to take part in the Monash University research project specified above. I have read and understood the Explanatory Statement and I hereby consent to participate in this project.

I consent to the following:	Yes	No
I agree to be interviewed by the researcher	☐	☐
I agree to allow the interview to be audio-taped	☐	☐
I agree to make myself available for a further interview if required	☐	☐

I understand that my participation is voluntary, that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being penalised or disadvantaged in any way.

I understand that any data that the researcher extracts from the interview for use in the report and/or published findings will not, under any circumstances, contain names or identifying characteristics without my signed consent below.

I understand that I will be given a transcript of data concerning me for my approval before it is included in the write-up of the research.

I understand that I may ask at any time/prior to publication/prior to my giving final consent for my data to be withdrawn from the project.

I understand that no information I have provided that could lead to the identification of any other individual will be disclosed in any reports on the project, or to any other party.

I understand that data from the interview audio recording will be kept in secure storage and accessible to the research team. I also understand that the data will be destroyed after a five-year period unless I consent to it being used in future research.

I do/do not give permission to be identified by name/by a pseudonym/understand I will remain anonymous at all times in any reports or publications from the project.

Name of Participant:

Participant Signature: **Date:**

CONSENT FORM IN TSHIVENDA LANGUAGE

FOMO YA THENDELO

VHA DZHIELE NZHELE: Fomo iyi ya thendelo i ḓo dzula na muṱoḓisisi wa Yunivesithi ya Monash kha rekhodo dzawe.

Thandela: U dzhenela ha Vhafumakadzi kha Ndangulo yo Ṱanganelaho ya Zwiko zwa Maḓi: Ngudo ya Dzangano ḽa Vhashumisi vha Maḓi vha Mutale, Limpopo, South Africa.

Muṱoḓisisi Muhulwane: Dr Bimo Nkhata

Ndo humbelwa u shela mulenzhe kha thandela ya ṱhoḓisiso ya Yunivesithi ya Monash yo bulwaho afho nṱha. Ndo vhala na u pfesesa Tshitatamennde tsha u bvisela khagala ndi khou tenda u dzhenela kha iyi thandela.

Ndi khou tendelana na zwi tevhelaho:	Ee	Hai
Ndi khou tenda u inthavuwiwa nga muṱoḓisisi	☐	☐
Ndi khou tendela ithaviwu uri i rekhodiwe u itela u thetsheleswa	☐	☐
Ndi khou tenda uri ndi ḓo vha hone arali ndi tshi ṱoḓelwa dziṅwe inthaviwu	☐	☐

Ndi a pfesesa uri ndi khou dzhenela nga u tou funa, na uri ndi nga nanga u sa dzhenela kha tshiṅwe tshipiḓa kana kha thandela yoṱhe na uri ndi nga ḓi bvisa kha ḽiga ḽiṅwe na ḽiṅwe ḽa thandela hu sina u ṋewa ndaṱiso kana u hanelwa nga iṅwe nḓila.

Ndi a pfesesa uri data iṅwe na iṅwe ine ine muṱoḓisisi a i bvisa kha inthaviwu u shumisa kha muvhigo i ḓo shumiswa kha muvhigo kana khanḓiso ya mawanwa a zwi nga ḓo, kha nyimele iṅwe na iṅwe, vha na madzina anga, kana zwiṱaluli zwine zwa topola hu sina thendelo yanga yo tou sainiwaho nga fhasi.

Ndi a pfesesa uri ndi ḓo fhiwa khophi ya data ya zwine zwa kwama nṋe u itela thendelo phanḓa ha musi i tshi dzheniswa kha muvhigo wa ṱhoḓisiso.

Ndi a pfesesa uri ndi nga humbela tshifhinga tshiṅwe na tshiṅwe/ phanḓa ha khanḓiso/ phanḓa ha musi ndi tshi ṋetshedza thendelo ya u fhedzisela uri data yanga i bviswe kha thandela.

Ndi a pfesesa uri a huna mafhungo e nda a ṋetshedza ane a nga livhisa kha u topolwa ha muṅwe muthu e nda a bviselwa khagala kha muvhigo muṅwe na muṅwe kha thandela kana kha muṅwe muraḓo.

Ndi a pfesesa uri data ine ya bva kha inthaviwu yo rekhodiwaho i ḓo vhulungwa fhethu ho tsireledzeaho na uri i ḓo swikelelwa nga thimu ya ṱhoḓisiso. Ndi a pfesesa uri data i ḓo tshinyadzwa nga murahu ha miṅwaha miṱanu nga nnḓani ha musi ndo tendela uri i shumiswe kha ṱhoḓisiso dza tshifhingani tshi ḓaho.

Ndi khou / Athi kho ṋea thendelo u ri ndi topolwe nga dzina/ nga dzina ḽa kholekhole/ ndi pfesesa uri ndi ḓo dzula ndi sa ḓivhei tshifhinga tshoṱhe kha muvhigo muṅwe na muṅwe kana khanḓiso ya kha thandela.

Dzina ḽa mudzheneli:

Tsaino ya Mudzheneli: **Datumu:**

Appendix III: Explanatory Statement

MONASH University

……/……/2014

Project: Women's Role in Integrated Water Resources Management: A Case Study of the Mutale Water User Association, Limpopo, South Africa.

Dr Bimo Nkhata   Student's name: Faisal Elias

Water Research Node, Monash SA   Water Research Node, Monash SA

You are invited to take part in this study. Please read this explanatory statement in full before deciding whether or not to participate in this research. The researcher is a student working towards his MPhil Integrated Water Resources Management at the Water Research Node, Monash South Africa. If you would like further information regarding any aspect of this project, you are encouraged to contact the researchers via the phone numbers or email addresses listed above.

Why were you chosen for this research?

I am seeking the views of members of the Mutale Water User Association to better understand the roles and constraining factors towards the participation of women in water management. Your contact details were obtained from the Department of Water Affairs, Limpopo Office.

The aim/purpose of the research

The aim of this study is to explore the nature and extent of women's participation in Integrated Water Resources Management.

Possible risk and benefits

There are no foreseeable risks associated with the study. However, benefits that will accrue from this research will be indirectly by informing policy and pieces of legislation.

What does the research involve?

The study involves you participating in an interview that focuses on the issue regarding the nature and extent of women participation in water management. It will last approximately 20 to 30 minutes. While the interviews will be audio-recorded, your identity will remain anonymous. If you wish, you may request a copy of the transcribed interview script to be provided to you for confirmation before being included in the research findings. Interviews will be conducted in open space at a specific location convenient to you.

Can I decline or withdraw from the research?

Being in this study is voluntary. You are under no obligation to consent to participation, and if you agree to participate, you may withdraw at any stage or avoid answering questions which you are not comfortable with. A decision to withdraw will not disadvantage you in any way.

Confidentiality

All aspects of the study, including results, will be completely confidential. All reference to the respondents in the transcribed interview notes will be anonymous. No findings will identify any individual.

Storage of data

Data collected will be stored in accordance with Monash University regulations, kept on University premises, in a locked filing cabinet for five years. Within this period, you may request a copy of the collected data. A report of the study will be submitted for publication, but individual participants will not be identifiable in such a report.

Results

If you would like to be informed of the aggregate research finding, please contact Faisal Elias ██. The findings are accessible for five years.

Complaints

Should you have any concerns or complaints about the conduct of the project, you are welcome to contact the research portfolio's office of Monash South Africa via:

Hester Stols
Monash South Africa
144 Peter Road,
Ruimsig, Johannesburg

██

Thank you,

████████████

Faisal Elias

EXPLANATORY STATEMENT IN TSHIVENDA LANGUAGE

TSHITATAMEENDE TSHA U BVISELA KHAGALA

MONASH University

……/……/2014

Thandela: U dzhenela ha Vhafumakadzi kha Ndangulo yo Ṱanganelaho ya Zwiko zwa Maḓi: Ngudo ya Dzangano ḽa Vhashumisi vha Maḓi vha Mutale, Limpopo, South Africa.

Bimo Nkhata   Dzina ḽa mutshudeni: Faisal Elias

Ṱhanganelo ya Ṱhoḓisiso ya zwa Maḓi

Vha khou rambiwa u shela mulenzhe kha iyi ngudo. Vha humbelwa uri vha vhale Tshitatamennde tsha u bvisela khagala itshi nga vhuḓalo phanḓa ha musi vha tshi dzhia tsheo uri vha a dzhenela kana a vha dzheneli iyi ṱhoḓisiso. Muṱoḓisisi ndi mutshudeni ane a khou ita MPhil Ndangulo yo Ṱanganelaho ya Zwiko zwa Maḓi kha Ṱhanganelo ya Zwiko zwa Maḓi, Monash Afrika Tshipembe. Arali vha tshi ṱoḓa mafhungo maṅwe na maṅwe ane a elana na tshiṅwe na tshiṅwe tsha thandela iyi, vha ṱuṱuwedzwa u kwamana na vhaṱoḓisisi nga kha nomboro dza luṱingo kana ḓiresi ya imeiḽi yo bulwaho afho nṱha.

Ndi ngani vho nangiwa kha ṱhoḓisiso iyi?

Ndi khou ṱoḓa mihumbulo ya miraḓo ya Dzangano ḽa Vhashumisi vha Maḓi vha Mutale uri vha pfesese lwa khwiṋe mishumo zwithithisi zwi elanaho na u dzhenela ha vhafumakadzi kha ndangulo ya maḓi. Zwidodombedzwa zwavho zwa vhukwamani zwo wanwa kha Muhasho wa zwa Maḓi, Ofisini ya Limpopo.

Ndivho ya ṱhoḓisiso

Ndivho ya iyi ngudo ndi u wanulusa lushaka na tshivhalo tsha vhafumakadzi vho dzhenelaho kha Ndangulo yo Ṱanganelaho ya Zwiko zwa Maḓi.

Mbuelo na khombo dzine dza nga vha hone

A huna khombo dzine dza nga lavhelelwa dzi elanaho na ngudo. Naho zwo ralo, mbuelo dzine dza ḓo wanala kha iyi ṱhoḓisiso dzi ḓo vha dzi songo tou livhana thwii kha u ḓivhadza mbekanyamaitele na milayo.

Naa ṱhoḓisiso i katela mini?

Ngudo i katela vhone u dzhenela inthaviwu yo sedzaho kha zwithu zwi elanaho na lushaka na tshivhalo tsha vhafumakadzi vho dzhenelaho kha ndangulo ya maḓi. Zwi ḓo dzhia tshifhinga tshi linganaho minetse ya 20 u swika 30. Ngeno inthaviwu i tshi ḓo rekhodiwa uri ikone u thetsheleswa, vhuṋe havho hu ḓo dzula tshi tshidzumbe. Arali vha tshi zwi takalela, vha nga humbela khophi ya liṅwalo ḽo ṅwalululwaho ḽa inthaviwu uri vha ṋetshedzwe u khwaṱhisedza phanḓa ha musi zwi tshi dzheniswa kha mawanwa a ṱhoḓisiso. Inthaviwu dzi ḓo farelwa fhethu hu re khagala fhethu ho tiwaho hune vha nga kona u hu swikela.

Naa ndi nga hana kana nda ḓibvisa kha ṱhoḓisiso?

U vha kha heyi ngudo ndi u tou funa. A huna tshine tsha vha vhofha u ṋea thendelo ya u dzhenela, vha nga ḓibvisa kha ḽiga ḽiṅwe na ḽiṅwe kana u thivhela u fhindula mbudziso dzine vha pfa vha songo vhofholowa u dzi fhindula. Tsheo ya u ḓibvisa a i nga vha kundisi u wana zwiṅwe zwithu nga nḓila ifhio na ifhio.

Tshidzumbe

Tshiteṅwa tshiṅwe na tshiṅwe tsha iyi ngudo, hu tshi katelwa na mvelelo, zwi ḓo vha tshidzumbeni tsho fhelelaho. Phindulo dzoṱhe dzo livhiswaho kha notsi dza inthaviwu dzo ṅwalululwaho dzi ḓo vha tshidzumbeni. A huna mawanwa ane a ḓo topola muthu muṅwe na muṅwe.

U vhulungwa data

Data ine ya ḓo kuvhanganywa i ḓo vhulungwa u ya nga ndaulo dza Yunivesithi ya Monash, dza vhulungwa vhuponi ha Yunivesithi, dza failiwa kha khabinethe ine ya ḽokiwa lwa miṅwaha miṱanu. Kha itshi tshifhinga, vha nga humbela khophi ya data yo kuvhanganywaho, Muvhigo wa ngudo u ḓo ṋetshedzwa u itela u ganḓiswa, fhedzi vhadzheneli a vha nga toopolwi kha uyu muvhigo.

Mvelelo

Arali vha tshi ṱoḓa u ḓivhadzwa nga ha mawanwa a ṱhoḓisiso nga u angaredza, vha humbelwa u kwamana na Faisal Elias kha ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮ Mawanwa a swikelelea lwa miṅwaha miṱanu.

Mbilaelo

Arali vhana mbilaelo nga ha kutshimbidzele kwa thandela, vho ṱanganedzwa u kwamana na ofisi ya phothifoḽio dza ṱhoḓisiso kha ya Monash Afrika Tshipembe kha:

Hester Stols
Monash South Africa
144 Peter Road,
Ruimsig, Johannesburg

▮▮▮▮▮▮▮▮▮▮▮▮▮   ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮

Ndi a livhuwa,

▮▮▮▮▮▮▮▮

Faisal Elias

Appendix IV: Interview Guide

MONASH University

Monash South Africa

A Campus of Monash University, Australia

Water Research Node

Project title: Women's Role in Integrated Water Resources Management: A Case Study of the Mutale Water User Association, Limpopo, South Africa.

Research aim: The aim of the research is to explore the nature of women's role in Integrated Water Resources Management (IWRM) with a focus on Water User Associations (WUAs) and to develop a theoretical construct that adequately explains the experience of women. Specifically, the study sought to develop an understanding of how women participate in water management activities and of the contextual factors influencing their participation.

Demographics Characteristics

Age:	Gender:
Marital status:	Educational level:
Occupation:	Ethnicity:
Total number of people in your household:	

What role do women play in the activities of the WUA?

Who is responsible for domestic activities at home?

Who do you think should make decisions in a household? Men or women? And Why?

Does your domestic responsibility affect your participation in the activities of the WUA? If yes, in what ways?

What are women's responsibilities in the community?

Does your productive role affect your domestic activities?

What do you think about women having leadership positions in the WUA?

Why are there few women in the WUA?

Are you informed when the general meeting of the WUA is held? If yes, how and if no, why?

How frequently do you attend meetings? Why?

Do you participate in the proceedings of the meetings? If yes, how?

How do you perceive the involvement of women in the activities of the WUA?

Has any woman assumed any management position in the WUA? If yes, which position and what are your thoughts on that? And if no, why is that the situation?

How do you perceive traditional rules in terms of women's behaviour and their involvement in public sphere?

What motivates your compliance with the rules and why?

How do you perceive the effectiveness of traditional rules as well as government's directives for women participation in WUA?

What are the criteria of becoming a member of the WUA? Do they favour you?

How does your level of education contribute to the activities of the WUA?

Is the presence of men in the WUA a hindering factor to your participation?

Are there any cultural or traditional limitations to the participation of women in the activities of the WUA?

Are there any reactions of the opposite sex whenever you make an input during meetings?

What do you think are the problems of women in the management committee of the WUA?

Are there any barriers to you participating in the activities of WUA? What helped you to participate?

Some say that women don't want to participate in WUA because they lack the capabilities to deliver. What are your thoughts on that?

What advice will you give to women members of WUAs?

What do you think the government, specifically DWA, should do in order to improve the participation of women in water management activities?

Is there anything else about your participation in the activities of WUA that you would like to mention? Anything I haven't asked you?