PROBING INDIGENOUS APPROACHES: GENDER AND WATER MANAGEMENT PRACTICES IN SELECTED RURAL SETTLEMENTS OF ONDO STATE, NIGERIA

by

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DECLARATION

I, PAUL OLUGBENGA AWONIYI, the undersigned, declare that the contents of this thesis titled, "Probing Indigenous Approaches: Gender and Water Management Practices in Selected Rural Settlements of Ondo State, Nigeria", is my own original work. It has not previously been presented to another institution, either in part or as a whole for obtaining a degree. Where use has been made of the work of others, this has been acknowledged and referenced accordingly.

01/11/2018

Signature Date

M Naidu

Supervisor's Signature Date

DEDICATION

This work is specially and completely dedicated to God, the source of favour, wisdom and strength. I also dedicate it to Professor Ayobami T. Salami (Vice Chancellor, The Technical University, Nigeria), who gave me this international opportunity.

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ABSTRACT

Water is a critical requisite for household livelihoods and for safeguarding the health and hygiene of family members among the rural dwellers in Africa. Women in villages across Ondo state, one of the southwestern states of Nigeria, adopt various indigenous methods in rural water management to make water potable and available for their households. However, knowledge around gendered indigenous/rural water management among rural dwellers is still under represented and provides the rationale for this study. A sequential mixed methodology approach was undertaken, using quantitative and qualitative methods. An explanatory design was used to document the different indigenous materials and approaches in local water management, explore the impact of gender awareness on Indigenous Water Management (IWM) practices, identify the effects of gender stereotypes on IWM practices and to evaluate the impact of women's participation in local water management. The study draws from a Feminist framework and gender-based participatory paradigms. Significant findings from the study identified the various perceptions that reinforced gender stereotypes with respect to the participation of women in rural water management in Ondo state. Further findings reveal how masculine hegemony, under the guise of culture and religion, strengthened male dominance in rural water management and female subordination. Various indigenous approaches have contributed to meeting women's practical needs based on their traditional roles. It is, however, recommended that loan facilities are made available to the women as well as adult literacy programmes. Finally, channelling water from surrounding rivers by pipe into every street could contribute significantly to improving the lives of women.

Keywords: gender, women, water, indigenous water management and livelihood

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LIST OF ABRREVIATIONS

ADB	-	African Development Bank
CA	-	Content Analysis
DFID	-	Department for International Development
FF	-	Feminist Framework
FGD	-	Focus Group Discussion
FPE	-	Feminist Political Ecology
GAD	-	Gender and Development
GBPP	-	Gender Based Participatory Paradigm
GWA	-	Gender and Water Development Association
GWDR	-	Ground Water Disinfection Rule
GWP	-	Global Water Partnership
ICWE	-	International Conference on Water and the Environment
IK	-	Indigenous Knowledge
IKP	-	Indigenous Knowledge Practice
IKS	-	Indigenous Knowledge System
IWM	-	Indigenous Water Management
LWM	-	Local Water Management
PGN	-	Practical Gender Needs
RQ	-	Research Questions
RWM	-	Rural Water Management
SGN	-	Strategic Gender Needs
SPSS	-	Statiscal Package for the Social Sciences
SWA	-	State Water Agencies
TA	-	Thematic Analysis
TWM	-	Traditional Water Management
UNDP	-	United Nation Development Programme
UNDRIP	-	United Nations Declaration on the Rights of Indigenous Peoples
UNICEF	-	United Nations International Children's Emergency Fund
UNPFII	-	United Nations Permanent Forum on Indigenous Issues
WBG	-	World Bank Group
WHO	-	World Health Organisation
WID	-	Women in Development
WWAP	-	World Water Assessment Programme

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Water is synonymous with life and no human can survive without potable[1] water, making it a basic need and a human right (see UNDP 2006). Shittu, Olaitan and Amusa (2008, 285-290) observed that the "dependence on streams and rivers" by most rural dwellers in Nigeria for domestic use and other activities, is due to lack of potable water. Access to potable water is critical to survival and is a particular challenge in Nigerian rural communities where clean potable water provision is scarce. Various indigenous approaches employed by women and men in the various villages help to make the stream water potable. Okeola, Kolawale and Ameen (2010, 336-344) stated that most surface[2] water is easily contaminated and is therefore generally poor in quality and not as reliable as ground[3] water for domestic purposes. In Akure Ondo state in Nigeria, a study revealed that most ground water for daily use is accessed through wells (see Ogundele 2010). In other communities such as the study areas of Ese-Odo, Ile-Oluji, and Ose, surface water is more readily available, which necessitates the need for indigenous methods to make water safe for domestic use.

Mercer et al. (2007, 245-256) mentions that "Indigenous Knowledge (IK) can be referred to a body of information prevailing within or learnt by local people over a period of time through accretion of skills, communal-nature relations and communal practices by passing it down to other generations." Likewise, Oweis (2003, 179-198) describes it as "neither indigenous nor

[1] Clean drinking water

[2] Surface water is regarded as water from river, lake, wetland and ocean which are on the surface of the planet.

[3] Ground water is the water present beneath Earth's surface in soil pore spaces and in the fractures of rock formations and can only be accessed through wells and boreholes.

homogeneous but can be equally shared". Indigenous Knowledge Practices (IKP) can be described as socially constructed (ibid.) and can differ from one individual to another. IKP and indigenous approaches have been regarded as a method for contributing to rural development and for reducing rural poverty. Post-development studies (see Dove et al. 2007, 129-154; Abebe et al. 2011) argue that indigenous practices and knowledge are a credible option for the rural poor. Cornwall (2002) states, "the reconstructing of development must begin by probing local structures, to the extent that they are the life and history of the women and men, that is, the conditions for and of change". However indigenous knowledge and practices might not have contributed significantly to the "global development discourse in spite of the optimism" (Ross et al. 2010, 85), due to the fact that it is locally- and geographically-based.

Across Ese-Odo, Ile-Oluji, and Ose in Ondo state, access to potable water for survival and basic needs is largely a rural problem, as there is significantly less infrastructure than urban areas. Furthermore, in many areas where there is scarcity of potable water, regulations and access to clean water become a political tool in power relations. In Latin America, Asia, and Africa, (specifically Southwest Nigeria), social scientists are focusing on gender differentiation in water management and use, which is a divergence from the politics of water (see Vivienne 1995, 76-99). Thus, there are noticeable shifts in the management of water resources from being state-controlled and managed to being focused on community-based participation with less direct state responsibility. According to Bardhan (1995, 87), "water reform in the sense of managing or encouraging community participation is as important as land reform" in rural development. This is one of several issues relating to the discourse and practices of participation in water resources management. Gendering such practices further reveals both conceptual and practical limitations of the concepts. A gendered approach to indigenous knowledge in water management in the villages in Nigeria has become inevitable, due to the present challenges of limited availability of

potable water in both urban and rural communities. The scarcity of potable water has a direct impact on women and girl children.

Rural women who, although known within the local communities as primary collectors of water and the direct beneficiaries of the negative impact of scarce potable water, are seldom involved in essential water management activities. More often than not, their indigenous knowledge and intuition about the seasonal availability of water, traditional ways of improving the quality of water from various sources, and individual and communal rights to use those sources to prevent conflict, are accurate but hardly consulted by the generally-male managers of water. Similarly, due to the socially-constructed patterns of differences between men and women in the villages in Ondo state, the participation of women in indigenous water management is unlikely. While men have traditionally been responsible for making decisions regarding, for example, the use of quarterly government monetary interventions and how to distribute water tankers when they are available, and have "dominated the processes which affect the management of water" (IRC 1994, 1858), women also play a major role in "collecting, managing and maintaining communal water availability, regulating and controlling its social use and safe maintenance" (Sida, 1994; Barrett and Browne 1995, 31-35). Agarwal (1992, 374-378), Leach (1992, 1) and Green and Baden (1994) all argue that women thus have the best information, knowledge and skills on the accessibility, quality, reliability, and purity of water sources across the contexts of household, community and subsistence livelihood conditions.

Water is a "critical requisite for household livelihood and for safeguarding the health and hygiene of family members" (Odgaard 2002, 71-88). This is particularly so in certain African countries. According to recent papers by Ojiako (2000, 64-67) and more recently, Ezeabasili, Okoro and Ezeabasili (2014, 35-54), Nigeria is endowed with abundant natural water resources comprised of an extensive annual rainfall, enormous surface bodies of water (rivers, streams, and

lakes), as well as abundant reservoirs of sub-surface water whose extent and distribution have not been extensively accessed. However, as in other rural communities in Nigeria, villages in Ondo state with an abundance of rivers, springs and streams still have people struggling for access to safe and clean water. Women in these villages have been adopting various indigenous methods to make water potable, such as the use of certain parts of plants and special clay pots. Nevertheless, Fonjong (2001, 223-235) observed that the "recognition of women's strategic gender needs (SGN) in indigenous water management, are still hardly ever addressed, which has led to a short life span of many rural potable water projects, which may have had the potential of being effective and efficient, causing an increase in the bulk of the burden of provision of potable water on women in many villages in Ondo.

Thus, the ongoing socially-constructed role of women and the "overwhelming presence of the masculine hegemony in water management" (see Kabeer 2005,13-24) can continue to make potable water more difficult to access. Furthermore, women are often relegated to the cultural gender roles of nurturing and subordination (see also Prokopy 2004, 103-116). Shittu et al. (2008, 285-290) and recent West African scholars like Finn and Jackson (2011 1232-1248) and Aromolaran et al. (2013: 631) suggest that the challenge of potable water accessibility could be managed indigenously with several "locally-based interventions", some of which have been observed in the Ese-Odo, Ile-Oluji, Ose and other rural communities in Ondo. Women use various materials,[4] plant parts,[5] Moringa Olifera[6] (plant), storing these in clay pots and digging up the ground for indigenous water treatment and management. Rural settlements with large rivers and streams around are still faced with the highest challenge of potable water scarcity in

[4] Charcoal, sand, local filters, sun etc.

[5] Root of *Mannihot esculenta*, seeds of *Jatropha curcas*, fruits of *Citrus aurantifolia* etc.

[6] A medicinal plant

the state. This is due to their remoteness and low gender sensitivity to indigenous water management practices.

Different types of activities which create livelihoods should be considered when planning and managing rural water because these assist in exploring the gendered nature of livelihoods. In the past, a false dichotomy was made between 'domestic' and 'productive' activities. Women were assumed to dominate the 'domestic' and men the 'productive' sphere. This was carried over into the water sector where domestic and productive water use were often treated as different sub-sectors and considered the "realm of women and men respectively" (Udas and Zwarteveen 2005, 21-43). Scholars investigating "small-scale productive water use", however, discovered that many activities are mostly carried out by women (Nightingale 2006, 165-185). Bhandari and Grant (2009, 199-207) therefore maintain that, "accommodating gender differential roles and strategic gender needs", would greatly assist in achieving better equality between men and women and to change existing gender stereotypes in the planning, purification, and management of water (Peter 2006, 723-730) "thereby demystifying the socially construed roles" (Hemson 2002, 24-32) and tasks in local water provision and usage and "reducing the universally subjective coercion that subordinate women" (van Wijk, Lange and Saunders 1996, 91-103). O'Reilly (2006) argues that women and men are "heterogeneous constituencies" (958-972) whose mutual involvement in rural water management could effectively manage and provide potable water.

This study is attempting to probe how men and women's participation in rural water management can enhance the benefits of indigenous practices and reduce the negative impacts of public water management systems which are becoming inefficient and unavailable. The study aimed to do this by conducting an analysis of present and existing issues around gendered indigenous water management. The study also examines the various indigenous practices for

purifying and storing water and evaluates gender sensitivity and awareness among the villages. It conducts an impact assessment of gender awareness on the quantity of potable water available for households. Even though there are abundant water bodies in all the villages, in places such as Ese-Odo only 0.96 % of the population has access to potable water and more than 75 % still depend on streams for clean water. Also, despite a more discernible female presence across the villages in Ondo, women are still hardly involved in the management of water.

1.2. Significance of the Study

This study is important because it seeks to examine gender in an indigenous water management context and this has not been expansively researched. The knowledge of indigenous management of water and natural resources has become extensive in many traditional landscapes (see Anwar et al., 2006). Indigenous knowledge in water management is common and a means to livelihood in the villages in Ondo. The experiences of men and women as well as their methods of investigation allow local knowledge to be easily incorporated into traditional water management practices and systems (see Gebremedhin, 2004). Identifying the different roles of women and men can contribute to socially, environmentally and economically sustainable natural resource management when integrated with the use of indigenous knowledge in a participatory local water development scheme.

Further, whilst more focus on water management has been concerned with health consequences, gender and irrigation, water rights and safety, or economic value, according to Bhadra and Bhaskar Singh (2003, 93-109), gender issues in indigenous water management have not been addressed widely by scholars. Earlier studies on indigenous water management (Raji, Manju and Anirudhan 1997, 228-236; Mataka et al. 2006, 131-139) also focused extensively on the implications of indigenous knowledge and the use of various plants and plant parts in water management among rural residents. However, recent scholars (Zwarteveen 2007, 503-11;

Elmhirst and Resurreccion 2008, 3-22) have argued that the the gender analysis and the different roles of men and women in indigenous water management has not been widely documented. This is the point of insertion for this particular study.

Western feminism which was observed to have been strongly influenced by early gender analysis has been critiqued by southern feminists because it made assumptions that were based on western perspectives (Mohanty 2003). In Africa the anti-colonial movement mobilised men and women towards political struggles which consequently neglected gender issues (Sow 1989). This led to a decline in the women's status vis-à-vis men according to feminist researchers (Sow 1989; Walker 1994; Mama 2004) who analysed the effect of colonial involvement. Since gender is always entwined with other categories of diversity and how one experiences gender depends on where one is positioned in other social hierarchies, two issues are therefore of utmost importance in this study:

- the issue of voice – who is heard, what is their experience
- the necessity of contextual sensitivivity.

According to Mama (2004, 122) who cautions that when analysing gender, one must be "constantly be alert to the politics of location", in considering history and aware of the boundary that exists between local, regional, national and global processes. Furthermore, the initial focus on women solely led to critiques of the early work on gender and development. Gender is not all about women only, but about how 'male' and 'female' are constructed in relation to each other and there are often disagreements. However, this study focused exclusively and specifically on the experiences of women and how their marginalisation from rural water management has affected their livelihood. The study thus sought to address how women can best exercise their rights without feeling discriminated or sidelined because of cultural beliefs. This was also addressed by African feminists (see Kolawole 1997; Mikell 1997; Mohanty 2003; Narayan 1997;

Oyewumi 1997) who state that African feminism falls within the discourse of 'third world' feminism which is shaped by African women's struggle against western hegemony and its legacy within African culture. African feminisms therefore hold the view that the wearing away of women's power is caused by the intrusion of western systems with different gender perspectives and new paradigms of power organisation (see Amadiume 1987; Arndt 2002).

This study is significant in that it seeks to use combined quantitative and qualitative methods in a "sequential mixed design, specifically the explanatory design" (Rao and Woolcock 2003, 165-190) to examine and probe the impact of a gendered indigenous water management on the rural dwellers in Ondo. This study approach could also assist in the documentation of locally and geographically based indigenous knowledge practices and people's levels of awareness and sensitivity in the use of these aboriginal methods in an unbiased and participatory manner for the delivery of potable water.

In as far as I could establish from extensive literature I assessed, a study on the gendered narratives around indigenous knowledge and practices in rural water management and how they impact on the adequate provision of potable water, has not been previously undertaken. The findings of this study have enabled me to highlight and document critical insights generated in the area of the various Indigenous Water Management (IWM) practices, impact of gender awareness on IWM practices, effects of gender stereotypes on IWM practices, impact of women's participation in local water management and gendered use of water to enhance livelihoods.

The central hypothesis of this study is that if gender awareness is highlighted in indigenous water management, livelihood is enhanced and water quality and access to water is improved. The study probes gender sensitivity and perceptions in indigenous water management across the rural settlements in Ondo.

1.3. Key Questions

The following study seeks to examine the impact of how a gendered Indigenous Knowledge Practices (IKP) approach can improve the quantity of potable water accessible to the villagers in Ondo State and also examine the extent of gender awareness and sensitivity in indigenous water management among the rural dwellers in Ondo. In attempting to answer this key question, the study addressed the following sub-questions:

a. What are the Indigenous Water Management (IWM) practices in Ondo state?

b. What is the impact of gender awareness on IWM practices?

c. What are the effects of gender stereotypes on IWM practices?

d. How does women's participation in local water management improve the quality of water?

e. How do people, differentiated by gender, use water to enhance their livelihoods?

1.4. Objectives of the Study

The objectives of this research are:

1. To identify the Indigenous Water Management practices among the rural settlements in Ondo.
2. To examine the impact of gender awareness on IWM practices.
3. To examine the effects of gender stereotypes on IWM practices.
4. To explore women's participation in local water management and its effects on the quality of water.
5. To examine how people, differentiated by gender, use water to enhance their livelihoods.

1.5 Definitions of Key Terms

The following key terms and concepts have been defined below and described in relation to how they are used in this study: Indigenous Knowledge System (IK), Traditional Water Management (TWM), Water Governance, Livelihood, Gender and Gender and Water.

1.5.1 Indigenous Knowledge System – IK

Researchers over the years have developed various definitions for indigenous knowledge systems or indigenous technical knowledge. Warren, Slikkerveer and Titilola (1995, as cited in Olokesusi 2006) characterise indigenous knowledge systems (IKS) as the "sum of experience and knowledge for a given group that forms the basis for decision making" with regard to familiar and unfamiliar problems and challenges. Similarly, Altieri (1988 as quoted in Olokesusi, 2006) characterises such knowledge as "accumulated knowledge, skills and technology of the local people derived from the direct interaction of humans and the environment". An IKS consists of integrated systems of production and consumption with the following key components: organised technical knowledge, social institutions, decision making, and management of diverse natural resources, technology, and skilled labour. This thesis uses indigenous knowledge systems among Ondo rural dwellers or indigenous technical knowledge systems synonymously. Moreover, the concepts are also understood in terms of Cashman (1988) and Altieri (1988) as quoted in (Olokesusi 2006) as is presented above, which however has caught the attention of researchers recently. In this regard, IIRR (1996, 211) as quoted in Abebe et al. (2011, 2) argues that IKS is based on "experience habitually established over centuries of use, adopted to local culture and environment which is dynamic and changing". Likewise, Ajibade (2003, 99) conceptualizes IKS as it has been "built up on and passed from one generation to another and improves within a certain culture" or ethnic group from time immemorial and tries to meet continuation of aims and objectives in a particular environmental circumstance.

1.5.2 Traditional Water Management – TWM

A traditional practice describes some set of activities or approaches that originates and occurs naturally in an area or community. 'Traditional' or 'indigenous' management practices and approaches can also be described as 'customary' management practices or models of governance and management (Katerere and van der Zaag 2004). They can also be described as the arrangements of thoughts into action and activities that have been inherited and handed down as standards and models for survival from previous generations. According to Katerere and van der Zaag (2004), a custom or tradition is a "norm that has been practiced and used for decades and is practical and certain". Such models of customary approach of water management include chieftaincy, jurisdiction over natural resources, rules governing the distribution of water or the procedures for initiating development programmes (Latham 2002). A 'tradition', 'custom' or 'indigenous' practice is used in this study of gendered indigenous water management, to distinguish between what people today consider to be their own established practices and rules governing access to natural resources like water and land, as opposed to outside interventions which propose new rules and regulations to which people are unaccustomed (Dore 1996). This definition includes but is not limited to those 'living traditions' that may still exist, having had little external influence. For the purpose of this type of research, the words 'traditional', 'indigenous', rural and 'customary' are terms taken to mean the same and will be used interchangeably.

1.5.3 Water Governance

Water governance has been defined by UNDP (2006) as the range of political, social, economic and management systems that are in place to regulate and control the development and administration of water resources, provision and supply of water services at different levels of society. Thus, water governance and management involve the connecting networks of different types of organisations (public, private, public-private and community) to manage and coordinate

the resources in the society. Gupta (1996) states that water management can also involve all legal phenomena: institutions, laws and policies. Good water governance exists where government bodies responsible for water establish an effective policy and legal framework to allocate and manage water resources in ways responsive to national, social and economic needs and to the long-term sustainability of the available water resources (GWP 2000). This therefore, corresponds with the definition by UNDP, and is thus the definition that will be used at various point in this research.

1.5.4 Livelihood

The concept of livelihood as an instrument for investigating human activities for environmental sustainability was first used by the Brundtland Commission and has been regularly used since. Before a livelihood can be said to be sustainable, it must lead to maintenance, survival and or improvement of the natural resource base for as long as possible, most importantly in the use of indigenous approaches. Chambers and Conway described it as "the capabilities, assets (stores, resources, claims and access) practices, approaches and activities required for a means of living" (1991, 6) in their presentations and it is also referred to as "the economic means whereby one lives". It can also be regarded as a "means of keeping and providing for a family or group". According to van der Hoeck (2001) and Derman and Hellum (2007, 664-673), livelihood has also been described as "the means people use to support and assist themselves to survive and to flourish". Livelihood is most importantly used in rural frameworks, where men and women participate in various activities for the sake of survival. Livelihoods of rural people focus on to what extent the household head is able to maintain the family or a group through provision of the basic needs of life or to improve their social status. This introduces the aspect of livelihood strategies which are the various means that people adopt in order to earn a living, and these vary from agriculture, formal employment, informal employment, and sometimes remittances. Chambers and Conway (1992) further state that a livelihood is sustainable when it can withstand

and recover from stresses, and shocks, maintain or enhance it capabilities and assets, while not undermining the natural resource base. The Free Dictionary defines livelihood as "the minimal source of income or marginal resources for subsisting" or "social security and food security, provided only a bare subsistence". All the above definitions agree that livelihoods are the means people use to support themselves, to survive, and to prosper, which is the definition used in the context of this research. It should also be noted that livelihoods are an outcome of how and why people organise to transform the environment to meet their needs through technology, labour, power, knowledge, and social relations. It is further important to point out that livelihoods are shaped by the broader economic and political systems with in which they operate.

1.5.5 Gender

The analysis of livelihoods usually takes place at the level of household and tends to incorporate men and women into homogenous groups. However, people interact differently with institutions because they have different capabilities and different access to available resources. Gender as a major point of difference between males and females, has social/cultural meaning as opposed to biological differences. The study intends to draw insights from livelihoods and gender analysis, as it relates to gendered indigenous water management among rural dwellers in Ondo. The concern for women's participation in developments initiated a consideration for gender issues because women were largely sidelined in early development efforts (Kabeer 2005).

The domestic (female) and productive (male) domains have created a false dichotomy which allows for women to be seen only in their reproductive role as wives, mothers and caregivers and not as actors who could participate effectively in the issues of development. Conventional development focused on men and "marginalised the women to the more marginal welfare sector" (Kabeer 2005, 13-24). However, the projected resolution was a focus on women which started out as a declaration of a decade for women between 1975 – 85 given birth to the Women in

Development (WID) approach. Women thereafter became the target for developmental assistance which was hoped to cover several areas by making development more effective, decreasing poverty, targeting basic needs and improving gender equity (Moser 1989 and Elmhirst and Resurreccion 2008). However, social transformation was not presented hence WID was strongly critiqued (Cornwall, Harrison and Whitehead 2004) because WID took a technical approach, evading issues of power and inequality completely. Kabeer claims it was like treating cancer with Bandaid (2005).

This however changed the approach of Gender and Development (GAD), which now allows for a better understanding of power relations, diversities of race and class. Hence, an imperative contribution of gender analysis was to 'deconstruct' the internal activities of the household and relate these to wider societal procedures. The work of feminist anthropologists and economists such as Moore (1988) and Folbre played an important role in this.

According to (Moser 1989) who defines gender interests as those interests people have due to their gender positioning vis-à-vis others. The literature differentiates between practical and strategic gender interests. Practical interests are established on the reality that exists in people's daily lives. They can be determined easily, by enquiring what the needs and wants of peoples are and the required interventions to meet these (e.g. providing portable water, piped water close to homes which reduces women's burden of water collection). However, strategic interests are complicated in that they are determined by examining people's position vis-à-vis others and coming up with strategies to improve lives through social transformation (Kabeer 1994; Moser 1989) (e.g. challenging social rules/traditions which position women as household water managers). The difference between practical and strategic is beneficial because it shed light on the differences that exist between interventions which meet needs, but preserve the status quo, and those which promote equity through social transformation (Kabeer 1994).

1.5.6 Gender and Water

According to Lawuyi (1998), women are believed to have a special closeness with water which is deeply connected with feminine power. Across cultures, women bear the burden of water collection and they are also managers of domestic/household water, responsible for household health and wellness, and water users in their own right (Strang 2005). Women are situated in these roles by virtue of their gender, age and household status. Also, in the water sector, gender issues tend to be connected with women and the notion that enhanced water access will lessen women's burden and therefore be good for gender equity analysis has tended to be superficial (Hemson 2002). Several years ago women's productive and community management roles in the water sector were masked. It was presumed women's primary responsibilities were to do with water management and domestic use while men were productive water users. This disregarded women's productive water needs to their disadvantage, their households' and the economy (Michael 1998). This also led to the exclusion of women and sidelined them in management roles and decision-making structures, creating efficiency and equity problems (Michael 1998; Hemson 2002). An increasing build up of literature (Hope, Dickson and von Maltitz et al. 2003; Mulwafu 2003; Moriarty et al, 2004; Upadhyay 2005) has discussed the role of water in productive activities and its involvement in poverty reduction (although there has been a little study of the gender dynamics of this). However, Upadhyay (2005) found that several water-using productive activities are engaged in exclusively by women and income earned goes directly to the women involved.

1.6 Plan and Structure of the Thesis

This thesis has been structured into the following chapters:

- **Chapter One: Introduction/Background**

This chapter provides the background to the study and introduces the research problem: to probe how gendered Indigenous Knowledge Practices can improve the quantity of potable water

accessible to the villagers in Ondo State. The thesis also examines the extent of gender awareness and sensitivity in indigenous water management among the male and female rural dwellers in Ondo State. The first chapter describes the research statement, broad problems to be addressed, research questions and provides an overview of the thesis structure. Chapter One concludes by addressing the significance and objectives of the study.

- **Chapter Two: Literature Review**

The second chapter reviews previous studies in the area of indigenous water management and gender. This chapter highlights how existing studies on indigenous knowledge in rural water management have focused primarily on men's and women's activities in providing potable water. Very little has been said about gendered indigenous water management among rural dwellers.

- **Chapter Three: Research Methodologies and Theoretical Frameworks**

This chapter motivates the use of a combination of quantitative and qualitative methods in a sequential mixed design, specifically the explanatory design, in order to produce rich, narrative data. It advances a case for the use of mixed research methods to elicit data and then discusses the data collection methods and the sampling process used in the research. It examines the data collecting techniques used, data analysis, sampling techniques, sample size, study area and the ethical issues underlying the research. Lastly, this chapter profiles the research participants to provide a background to the people who participated in the research. It positions the study within a feminist framework and the gender-based participation paradigm. This chapter anchors the research topic in the literature by identifying gaps in research and applying relevant theoretical frameworks in gender studies emerging from the literature. Finally, the gender dynamics during the data collection process are discussed, as well as the researcher's reflection on the field work.

- **Chapter Four: Gender Needs and Indigenous Water Management (IWM)**

This chapter introduces the data collected from interviews, focus group discussions and the

surveys from all the research sites by examining the various factors which influence challenges and successes around IWM practices in the rural communities of Nigeria and, specifically, Ondo state. This section identifies various indigenous practices and knowledge used across the study area and their impact on the provision of potable water. It also identifies and examines the implication of women's strategic gender needs in indigenous water management practices.

- **Chapter Five: Access to Drinking Water and Gender Stereotypes**

This chapter examines the level of gender sensitivity in indigenous water management. It also considers how men and women respond to the availability of drinking water. It assesses the impact of the gender roles or the ones construed by society, and the Indigenous Knowledge Systems of the local community on potable water management and delivery. It investigates gender analysis in local water management, and its implications on the livelihoods of the villagers is also considered.

- **Chapter Six: Patriarchal Role in Water Management**

This chapter examines the influence of male hegemony on water management by assessing the level of entry of the women with regard to managing local water practices beyond the home. It identifies the role of women beyond the reproductive and nurturing availability to participation in the delivery of a potable water across the rural communities. This chapter also compares the involvement of women in water management across the community with men. It highlights and discuss the perception of men on women's involvement in water management and compares this to women's perception about their involvement in indigenous water management.

- **Chapter Seven: Gender, Indigenous Water Management and Livelihood**

This chapter reflects and focuses on the impact on indigenous water management of low gender sensitivity. It highlights and discuss how an improved gender awareness would help preserve the livelihood of the community regarding the management of water. It further considers how

women's participation in local water management and their role here can improve the availability of potable water.

- **Chapter Eight: Findings, Conclusion, and Recommendation**

This final chapter provides a summary of the research findings, the significant contributions of the study, suggestions for further research, and recommendations.

1.7 Conclusion

This chapter has provided an initial background to the study and introduces the research problem which is to probe how gendered Indigenous Knowledge Practices can improve the quantity of potable water accessible to the villagers in Ondo state. A second research aim is to examine the extent of gender awareness and sensitivity in indigenous water management among the male and female rural dwellers in Ondo. It also highlighted key questions and discussed the significance of the study based on the various experiences of men and women as well as their methods of investigation which allow local knowledge to be easily incorporated into traditional water management practices and systems. The chapter briefly discussed various concepts including Indigenous Knowledge System, Traditional Water Management and terms such as livelihood and gender. The following chapter explores studies on water management among rural dwellers, the use of Indigenous Knowledge Systems to improve the livelihoods of the rural dwellers, and an understanding of the connections that exist between water, gender and livelihoods.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The purpose of a literature review, according to Kemmis and McTaggart (2008, 271-330), is to put the research project into context by showing how it fits into a particular field, and this involves the identification and analysis of information resources and literature related to the research project. This process includes identifying potentially relevant sources, an initial assessment of these sources and the construction of an account that integrates and explains them. The structure of the literature review is informed by the research questions stated earlier in Chapter One. The chapter presents a review of related studies in Western countries, in developing contexts and in Nigeria in particular. Research investigating the connection between gender and indigenous water managements is sparse, both in developed and developing contexts. Therefore, coupled with the considerations of the major themes in this research, the dearth of literature in the current field has also influenced the studies selected for review. Pertinent studies considered relevant to the current study were reviewed globally in Africa and in Nigeria in order to identify the cross-cultural similarities and differences in the various findings. This literature review also draws on previous studies and works that are relevant and thus leads to a better understanding of the topic. The literature in this chapter has been drawn from books, journals, published and unpublished theses/dissertations and electronic materials.

2.2 Indigenous Knowledge Practices and Water Management

According to the World Health Organisation and United Nations Children's Fund (UNICEF), the number of people worldwide without access to safe drinking water is over one billion, and over forty per cent of the global community do not have access to basic sanitation (see Savenije and van der Zaag 2000, 127-140). Ishaku et al. (2011, 598-606) also stated that the greatest threat to

the “health, economic productivity and quality of life of the people can be traced to absence of potable water in many developing countries”. An initial inquiry exposed that a large percentage of village dwellers in Nigeria do not have access to potable water. Men, women and children depend largely on surface run-off (streams, rivers, ponds) and unprotected wells which are usually polluted with biological, non-living and infective impurities (Dube and Swatuk 2002: 867-879; Shittu et al. 2008, 285-290), which can cause infectious diseases that are easily transmitted by water through the faecal or oral route, leading to over five million children annually dying from waterborne diseases (Bapat and Agarwal 2003, 71-86). Hence, the treatment and management of poor drinking water is of prime concern, particularly in the rural areas. According to Ishaku et al. (2011, 598-606), improved water management practices and acceptable safe water supply potentially might lead to a “reduction of men and women’s suffering, increase efficiency and productivity capacities that in the end will decrease health-care costs”. Indigenous practices which make use of biological materials (plant part, seeds, flowers, etc.) for water treatment are considered the most cost-effective and safest of practices.

An earlier study by Emery (2000) and more recent scholarship (see Singh, 2006, 357-366; Abebe et al. 2011) have been able to establish that the link between indigenous knowledge and practices (IKP) and water management is integrated in the traditional knowledge and skills of the local men and women with regard to the management and protection of water sources for the purpose of making these sources useful for agriculture and in presenting them as safe for drinking. Emery (2000) further argued that IKP can enable village dwellers to develop their capacity by achieving sustainable and gender-equitable development with the use of water indigenous knowledge and practices possessed by the rural societies. The utilisation of IKP in water management processes is grounded in the fact that indigenous local people preserve ecological and hydrological environments without damaging them (Emery 2000). Ajibade (2003, 99-113) remarked that indigenous approaches to water management vary from “well digging, rain water harvesting, use

of various plants" and plant parts for the treatment of water from rivers and streams, to the use of all sorts of clay pots to preserve water and to purify of water for the purpose of providing potable water. Ali further stated that the indigenous practices and procedures relevant to water management include: location and collection of materials for water purification;[7] location and collection of water from various sources; identification of sources of water which are easily purified; and identification of the types of trees planted on river banks which can be an indicator of how clean a stream or river is; to types of rainwater harvesting.

Some scholars (see Dore, 1996; Machingambi and Manzungu 2003: 1039-1046; Yu, 2003; Finn and Jackson, 2011; and Ross et al., 2010) describe how indigenous knowledge and rural communities and cultures are interacting in harmony with nature by ensuring sustainable development in their own known way. According to UNPFII (2008), the declaration of the importance of IKP, which is a thoughtful traditional knowledge of their environment which is at risk of vanishing as used in Africa, is a check on the notion that only Western advancement can bring development concerning water management. In North and South America, opinions regarding indigenousness have been used in a more "politicised form by individuals trying to preserve some sovereignty for their land, languages, and cultures" (Laurie 2002: 179). Development has strongly been regarded as being more relevant than knowledge of indigenous peoples. There is a large and devastating literature on the mayhem created by the growing European and North American countries with regard to indigenous people all over the globe, with the most organised account given by Jahn (1991, 244-247) and others like Toussaint, Sullivan and Yu (2005, 61-74) and Finn and Jackson (2011, 1232-1248). Rural development that integrates indigenous knowledge and practice is now often regarded ethically and essentially as being better than past colonial policies and national policies, and it seeks to pursue rural

[7] Water purification is the process of removing undesirable chemicals, biological contaminants, suspended solids and gasses from water. The goal is to produce water fit for a specific purpose.

advancement by improvements on the provision of potable water (Bernard and Kumalo 2004; Aromolaran 2013, 631). Indigenous people or rural dwellers are able to organise themselves to follow in the steps of their knowledge and inherited skills in water management, both across all the rural settings in the different states and across the globe. According to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP 2008), the rights of indigenous peoples have been integrated in the United Nations Draft, although most times these have been ignored in local water management practices. Hence, among the Bushmen or San in Namibia and in Botswana, which is in southern Africa, the word 'aboriginal' has been used to mean non-Western and non-white, in which indigeneity has become imperative to and accepted in the survival of the rural settlers (Brörmann 1999; Suzman 2000; Hodgson 2002; Survival International 2003).

Furthermore, in the western part of Africa, Nigeria, and among the rural dwellers of western Nigeria, various indigenous approaches are being used for survival, most especially as it relates to the provision of potable water from the traditional management of water, which is among the major issues that is challenging development in Nigeria (Ajibade 2003, 99-113). According to Aromolaran (2103, 631), the use of '*Moringa* is becoming widely acceptable among the rural dwellers across Nigeria' and especially in Ondo State, south-western Nigeria, where the 'seeds of *Moringa* [have] been used in the management of water', and also *Moringa* has been recommended for use among other rural settlers, even outside Ondo.

2.2.1 Indigenous Knowledge and Practices – IKP

Moringa oleifera, one of the "biological plants in use and cultivated across the tropics, has an edible seed and some medicinal uses, which is generally called *Horse-radish tree*" (Ishaku et al. 2011, 598-606). Earlier studies have found "*Moringa oleifera* seed to be safe and endorsed" for use in developing countries (Ayotunde, Fagbenro and Adebayo 2011, 142-150). Also, among the

"traditional diets in the tropics are the leaves, seeds, flowers and immature pods of this tree, which are likewise edible" (Oluwalana et al., 1997, 28-32). In most villages in Nigeria where *Moringa oleifera* is used, the seed is fetched from the plant and allowed to dry and is sometimes crushed. The 'seed suspension, having coagulating[8] properties, is used in place of alum which sometimes is not accessible, to reduce turbidity[9] in Nile water' (Muyibi and Evison 1994, 1099-1105). Similarly, studies have shown that the seed is being used effectively in the Sudan and parts of Africa as a natural coagulant (Eilert, Wolters and Nahrstedt 1981, 55-61; Shittu et al. 2004, 58). The seeds of *Moringa oleifera* have been used 'efficiently to treat very turbid water with 90-99 per cent of the bacteria removed' (see Amagloh and Benang 2009). The characteristic 'coagulation' properties of *Moringa oleifera* have been found to be effective in clarifying the turbidity of fresh water.

However, the use of *Moringa oleifera* and other indigenous methods is considered in many parts of Africa 'to be primitive, outdated and inefficient' (see Folkard and Sutherland 2001). Indigenous knowledge and practices are also being enfeebled and loathed, as young people are gradually seeking city life and are increasingly reluctant to acquire and practise indigenous knowledge in their rural water management. Hence, indigenous knowledge and practices have not been celebrated among the boys and girls due to their eagerness to live in the city. Meanwhile, older men and women in their late 20s and above are striving to continue the indigenous practices handed over to them by their forefathers, either out of frustration at a failed state that has not been able to provide potable water for them, or due to the fact that some would not want the tradition of their fathers to become extinct. Despite the growing recognition of the

[8] In water treatment, coagulation is a process that occurs when a coagulant is added to water to 'destabilise' colloidal suspensions.

[9] Turbidity is the cloudiness or haziness of a fluid caused by large numbers of individual particles that are generally invisible to the naked eye, similar to smoke in air. The measurement of turbidity is a key test of water quality.

importance of indigenous knowledge in water management, environmental conservation and natural disaster management, an increasing passing on (death) of the older generations that are known as the main champions and custodians of indigenous knowledge, is an important reason for the loss of the information that they hold. Therefore, further study calls for urgent documentation of indigenous knowledge and practices across various communities in the developing countries.

2.2.2 Potable Water and Indigenous Knowledge Practices

In the global or developed countries, the importance of potable water supply and management systems has been a subject of serious attention which is reflected in the measurement of human developments and their inclusion in the Sustainable Developments Goals. The 1999 Constitution of the Federal Republic of Nigeria and all other laws give the federal government authority over communal water resources, large dams and the formulation and implementation of policies for overall water resources management. However, potable water provision and supply is now a state responsibility. Therefore, all 36 states have their own State Water Agencies (SWAs) to manage and operate systems for water service delivery in all urban areas and in some rural areas. Generally, the SWAs in Nigeria have failed to provide water services to the various communities in their provinces. Ezeabasili et al. (2014: 35-54), according to the figures in the National Policy on Water and Sanitation (2000), argued that only "46% of the populace in Nigeria has access to safe drinking water, with coverage around 50% in urban areas". Therefore, the percentage of the total population with access to water for drinking, washing and essential household activities is measured by the number of people who have reasonable means of getting an adequate amount of water that is safe. In this way, the health of communities and the country can be determined, which is a reflection of the country's capacity to collect, clean, manage and allocate water to

consumers. Potable or safe water is categorised as treated surface water from sources like streams, rivers, wells and springs (see WBG 2002).

There are four main hydrological basins covering the far low-lying swamp forest to the south of Nigeria; the flat dense rainforest; hilly shrub lands in the middle belt; relatively flat savannah grasslands in the north, and semi-arid areas in the far north (Ojiako 2000, 64-67 and Ezeabasili et al. 2014, 35-54). The central part of the country is dominated by crystalline rock outcroppings and gently rolling hills. Nigeria experiences an average rainfall varying between 250mm per year in the northern part (occurring mostly around April and September) to a potential peak of 4000mm per year in the southern part (occurring mostly around March through October).

The country has two major river systems, namely the River Niger (entering the country from the northwest) and the River Benue (entering from the northeast) (see Ajibade 2003, 113). The two rivers meet at Lokoja then move southerly into an extensive delta before discharging into the Atlantic Ocean, while other rivers flow directly into the ocean or Lake Chad. Northern rivers in Nigeria are irregular, the water of which is dependent on seasons. Most of the rivers in the southern part are perennial, flowing throughout the year and serving as a great source of potable water. "Nigeria's surface water resources are estimated to be about 267 billion m^3 /annum while its groundwater resource is estimated at about 52 billion m^3 of groundwater potential" (Ojiako 2000, 64-67). While only 15% of the surface water has been utilised (see ADB 2007), statistics on the actual amount of groundwater utilisation are, however, not available. Potable water commonly fetched from groundwater resources (which come in the form of boreholes and hand-dug wells) and have become the most important sources of public and private water in urban and rural areas. However, the boreholes have disappeared from the rural areas, while there are still a few in some urban areas. Most rural communities in Nigeria now depend on self-efforts to meet their daily drinking water challenges. Daily water supplies either come from the natural sources

(rivers/streams, ponds, rain and hand-dug wells) or modern supply sources (public sector supplies or private and commercial borehole businesses), while over 80% of the rural population, which comprises of poor men and women, depends on the natural water sources for supplies of potable water that are not even safe for drinking (Akpabio, Udo and Etuk 2005, 222-227; Nwokolo and Ogbulezie 2017, 49-59).

Hence, the management of unclean water is of immense concern, particularly in the rural areas. Potable water, which can reduce the burden of water provision on women and girl children thereby increasing their efficiency measures that in the end will reduce health-care costs, are either scarce or not available. Aromolaran (2013, 631) argues that potable water can be achieved and be made easily available in the rural areas, and this can be done well, without 'modern chemicals' which are not affordable, by intensifying indigenous practices. Indigenous approaches, like the use of *Moringa oleifera* and other local practices, are considered the cost-effective and safe. Moringa seeds have been used successfully and traditionally to make clear, highly turbid water with 90-99 per cent of the bacteria removed from streams or river water, making it safe for drinking in place of the regular materials like chlorine and alum, which are not available for the rural dwellers (Sajidu et al. 2005, 251).

In the damper parts of Africa and parts of Yorubaland[10] in south-west Nigeria, apart from the use of *Moringa* and plant parts, the use of earthen[11] pots by women is not only a traditional alternative to the steel, glass and plastic containers, but is also a healthy one. These are placed inside the rural homes for cooling, keeping a proper pH[12] balance and it is believed among these communities that they make dirt in water to settle faster. In rural Ibadan in the south-western part

[10] This is one of the regions in Nigeria where the Yoruba language is used.

[11] Clay

[12] This is the degree of acidity or alkalinity of a solution/water.

of Nigeria, *Adenopus breviflorus* or Tagiri[13] (in Yoruba) is usually placed beside the household earthen pot in the dry season to ward off evil spirits and 'germs' that cause measles (see IDRC 2002). Moreover, in Ondo most of the villages have spring water believed to be from *Yemoja*[14] which is very clean and has also been a source of healing for sick children. Other empirical investigations by researchers (Adewunmi et al. 2001, 19-24) include the use of "pot chlorination, solar disinfection, simple sand filters, nylon filters, harvesting of groundwater and recharging of groundwater". Pot chlorination is an indigenous technology that has also been recommended for use in rural areas because of its affordability and flexibility in usage. Shittu et al. (2008, 285-290) and Ishaku et al. (2011, 598-606) argue that one method of chlorination that can be used in village wells involves a pot containing a mixture of coarse sand and bleaching powder, which is hung underwater in a well. The double pot is suitable for a well serving up to 20 people and needs to be refilled with 1 kg of bleach and 2 kg of sand every two weeks.

Until recently, water management has been concerned with health consequences, gender and irrigation, water rights and safety, or economic value (see Agarwal 1992, 374-378; Hope et al. 2003, 94-110; Arriens and Alejandrino, 2004). According to Bhadra and Bhaskar Singh (2003, 93-109), Elmhirst and Resurreccion (2008) and Singh (2008, 925-942), gender issues in indigenous water management have not been addressed widely by scholars. Nevertheless, indigenous knowledge systems (IKS) from an African standpoint have been used in the management of water and natural resources, which are mostly transferred using verbal traditions from generation to generation with a close link to the broader framework of people's cosmology and world view that is entrenched within the physical, spiritual and social landscape of each community (see Hirsch and O'Hanlon 1995). Bernard (2004, 148-153) further argues that water

[13] Plant part

[14] *Yemoja* is the African goddess of the ocean and the patron deity of pregnant women who is also honoured not only in Africa but also in Brazil. She gave birth to all the water, salt and fresh, and is the creator goddess of the Yoruba tribe in Nigeria.

is not only of "social and economic importance, but also of cultural and spiritual significance", which it is also largely dependent on. Due to the very low or total lack of potable water in most rural areas in Nigeria, especially in Ondo which is one of the coastal states, rural dwellers are largely dependent on 'surface runoff' such as streams, rivers, ponds and vulnerable wells (Shittu et al. 2008, 285-290), which is the only water source that is available for domestic use and other activities. However, these water sources are contaminated from different materials, including effluents from industries, abattoir activities and pesticides, and animal and human faecal discharges into surface and ground waters due to washing by rainfall water. Hence, the prevalence of waterborne diseases such as typhoid fever, cholera and dysentery (often observed in the villages) can be due to water fetched from these sources (Ishaku et al. 2011, 598-606) causing an exceptional "menace to health, economic productivity and reduction in the quality of life" of the people.

2.2.3 The 'Construction of Gender' in Rural Water Management

Earlier studies on indigenous water management (Raji et al. 1997, 228-236; Mataka et al. 2006, 131-139) focused extensively on the implication of indigenous knowledge and the use of various plants and plant parts in water management among the rural residents. However, recent scholars (Zwarteveen 2007, 503-11; Elmhirst and Resurreccion 2008, 3-22) have argued that the role of the differences in women's and men's rural water needs has not been widely documented regarding indigenous water management. This is the point of insertion for this particular study. Knowledge of indigenous management of water and natural resources has become extensive in many traditional landscapes (see Anwar et al., 2006). Indigenous knowledge in water management is a common practice and a means to livelihood in the villages in Ondo State, where local women and men have ways of research and knowledge which allow the local knowledge to be innovative in traditional practices and systems (see Garcia 2001, 85-98). Therefore,

identifying the different roles of women and men can ensure a socially, environmentally, economically sustainable and natural water resources management when integrated with the use of indigenous knowledge in a participatory local water development scheme.

Gender, which is ostensibly supposed to serve as a source of "power differentials and an organising principle in the society", is still largely absent from the literature, most importantly in the participatory use of indigenous knowledge practices for water management (Bernard and Kumalo 2004, 115-126). Montgomery and Elimelech (2007, 17-24) expounded that the main benefits of using the aboriginal approach to coagulants in water management and practices are apparent not just because they are cost-effective, but because it is improbable they will create danger and they are highly 'eco-friendly'. Singh (2008, 925-942) further discussed the importance of the participation of both women and men and their relationship with the physical environment in indigenous water management, and its implication on gender relations and how these could take care of water needs that are "different, dynamic and vary with time and across geographical locations". The native method of using "plant-based coagulant for unclear water treatment has been in use for over 10 decades" (Shittu et al. 2008, 285-290). Another method used in some of the villages in Ondo is the ability of villagers to detect clean water by observing the number and nature of trees growing on the banks of streams. In the forest, stream/brooks with palm trees (*Elais guineensis*), raffia palm, date palm, coconut trees or India bamboos growing on the banks usually generate clean water. Villagers have noticed that the roots of these trees purify water. Interestingly, "botanical sciences have it documented that the roots of palms, date palms, raffia palms and oil palms have been used as activated carbon[15] to mop up heavy

[15] Activated carbon is used to purify liquids and gases in a variety of applications, including municipal drinking water, food and beverage processing, odour removal, industrial pollution control, and point-of-use filters in the home. Public awareness and the concern about safe drinking water have driven consumers to install point-of-use carbon systems in their homes, further purifying the water that they drink. Activated carbon is a material that is produced from carbonaceous source materials, such as coal, coconuts, nutshells, peat, wood, and lignite.

metals successfully in a sand-based water filtration system' (see Anwar, Bhanger and Yasmeen 2003, 24-27).

Therefore, to attain the Sustainable Development Goal of halving the number of people not having access to potable water, one can maintain that a gender-based collective and participatory framework between women and men in indigenous water management practices is required. Over the years, issues of equity, efficiency and effectiveness have led to redefining the framework from a "beneficiary-orientated approach to one based on stakeholder participation" (Singh 2006, 357-366). Hence, the perspective of "women as beneficiaries would then be transformed into women's accentuated involvement in operation and maintenance" (Singh, Jacks and Bhattacharya 2005, 213-223). This so-called 'new' study approach, according to Singh et al., will allow for a more communal involvement among the villagers, making the indigenous, knowledge practice a "gender sensitive and people centred perspective" (2005, 213-223) which can lead to a tremendous increase in the quality and quantity of potable water available.

Furthermore, Hope et al. (2003, 94-110) and Singh (2008, 925-942) explored men's communal responsibility and the immense difference in this from the responsibility of the women is predicated on the community as well as the cultural perception of the role of men in rural water supply and management, making it easy for the males to continue to dominate the water sector and overlooking/underplaying the possible contributions of the women. As a result of this non-participatory approach, many rural water projects failed both in the 1970s and 1980s due to established cultural norms and management gender bias (see Van Wijk-Sijbesma 1985, 1998). However, the intervention of the United Nations and the Dublin Principles, which directed women's participation in rural water management through the resolutions of the International Decades 1 and Principle 3 of the Dublin Principles (see ICWE 1992 and UNICEF-WHO, 2011), could gradually make the participation of women in rural development and water management a

reality. Consequently, the 1970s through to the 1990s experienced a major and definitive shift into gender mainstreaming and incorporation by addressing the concerns of water management and the involvement of men and women from very low community settings (rural) to the highest points in government (urban). This intervention was based on the appropriate connections that should exist between gender equity and sustainable management of rural water (ibid.). Due to a growing concern at little to no female presence in rural water management, women are now gradually being co-opted into local structures managing water in regions of Eastern Africa like Tanzania and in West Africa like Nigeria. This sparing or absence of a female voice can be categorised under women's strategic gender needs (SGN), which are the needs initiated from women's conceptual subservience to men. They differ according to the specific cultural and socio-political framework in which they are organised (Moser 1989, 1803). Women also experience and respond promptly to necessities that are recognised within a precise framework known as practical gender needs (PGN) (ibid.). The involvement of women and men in rural community water management is regarded as important since their gender roles and needs differ across geographical locations and are dynamic, while also vary with time (see Van Wijk-Sijbesma 1998).

Most literature (see Sanday 2002; Rutgerd and Zwarteveen 2002; Saleth et al. 2003; Wallace and Coles 2005 and Zwarteveen 2008) on gender and rural water management tends to identify the changes in the management of water resources and services at the various rural community levels. These investigations originate from an emphasis on "women's SGN for involvement" in rural water management structures and organisation showing an "implied recognition of the PGN of women", for whom available domestic water is important for embarking on their reproductive roles (Hemson 2002, 24-32). However, this approach has been sparingly confined to managing their SGN and meeting their PGN on how women's representation in local water management is addressed. Understanding this is central to gender-sensitive rural water management strategy and

planning. On the gendered nature of the use of water and its management, gender and irrigation, and gender water rights and safety, there is sufficient research, but there has been little to date on indigenous water management strategies or the gender implications of or gender interface in indigenous and rural water. The different roles of men and women in the homes and the perception of their spouses and their cultural beliefs can affect their public involvement in decision-making and in management of water facilities (Bhandari and Grant 2009, 199-207). Likewise, it can be theorised that different gender roles and duties in the community have implications for gendered water arrangements in the domestic arena.

This study focuses on the implication of mainstreaming gender in rural indigenous water management, provision and use of water at community level and its connection with women's practical and strategic gender roles in the context of Ondo. The gendered nature of community and domestic management plays a huge role in the persistence of gender differences. As observed by Laurie, Radcliffe and Andolina (2002), the gender system in communities and families may be resilient to modification: "gender systems are reproduced through social practices which are deeply seated in household and community interactions" (179). The representation of women in rural water management and the gendered understanding of their responsibilities for water in the rural settlements is therefore moulded by social practices within the families and at the community level. In West Africa, South Africa, other parts of the world and even in the study area, women are known for and obligated to perform the reproductive activities of cooking, cleaning and care; they are the primary rural water managers by fetching, transporting and storing water for various domestic usage. All these domestic obligations are leaving women with little or no opportunity for self-development and or participation in community management (cf. Moser 2003, on women's triple role), which is inevitably making it impossible to manage the issues of their SGN and to meet their PGN. According to Lewis (2006,

420-437), it has been observed that women's decisions are based on the distribution of water for specific needs.

A 'gendered lens' therefore has been employed for understanding the delivery, use and activities of local water management beyond the individual household (Schreiner, van Koppen and Khumbane 2002, 127-140). Likewise, the assessment of the role of gender and the changing gender relationship in organisations has been understood in research and development through gender analysis (see Maruja 2001: 134-49). In this study, I combined gender-based participatory approach of Cornwall (2002) with the feminist framework of Nightingale (2011), which identifies recent feminist contributions to water management. The gender-based participatory approach of Cornwall (2002), which conceptualised that participation is representative of partnership and of ownership that is a 'bottom-up' relationship was therefore used specifically to analyse the importance of everyday practices in shaping gender ideologies. Comparing this with Kabeer's framework, whose attention is on gender divisions of the production of goods, services and human resources which includes access to and control over resources and benefits (2005, 13-24), this approach would enable one:

(i) to study gendered patterns and their consequences on '*who does what and how*' in terms of obligations and efforts in the delivery and uses of rural potable water;

(ii) to determine the local context of the gendered family-community, i.e. private-public boundaries in organisations for rural water delivery and their social cultural construction (see also Deepa and Fawcett, 2006: 119-36). Through the lens of gender analysis of the combined feminist framework and the gender-based participatory paradigm, and by using qualitative and quantitative methods, this study presents micro-level evidence on gender and indigenous approaches to water management.

This study, therefore, aims to examine and critically probe this indigenous form of water management and water practices in the selected rural communities in Ondo, and explore both how gender needs[16] can be integrated into rural water management and the extent to which these would address women's SGN. The study will also consider the implications on social networks, livelihoods, indigenous knowledge, and social identity as it affects water management of gender needs among the rural dwellers in Ondo. While scholars have widely explored the impact of gender differentials of rural communities, little has been done with respect to gendered indigenous water management, which, if harnessed, can improve the availability of clean drinking water. Hence, a mixed methodology was used to harness the experiences and practices that are 'ongoing' among the selected villages in the communities of study, as they relate to indigenous water management among rural dwellers.

2.2.4 Gender and IKP in Water Management

According to Laurie (2005: 527-549), rural communities and particularly women possess a "vast amount of indigenous knowledge in water use and management which includes the knowledge in traditional medicine, land use and management, family healthcare, planting of food crop species and conservation". Olatokun and Ayanbode (2009: 287-295) further argue that women's involvement in the "family and communities as wives and mothers is an evidence of their crucial role in sustainable development" in the villages around Nigeria because they are actively involved in production and marketing of foodstuffs to enhance the local economy. Similarly, Adebobola (2004) states that women have been central to the production, processing and marketing of food, and that 86% of the rural women in Tonkerere, a village in Ife Central Local Government (South West Nigeria), are herb venders with the capacity to detect medicinal value

[16] Gender needs are the needs women identify in their socially-accepted roles in society. Practical Gender Needs (PGN) do not challenge, although they arise out of gender divisions of labour and women's subordinate position in society. PGNs are a response to immediate perceived necessity, identified within a specific context.

and capability of indigenous herbs.[17] In India, rural women are able to recognise not less than 145 species of trees and their uses, while forestry professionals are accustomed to only recognising 25 species (Wole and Ayanbode 2009, 287-295). This is evidence of indigenous knowledge being intrinsic to rural women. Furthermore, women in "Burkina Faso in West Africa can carefully identify and collect fruit, leaves and roots of native plants, like the baobab tree, red sorrel leaves, Kapok leaves, tigernut tubers, using indigenous knowledge for diet of their families, augmenting their agricultural grains" (Wole and Ayanbode 2009, 287-295) and improving their livelihoods. Singh et al. (2005, 213-223) described how two women groups operated community biogas plants (non-scientific in approach and nature) in the Karnataka region of India, which were used to provide potable water and light, to all the houses in the village.

In Mali, rural women use indigenous knowledge and practices to produce Jatropha Curcas oil as a raw material (Raji et al., 2004: 228-236), which is used for medicine (seeds as a laxative, and later to halt bleeding and to prevent contamination, leaves to combat malaria) and for soap production. Jatropha plantation also helps in erosion control, soil enhancement and renewable energy. Without falling into the trap of 'over essentialising women', one can put forward that, arguably, women possess a vast amount of native knowledge about food making and processing, water management and potable water delivery, health, planting and growing of food crop species, conservation of seeds and the domestication and use of wild edible plants. Considering agriculture with regard to rural women in Ethiopia, indigenous knowledge is used to raise agricultural output. They use indigenous knowledge in oxen ploughing for farming, which has received wide praise and commendation from the United Nations. Prasad and Mishra view

[17] Herbs are any plants used for food, flavouring, medicine or fragrances for their savoury or aromatic properties. Culinary use typically distinguishes herbs from spices. Herbs refer to the leafy green or flowering parts of a plant (either fresh or dried), while spices are produced from other parts of the plant (usually dried), including seeds, berries, bark, roots and fruits.

indigenous knowledge has a valued alternative for realising rural development and reducing rural poverty: “the reshaping of growth must begin with probing local institutions, to the point that they are the life and history of people, which is a condition for and of change” (2004, 208-222). Escobar suggests that discourse on rural development is driven by the rural communities themselves. This initiates change by helping the rural poor to own a sense of proprietorship in the development processes. Older scholars like Chambers (1983) agree with Escobar (date?) when he proposes that the “rural poor should be vocal in matters disturbing them”.

Ten decades previously, scholars like Allan (1965) wrote on typical descriptions of development, population and land burden, discussions affecting the use of indigenous knowledge and the engagement of indigenous practices in development and rural livelihoods. Allan (1965) documented that indigenous agricultural systems demonstrated knowledge that could positively contribute to development. Similarly, a substantial amount of literature reveals how local knowledge has added immeasurably to rural advancement (Barker 1979, 37-40; Bell 1979, 44-50; Belshaw 1979, 24-27; 1979; O’Reilly, 2008). A common opinion was shared by Agrawal (1995, 414) and Latham and Chikozho (2004), which is a move from centralised technically-based interventions with respect to developmental projects to those which cherish indigenous knowledge. Furthermore, literature has revealed the reception of the indigenous knowledge approaches in developmental discourse (see Warren 1991, 1992; World Bank 2000).

Many countries, including Nepal, have accepted provisions and opportunities for women to advance their involvement in water management decision-making bodies. For example, the Nepal government in the 1990s made a target to achieve a “minimum of 20% women’s participation in almost all development sectors (such as education, forestry and health) including irrigation and water management” (Udas and Zwarteveen, 2005; Udas, 2013: 75-94). Activists and researchers (Boelens and Zwarteveen 2002; Hemson 2002; Laurie 2005: 527-549) have

continued to argue for the need to improve on women's involvement and input in management and decision–making bodies, so as not only to give women a voice but also to reduce gender inequities and ensure that there is an improvement in efficiency and sustainability of water management organisations (van Wijk–Sijbesma 1987; Moser 1989, 1799-1825; Agarwal 2001: 1623-1648; Schreiner 2001). According to ADB (2003), improving the input of women in community forums can be a potentially strategic move in overcoming gender relegation, promoting women's empowerment, and can guarantee an effective delivery of potable water. In other words, it has been suggested by some scholars (Bhadra and Singh 2003, 109; Bernard and Kumalo 2004, 115-126; Bhandari and Grant 2009, 199-207) that, low or no involvement of women beneficiaries, gender insensitivity, sidelining of women and only restricting them to their household activities has led to partial failure of most water projects, especially rural water management schemes. Research detailing water needs, responsibilities and involvement of women highlight such arguments (see Bhadra 1992; Fonjong 2001, 223-235; Bhadra and Karky, 2003).

Authors of various international literature (see Van Koppen 2001, 299-312.; Latham and Chikozho 2004; Bhandari and Grant 2009), the United Nations Decade for Water and Sanitation (1975–85), the Agenda 21 of the Earth Summit in Rio (1992), the Dublin Principles of 1992 and the establishment of the UN organisation for women (2010) are evidence that many more policy reports are clearly articulating the need for strengthening women's leadership' and participation in water management. WWAP (2009, 304) and the UN Water for Life Decade 2005–2015 further accentuated the need for involvement and participation of women and their positive efforts to fulfil global obligations on water and water-related issues. According to von Benda-Beckmann et al. (2000, 17-38), these global obligations and women's participation and membership in rural developmental meetings must not be as a result of their status as wives of village heads or kings, which makes the other female members of the village community inactive

and submissive listeners. Eventually, due to their submissive nature, these women are being 'swapped by the men–dominated meetings' (see Udas, 2013: 75-94). Scholars are therefore suggesting that the outcomes of the 'quota policy' should at best be varied (see van Koppen 2001; Kanji 2003). Nevertheless, UNDP (2013) more broadly observed after about 20 years of different strategies aimed at reducing the gender gap in water management and in almost all other sectors, the overall gender inequality index – GII of Nepal is 0.497, ranking it 115 out of 188 countries, Ghana in West Africa is 0.547, ranking it 131 out of 188 countries, South Africa is 0.394, ranking it 90 out of 188 countries, and Nigeria, which has no GII and no ranking. This raises thoughtful and disturbing concerns about the efficiency of planned efforts to decrease gender inequities and injustices by improving women's participation in both rural water management and generally in rural decision-making bodies.

According to Bhandari et al. (2009: 199-207), a strategic 'gender interest can bring a redress to the perception of women participation by making efforts to bridging the gap' in men's and women's access to basic resources like water for their livelihood. In rural water management, this means contributing to reducing the gender inequity gap in the access to potable water. Scholars (see Blackburn, Chambers and Caventa 2000; Boelens and Zwarteveen 2002, 75-109; Connell and Messerschmidt 2005, 829-859; Charisma 2010, 11-26) have documented gender inequities and biases in water management as being most clearly demonstrated in the gap between men's and women's access to water and management, and in the male supremacy in water-related decision-making. The perceptions of women being in charge of household water ('private level') and men being responsible for water in the field ('public level') have often covertly steered the attribution of water rights and given the decision-making powers in projects, management and policies (Zwarteveen, 1995; van Wijk–Sijbesma, 1998; Bhadra and Karky, 2002; Ahmed 2005) to men. Therefore, a "strategic gender–progressive revolution" is a change that can be adopted in water management for achieving equitable access of men and women to

water resources management (Agarwal 2010, 98-112). This significantly hinges on reviewing taken-for-granted gender-based divisions and hierarchies. Agarwal futher stresses the importance of this and defined access to water as "someone's capacity to benefit from a water resource or opportunity provided" (2010, 98-112).

Drawing on these insights, I conceptualise that equal access of men and women in rural water management within the theoretical contexts of the Feminist Framework and a Gender-Based Participatory Paradigm can make potable water available and, at the same time, reduce the burden on women of water provision. According to Savenije and van der Zaag (2000, 9-45), "gendered inequities manifest themselves not just as individual attributes but are also rooted in gendered divisions of labour and in gendered kinship and inheritance structures that themselves are supported by normative gender symbolisms and languages". Therefore, as Saleth mentions, feminist approaches must seek to see beyond 'women' by attempting to 'equalise' the feminist analysis and practice which should be positioned in broader struggles that question such "taken-for-granted gendered divisions" so as to be able to properly "challenge what gender is all about" (Saleth et al. 2003, 385-98). Hence, rather than focusing on potable water and women as primary users, I studied all locations in which water is being indigenously managed and the role of men and women in the management of water at each of the villages in the study sites, consequently probing the potential implications of gender-based participation in the indigenous water management approaches for efficient potable water delivery. This goes together with beliefs, cultural norms and allegories, which combine to structure public debates and social networks in rural water management practices.

Water is a politically challenged resource, inferring that there is a link between water control and management and an analysis of social relations of power (see Ninan and Lakshmikanthamma 2001, 157-161; O'Reilly et al. 2009, 381-385). Hence, the involvement of women in water-

related decision-making should not only be about control and management over water as a resource, but also about equitable access to and control of related resources, information, political and management networks. Therefore, this study attempts to combine an analysis of a gender-based ('social power structures, beliefs or perception') rural water management scheme with an investigation of how women and men themselves experience, understand, and analyse their 'control' over water (see Zwarteveen and Meinzen-Dick 2001, 11-25).

2.2.5 Gendering Community Participation in IKP

Advancement has been made by scholars around the arguments for gendered participation in water management for effective rural development (Crow and Sultana 2002, 709-724; Davidson and Stratford 2007, 224-40), who, looking at the 'gendered dynamics' of participation, have maintained that it is necessary to look at these issues concurrently, so as to be able to pay close attention to the roles of nature and culture. Therefore, household resource use and allocation within the overwhelming structural inequalities in the community can well be understood by gendered analysis. By doing a gender analysis, Cleaver (2001, 36-55) shows that rural community water management practices may not be equitable, and this leads to further 'sidelining of poor women' in accessing potable water and participating in its management. Women and men's participation in community projects should be evaluated in terms of their decision-making powers and the benefits accrued to them in various forms (Crow and Sultana 2002; Coles and Wallace 2005). While the addition of women to a task may seem to take care of gendered matters specified in project documents, it does not automatically address supremacy issues between men and women, class and kinship among rural dwellers.

Therefore, the way people experience exclusion and inclusion can all be complicated by the social relations of class, kinship, marriage and household relations. "Gendered subjects experience simultaneous processes of inclusion and exclusion based on other social processes"

and thus it is not possible to generalise across all women or even among local men (Cornwall, 2003; Kabeer, 2005). Hence, the ways that women may choose to pursue different desires, connections and needs (for example, not all women in a neighbourhood may be similarly exposed to contaminated water or have similar water needs) could be the myth of female solidarity and a range of different lines of connection and differences that situate women differently from each other. In indigenous water management, however, men and women of wealthier households exclude people of other households from accessing their potable water sources, which is a clear pattern of exclusion vis-à-vis men excluding women in decision-making roles. Cornwall (2000, 378) and Agarwal (2001, 1623-1648) explain that notions of empowerment are problematic and an understanding of the importance of a critical assessment of water management is needed. It is also important to understand a gender perspective of participation and how this would help to determine women's participation in the process of planning or decision-making regarding water resources management. For example, the gender roles of women and their so-called culturally-acceptable (sic) responsibilities (productive and reproductive), the time their participation would take, cost of this participation and village customs of what is assumed to be the acceptable gender performance, have led to low participation of women in planning and decision making of rural water management, where much indigenous effort is used to make water potable, which has always been seen as a 'male domain' (Cornwall, 2003).

Indigenous knowledge, which is inherited skills, is an important aspect in the life of the rural African community, most importantly among rural dwellers in Ondo, Nigeria where these skills are being used daily for survival, especially in water management. Rural women and men have special knowledge for many livelihood activities to ensure the survival of families in various rural communities, which can contribute to sustainable development. However, indigenous knowledge has not been correctly gender mainstreamed into ensuring appropriate rural

development, particularly in Nigeria. Gendered indigenous knowledge has not been widely researched in development and in the sustenance of the livelihood of every rural dweller. Rural women, known as the custodians of this knowledg,e have not been recognised, encouraged or been given opportunities to play a role in communal involvements and developments outside what they can do or are doing to sustain their respective families. It is against this background that this study attempts to probe various indigenous approaches and knowledge and the role of gender, specifically in water management, regarding its effect on livelihood, with particular reference to rural settlers in Ese-Odo, Ose and Ile-Oluji in Ondo state, Nigeria.

2.3 Water and Rural Livelihoods

Water is an essential and critical natural resource for living. According to Bhadra and Bhaskar Singh (2003, 93-109), it "gives control and plays a vital role in rural livelihoods because crop production, aquaculture and livestock depend on its contribution to food security and income generation from rain fed". Most scholarships on rural livelihoods (see Chambers and Conway 1992; Ninan and Lakshmikanthamma 2001; Pangare and Karmakar 2003; Prasad and Mishra 2007; Bhattacharya, 2008; Devi and Mishra, 2013; Devi and Mishra, 2014) are dependent to a great extent on natural resource bases like water. This is because water plays a significant role in ensuring food production, preservation and security, which are responsible for sustaining livelihoods, especially in rural communities. The effectiveness of livelihood strategies is dependent among most rural dwellers on the ability to maintain food security for the majority. Water shortages are seriously constraining increased food production in Sub-Saharan African countries as food production and supply are closely connected with consumption and access to water (see Patnaik 2012). Narendra et al. (1996) observed that lack and insufficient supply of enough water resources greatly negatively affected gross domestic production, thus bringing poverty to rural dwellers and a reduction in the quality of livelihoods.

The association between poverty and water has been documented to be affected by three main elements, mostly for rural people whose lives are so linked with water. Firstly, in fetching water, women consume valuable time which can be used on or shared among other important things, and this has placed a great burden on them. Secondly, poor quality and lack of water can result into devastating illnesses and diseases. Thirdly, when water is limited, it reduces opportunities for "irrigation of vegetables and fruits in home gardens", which can affect agricultural productivity (Critchley and Brommer 2003, 41-45). The first and second elements were observed among the rural dwellers in Ese-Odo, Ile-Oluji and Ose. The limited and, at times in some places, lack of water are regarded as one of the major causes of poverty in these communities. Water availability can affect the nutritional status and quantity of drinking water, because it is closely linked to human welfare and health, both of which cause distress to the poor. In Zimbabwe, 'these difficulties are more acutely felt among the poor households and in the agricultural subsistence economy in Africa's poor" as in Nigerian rural villages and areas (Wole and Ayanbode 2009, 287-295).

Zimbabwe, among the African countries, has been projected to become water stressed by the year 2025 (with less than $1000m^3$/capita/year), while the country has been said to have been at the risk of water stress since 1990 (see SADC 2002). The crisis of water was identified as being far beyond physical water scarcity, and as being a result of governance, as documented at the Second World Water Forum held in 2002 (see Arriens and Alejandrino 2004) where delegates resolved to institute reforms in the water sector to improve water governance, and manage water resources in Zimbabwe in a sustainable way. In some African countries like Zimbabwe, water resources have been recognised and wisely used to improve human welfare, achieve economic growth, and therefore reduce poverty. Combating poverty is the main challenge for achieving equitable and sustainable development; this was recognised in the "Ministerial Declaration of the International Conference on Freshwater held in Bonn and that water plays a vital role in relation

to human health, livelihoods, economic growth as well as sustaining ecosystems" (Merrey et al. 2004,145-164); also water scarcity was recognised as an important environmental limitation to development.

According to Derman and Hellum (2003), the claims of water restructurings being empirically focused on making livelihoods possible, among other things, have been unable to properly address the issues around poverty and development at the grassroots level. However, van der Hoeck (2001), Delgado and Zwarteveen (2007) and Devi and Mishra (2013) argue that recognising the ability and capabilities of people to manage their water sustainably can improve rural development and, unless there is new action that can help to identify the roles water plays in rural livelihoods and social justice, water scarcity will continue to threaten and change people's options in production, employment, exchange and their relationships among these activities in ways that will eliminate the peasant rural dwellers. For example, in Nigeria and around Ondo, indigenous approaches to water management are being used as a form of survival among the rural dwellers, and have improved water supply, availability and livelihoods for many rural dwelling people. Relationships of cooperation are improved when people have water-dependent livelihood strategies. Indigenous water management activities can be used to contribute a good water system. People can survive with limited water provision and water scarcity can unify social action when the rights of both women and men are protected. In Ondo, enhanced gender-based rural water governance can diversify livelihoods and reduce vulnerability, especially for peasant traders and farmers. How societies choose to govern their water resources, whether using a gender-based approach or sustaining a patriarchal model, has enormous effects on people's livelihood opportunities and sustainable management of water resources, because the livelihood opportunities of low income groups, like the ones in the villages, depend directly upon sustained access to natural resources and indigenous materials, especially since they tend to live in areas that cannot easily access these materials or even water.

Therefore, an improved and all-gender inclusive nature of water governance and management coukd provide one keystone to alleviate poverty, more especially among women living in these villages (see Ellis 2000).

2.4 Understanding the Link between Water, Gender and Livelihood

According to Elmhirst and Resurreccion (2008, 3-22), gender bias or an 'uninformed effect' of gender sensitivity like the inequitable access to capacity development, participation and equity in decision-making and equitable access to other sources of livelihood, has affected the access of women to natural resources and water management. This can also be greatly affected and influenced by the level of access that both men and women have to water and indigenous materials, which are necessary for improving the "economic well-being of the resident" (Saleth et al. 2003, 385-98). A daily consumption of potable water is needed to keep a person hydrated and healthy, and water is also needed for cooking and personal hygiene. Reducing the time and the amount of energy, women and men expend on potable water provision can improve the livelihood of people, and the time and energy saved can be used or channelled into other economically productive activities (DFID 2001, cited by Tefera 2007). It can therefore be argued that improvement of livelihoods is unlikely if people's indigenous water management practices and ethics are disregarded, and new ones are imposed on them which may be more gender friendly. In African society typically found in villages around Ondo, women play a big role in the handling and management of water, but their representation and active participation is not currently effective at various community levels (Mandara, Butijn and Niehof 2013).

2.5 Conclusion

This chapter has reviewed literature on Indigenous Knowledge and Practices and how these have been used in the provision of potable water. It also reviewed the construction of gender in indigenous water management and considered the different roles of women and men in rural

areas with regard to water. The chapter also discussed the role of gendered participation and gendered dynamics in water management for effective rural development. The following chapter presents the research approaches, methodologies and conceptual framework used in this research and provides more information on indigenous water management.

CHAPTER THREE

RESEARCH METHODS, METHODOLOGIES AND THEORETICAL FRAMEWORK

3.1 Introduction

This chapter presents the methods and methodologies utilised in this study as well as the theoretical frameworks supporting the study. The sampling procedure used is explained and the profiles of the participants are outlined and highlighted, making the gender dynamics visible throughout the data collection process.

Figure 3.1 below shows Ondo state in Nigeria, the location for this research. Figure 3.2 shows the area in more detail.

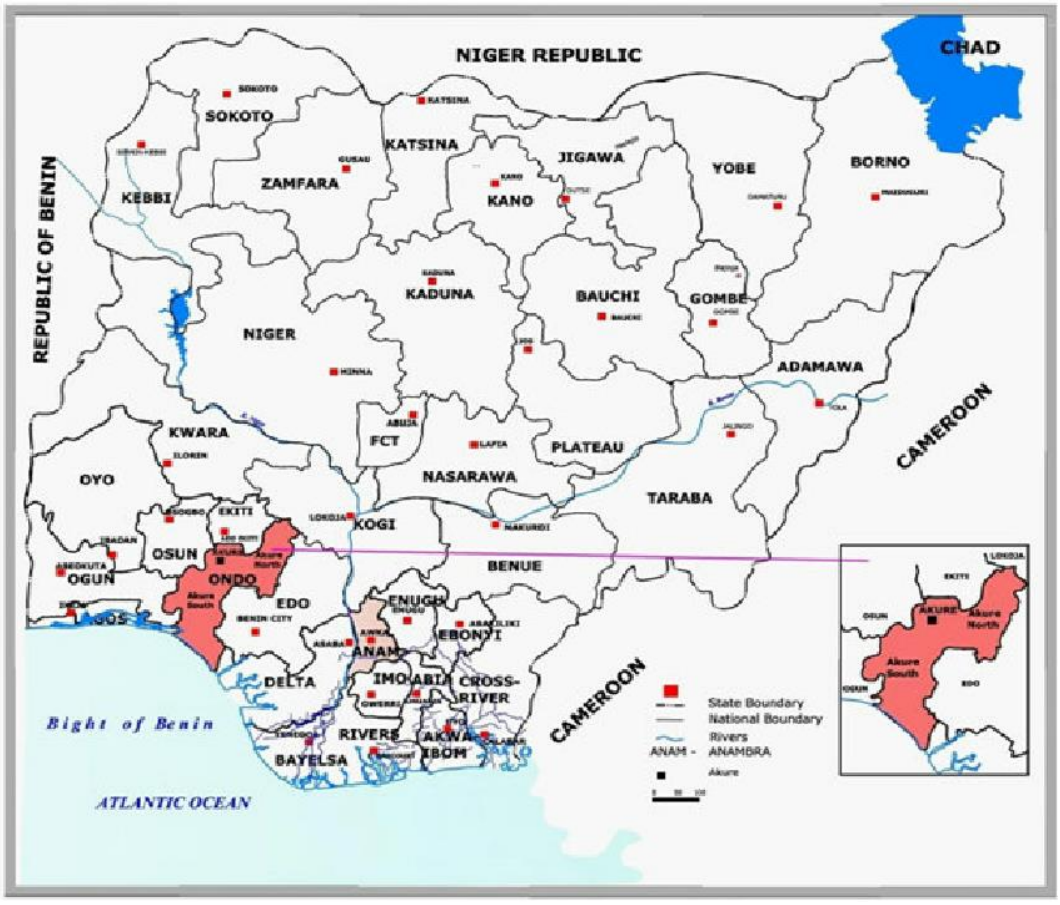


Figure 3.1: *Map of Nigeria (Source: Google Maps)*

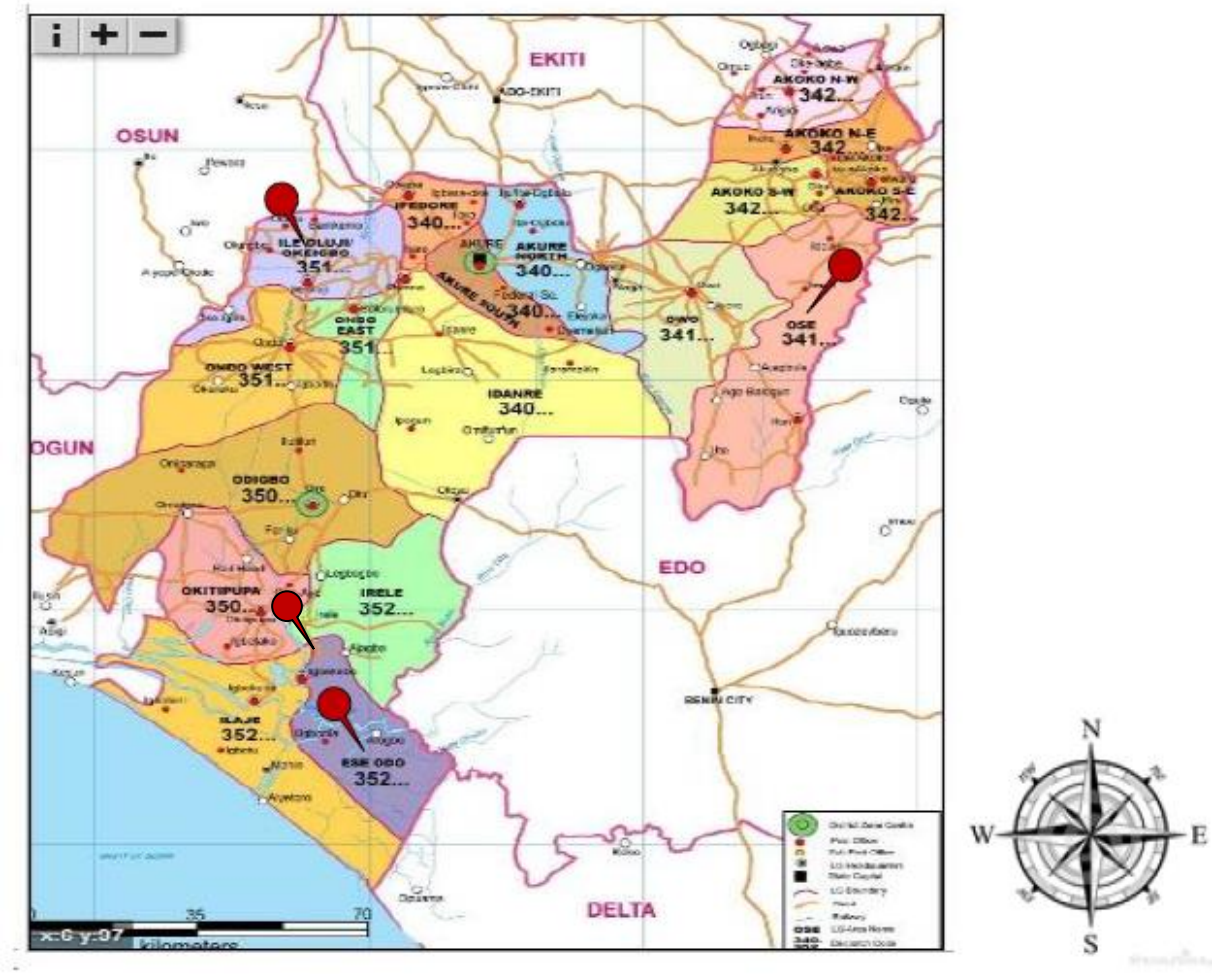


Figure 3.2: *Map of Ondo State and the Three Research Sites (Source: Google Maps)*

The first research phase started in Ile-Oluji on 7 October 2017 and ended on 26 October 2017. The research site has a latitude of 7°12'6.27"N and a longitude of 4°52'3.44"E. The residents of this village (Agric Farm Settlements) were a mixed population in the sense that most people were from nearby states with only a few from Ondo. Originally it was supposed to be a place where farmers came and worked and then went back into the cities. For the past 40 years or so, people have decided to stay in the village to live around their source of income. Their major source of water was from wells, and those close enough could also fetch water from streams.

At the end of immersion in qualitative research on the way of life of the villagers for about 20 days, the researcher and the four research assistants then travelled for about three hours to the

next village in Ose, which is located in the eastern part of the state with latitude 6° 55' 47.03" N and longitude 5° 46' 25.25" E. This area was predominantly occupied by farmers who were also involved with other jobs. The farming there is on a much larger scale by comparison with that done in Ile-Oluji. The research in Ose started on 30 October 2017 and ended on 24 November 2017. For about 25 days I researched and studied the way of life of the Ose people, whose only source of water was also the well. The Ose wells were about 400 feet deep compared to the wells in Ile-Oluji, which are only about 50 feet deep. In Ose, they refer to 'borehole' water but the wells are simply very deep and the water is not good enough for drinking unless managed locally or indigenously, like those in Ile-Oluji. In Ole over 95% of people buy water from a water vendor or from houses that have been able to install a 'borehole', a very expensive operation. Having gained experience from the first research site, it was easier to interact with people in the second village. After three weeks, the researcher proceeded to the last research site, Ese-Odo, which is located four hours drive to the south and has a latitude of 6° 13' 2.7" (6.2174°) north and longitude 4° 57' 52.5" (4.9646°) east. The study in Ese-Odo started on 28 November 2018 and ended on 20 December 2017. Although this area is surrounded by a very deep large river, the residents still need to manage their water locally. The major occupation here is fishing and farming. After 23 days at Ese-Odo, the field work was complete.

Upon arrival at the villages during the study, I was initially mistaken for government personnel coming to install water projects. Thus, the discussion often turned to politics and I had to constantly redirect to the focus of the interview. This was common during all Focus Group Discussions (FGDs) across the villages. Although I did not grow up in the villages under study I was very familiar with the water challenges. Often, I would be teased me in the local dialect as I tried to find my way around. It was not a difficult situation and I was prepared with a gender-based research team (two men and two women in the team while I was the principal investigator). During the FGD, there were no difficulties with the men except that, being much

older, they often discussed things outside of the focus of the discussion. They also expected compensation for participating in the FGD. However, a consent form had already been read and signed which explained that participation was optional and could be withdrawn. The consent form also stated that no payments would be made during or after the FGDs and interviews. This removed the burden of their expectations and the research processes were relatively easy.

During the FGDs, while I was interacting with the participants, the research assistants were tasked with recording the conversations. Generally, both the men and especially the women were very cooperative and the issue of my own gender as male did not seem overtly to be a problem. There was a minor instance of lack of cooperation with one the women's FGD because my female research assistant was busy with her field notes and could not stay alongside me throughout. Questions during the women FGDs included:

a. What distance do the women cover to get water?
b. What distance do the women cover to get local materials used for rural water management?
c. Do you think women are better restricted to their homes, in the provisions of potable water?
d. What are the roles played by the men in the provision water and access to potable water?
e. Do you think women's interest in participating in rural water management would be asking for too much?
f. Do you think the presence of women, like that of men, in rural water management can improve the quality and quantity of potable water?
g. How much access do the women have to rural water management projects?
h. How much are the women's views consulted during rural water management meetings?

i. How much access do the women have to basic things and opportunities necessary for their livelihood?

Women appeared to feel uncomfortable talking about the last questions, probably out of fear since some of the questions touched on the men's performance in rural water management. After the FGDs, I continued with in-depth interviews, which revealed the basis of the women's fear: they were scared that whatever they said during the FGDs would get back to their husbands. One female participant said:

"*You have to be wise 'Ogiri leti'*[18]*, what you think you are saying among just these seven women would soon become the talk of the village and you would have problem with your husband which is a bigger issue."*

During interviews, both the key informant (four from each study sites and 12 in all) and the other interviewees were able to 'open up', and then I knew the reasons for their attitudes during the FGD. These challenges were overcome during the survey questionnaire, where it was easier for everyone to express their minds freely. The questionnaires enabled gender issues to be addressed and the gender sensitive questions were answered to the best of respondents' knowledge, since they were individual questions and nobody was going to see what others answered. Hence my relationship with the interviewees was trouble-free because of my gender-based team (whose responsibility was first to make interviewees of the same gender comfortable and also to assist in the recording) and also because of the mixed method approach which made it easy to recover and uncover data and information that could have been lost.

[18] *Ogiri leti* is a Yoruba proverb meaning 'the walls have ears'.

3.1.1 Training of Research Assistants

The researcher, through an advert on social media, selected and trained four research assistants (two men and two women) who were newly graduated student (Honours) from the Faculty of Social Sceinces, Obafemi Awolowo University, Nigeria. Their training took place on 3-4 October 2017 between 10am and 3pm each day. Thereafter, practical demonstration sessions were conducted to ensure fitness, full understanding and mastery before commencement and travelleing to the research sites on 7 October 2017. The researcher was able to pay the research assistants for three months due to a research grant (Tetfund). Their responsibilities were basically to ensure that good recordings were made and to take extra notes during interviews and FGDs. They also assisted with administering and retrieving questionnaires.

3.2 Research Methodology

The study of social relationships and the seeking of answers to current social problems is made possible through research by social scientists. A research methodology is important if research is to be well organised. According to Creswell (2009), the science of studying how research is done scientifically is methodology, while the methods researchers use in research operations are termed research methods. Quantitative and qualitative are the two main research methodologies. Research methodology can also be described as the methods and measures of the research procedure, including the following: reason behind the collection of certain data; what data was collected; the location of data of collection; how data was collected; and the procedures for data analysis. This study has combined the quantitative and qualitative methods using a "sequential mixed design specifically the explanatory design", which enabled the researcher to study phenomena in their context by collecting data, starting with quantitative data analysis which is followed up with qualitative data analysis (Rao and Woolcock 2003). Quantitative data were collected using a survey questionnaire. The study further used a "reflexive but deep qualitative research method" (Lewandowski 2000, 49-67) and quantitative analysis, that is using, inferential

and descriptive analysis methods. Qualitative data was collected using in-depth interviews with key informants and Focus Group Discussions.

3.3 Mixed methodology approach

A mixed methodology approach can be divided into two sub-sections: qualitative and quantitative. These research methodologies are similar in that they are trying to answer research questions through the reduction and analysis of data while comparing it with appropriate literature. Both methods seek to expose and explicate variation, try to evade alteration of data, aim for clarity in the research and address the question of error. They do, however, differ in many ways as outlined in Tabe 3.1 that follows.

Table 3.1: Differences between qualitative and quantitative methods
(adapted from Bryman 2008, 13–25)

Qualitative method	**Quantitative method**
Words	Numbers
Small sample set	Large sample set
Points of view of the participant	Points of view of the researcher
Researcher close	Researcher distance
Theory emergent	Theory testing
Process	Static
Less structured	More structured
Contextual understanding	Generalised
Rich, deep data	Hard, reliable data
Micro	Macro
Meaning	Behaviour
Natural setting	Artificial setting

The division of the research methods or approaches is not as dichotomous as is suggested in Table 3.1. There are numerous unclear areas or spaces of ‘overlap’ in the classification of methods, for example, the structured interviews which authors have classified under both methods (see Patton, 1986; Tashakkori and Teddlie, 2003).

The mixed methodology approach has been used successfully by many researchers (Bakker 2007; Katsi et al. 2007). The above research methods are useful for projects and research where social and physical issues interrelate and have been applied in several water-related fields such as 'drought' (Hill and Polsky 2007), 'water politics' (Laurie et al. 2002, 179) and 'water management, water and gender' (Garcia 2001, 85-98). Bryman (2008) provided some reasons for using a mixed methodology approach, which can be seen in Table 3.2, with examples of their use in this thesis. One of the merits of employing a mixed methodology such as in this thesis, is because it gives allowance for managing a large amount of data in a limited time. It also improves the validity of the results from various investigations, because some of the experiences I had in the field indicated that participants sometimes only say what they think the researcher wants to hear. However, the mixed methodology approach helped with collecting and working with various kinds of data using qualitative and quantitative methods. The mixed approach permits flexibility regarding options for methods, so specific methods are selected to handle specific research questions. The research questions of this thesis were investigated using a mixed methodology approach because both physical issues, like water, and social issues needed to be explored. Initially, the intention was to use the two approaches separately so as to be able to authenticate and investigate the validity of each approach. After the preliminary field visit, however, it was observed that using a mixed methodology would further substantiate the results gained and also contribute to key elements that are outlined in Table 3.2 (Offset, Completeness, Explanation, Method Development, Context, Illustration and Utility).

According to Bryman (2006, 97-113), the mixed methodology approach has some disadvantages: the mixed approach is "diametrically opposed but with specific epistemological groundings"; secondly, the individual approaches themselves represent "different paradigms which are incommensurable". However, the researcher agrees with the claim by Bryman, which queries these assumptions because the approaches have some intersection and are not separate paradigms

(Bryman 2008, 13-25). A diagram of the use of the two approaches together with the methods chosen can be seen in Figure 3.3. The research questions to be addressed in this thesis are introduced in Figure 3.4, showing which methods were used to address each of the research questions (as listed below).

RQ1: What are the indigenous water management (IWM) practices in Ondo State?

RQ2: What is the impact of gender awareness on IWM practices?

RQ3: What are the effects of gender stereotypes on IWM practices?

RQ4: How does women's participation in local water management improve the quality of water?

RQ5: How do people differentiate by gender use water to enhance their livelihoods?

Table 3.2 Justification for using mixed methodology
(Adapted from Bryman 2008, 13-25)

Classification	Justification	Examples of use in this thesis
Triangulation	Methods combined in order to be mutually corroborated, increasing validity and credibility of results	The use of interview and FGD to corroborate questionnaire findings on gender implication in indigenous water management practices in the rural community. Streams and river water were identified as being a community water source, which was then investigated further using observations and interviews with members of the community.
Offset	Offset their weakness and draw on strengths	The questionnaire was initially used to find out if women were part of the rural water management scheme. The details of the practices and involvements were discovered by the FGD and interviews.
Completeness	A more comprehensive account	The use of FGD data, photographic data, questionnaire data, interview data and documentation to gain a more comprehensive view of the indigenous water management practices.
Process	Quantitative approach provides account of structure and qualitative approach provides a sense of process	The questionnaire data provided the source of information available to the community and the topics.
Different research questions	Each approach is used to answer a different research question in the same context	The use of a questionnaire to investigate indigenous water management practices and interviews and an FGD to investigate behaviours, perceptions and attitude in gender awareness.
Explanation	Opposite approach is used to help explain the findings generated by the other approach	The questionnaire was used initially to question respondents about their individual water management practices. Informal interviews and open questions were used to find out why certain practices occurred and why they are preferred.
Method development	The first approach is used to develop a hypothesis or methodology and the second approach is used in the study	The use of the questionnaire to gain data on the types of information available in the field trip.
Context	Qualitative and quantitative approaches used to develop a deep understanding of a specific context	The use of FGD, photographic, questionnaire data and documentations were used to baseline the community.
Illustration	Qualitative data used to illustrate quantitative findings	The data collected via informal interviews was used to explain indigenous water management practice data gained from the questionnaire.
Utility	Using mixed methodology will be more useful to the researcher and others	The numbers generated by the questionnaire data are more acceptable to scientists. While the FGD, interviews and photographic data are more acceptable to social scientists. By using a mixed methodology approach, the findings should be acceptable for both disciplines and also increase the multidisciplinary nature of this thesis.

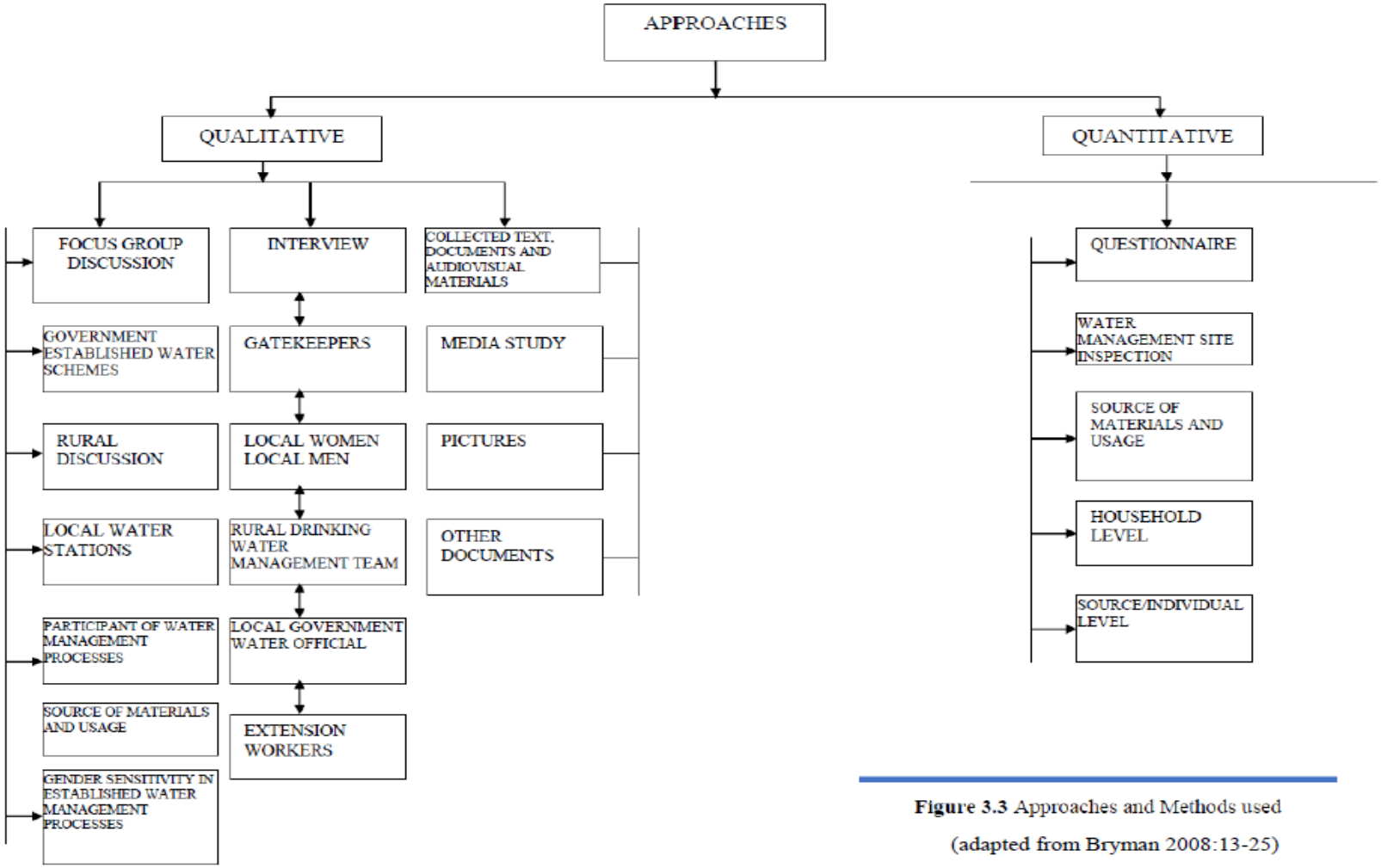


Figure 3.3 Approaches and Methods used

(adapted from Bryman 2008:13-25)

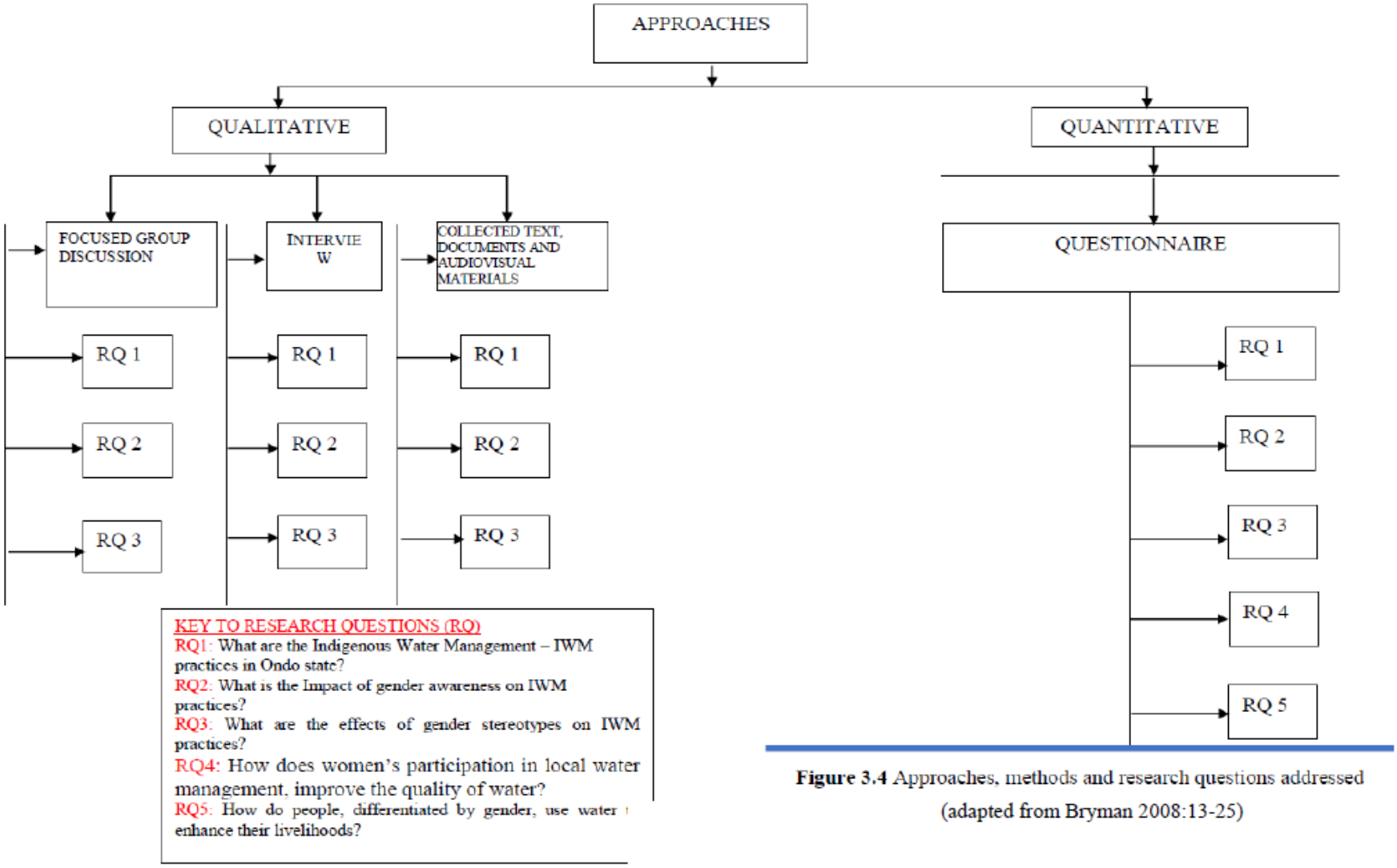


Figure 3.4 Approaches, methods and research questions addressed (adapted from Bryman 2008:13-25)

3.4 Qualitative Method

Qualitative research methods have been discussed in great depth by several authors (see Creswell 2003; Bryman 2008; Creswell 2009). This section introduces the specific methods used in this research and how they are linked to the research topic of gender and indigenous water management. The methods used in this study are:

· Qualitative interviews

· Focus group discussions

· Collection of texts, documents and audio material

The use of thesis methods in addressing specific research questions is shown in Figure 3.4. It has been argued that qualitative approaches are preferred when investigating the social world, as they can comprehend and record the complexity and richness which exist in this sphere (Tashakkori and Teddlie 2003).

An interpretivist framework is a common process for connecting the role of the researcher as a co-creator of meaning, the types of knowledge frameworks or discourses informing that particular society, and the performance of the participants' realities from their own viewpoints (Maruja 2001). This common community process is in accordance with the objectives of my study, which is to gain a better understanding of the gendered implication of indigenous water management among the rural settlers in the place of study. I used qualitative research methods to get information on the economic, social, political, leadership, individual and environmental issues of women in the area of indigenous water management, and how gender mainstreaming projects at community level can be positively effected. The qualitative methods enabled a good understanding of the condition, orientation and position of women in relation to their men counterparts in the study sites, their economic status, poverty level, religious doctrines, cultural beliefs and political organisation, which were identified by women as major stumbling blocks to

their full participation in indigenous water management projects. Qualitative research methods can lead to context-specific strategies for individuals and collective change, and they can also improve the research process (Kemmis and McTaggart 2008). Qualitative research also allowed me to empathise with the thoughts and emotions of women regarding their participation and involvement in indigenous water management in their community. Maruja (2001) further argued that qualitative research methods bring to bear new topics which are not initially considered by creating openness in the qualitative design which allows for an expansion of responses. In the social world, qualitative research highlights the benefits of interpretation and observation (Kemmis and McTaggart 2008) by bringing researchers into the inner and secret experiences of the participants and by determining how meanings are formed through and in culture. Also they enable a researcher to discover rather than test variables (Creswell 2009). When attempting to probe the underlying motivator for human behaviour, Lewandowski (2000) therefore states that qualitative research is definitely important in this type of investigation. Qualitative research methods allowed for an in-depth and comparative understanding with the quantitative method about the perspectives of the study population and the context of their livelihood with respect to indigenous water management. The research paradigm can be broken down into three major dimensional research processes, which are ontology, epistemology and methodology (Terreblanche and Durrheim 1998). Terreblanche and Durrheim (1998) noted that these processes enabed analytical strategising for integration of structure with process. According to Olson et al. (1993), these paradigms can be described as patterns, structures and frameworks or as systems of scientific and academic ideas, values and assumptions.

Feminist principles and a gender-based ‘participatory paradigm’ of research methodologies have also been used throughout this study (Prokopy 2004). McCormick (2013, 22-23) argues that feminist studies’ methodologies and approaches have been able to advocate that feminist research is different from patriarchal or male-dominated research by raising issues of ‘subjectivity versus

objectivity' and by sustaining their claims that feminist research cannot be 'value-free'. More importantly, as argued by McCormick (2013), establishing female culture and experience in feminist research would create a better awareness of the potential and possibilities of researchers becoming oppressive. Feminist research methodology, therefore, by the establishment of non-hierarchical 'researcher-researched relations', expresses an obligation to challenge 'power differentials' (Msimang, 2002). The practices and approaches in the indigenous water management investigation of this study demonstrated that women are hardly allowed to be a part of men-dominated rural community water management. Therefore, the use of feminist research, which is probing the experiences of women, and the 'gender-based participatory paradigm (GBPP) is very appropriate for this study as it "would help to understand the new institutional structures introduced under gender-equity and whose models are based on participatory models of local governance by seeking to balance out the inequalities and by presenting a platform where women can be organised alongside men and be allowed to express their opinions as well as contribute effectively in decision-making processes" (Elmhirst and Resurreccion 2008, 3-22).

Furthermore, feminist research and GBPP are suitable in researching rural and indigenous water management practice because although GBPP, according to Blackburn et al. (2000), emphasises that participation is conceptualised as representative of partnership and ownership which is a 'bottom–up' approach, unlike the "feminist research … having no single set of fixed research guiding principle or methods nor have feminists fixed definition of feminist research" (Madriz 2000, 835-850). "Empirical feminist research is guided by feminist theory" (Reinharz and Davidman 1992, 249). Brayton, in her essay (1997, 3) in an attempt to provide a shape for feminist research, states that: "It has become obvious that what makes feminist research different and stand out is that, feminist are the motives, concerns and knowledge brought to the research process, which was observed after reading through a wide range of feminist research papers as well as feminist articles on methods and methodology."

Brayton (1997) highlights that specific themes are always seen when authors attempt to define feminist research. She therefore argues that, although there is no globally accepted standard over what makes feminist research, "as defining features to feminist research, many writers seem to draw upon certain elements" (Brayton 1997, 2). She therefore deduces that research that studies women and research that attends to gender can be distinguished from each other in using the features of feminist research, which is different from traditional social sciences research.

3.4.1 Interviews

Interviews augmented the FGDs and survey questionnaires. The in-depth interviews assisted in obtaining detailed information about the effect of the interviewees' perceptions and behaviours with respect to gendered indigenous water management in the delivery of potable water in Ondo rural communities. Unstructured interviews were used during the research procedure. Individual in-depth interviews were held with five males and five female participants from each of the three rural communities, totalling 30 participants including the key informants across the research sites. The individual in-depth interviews, which lasted between 40-50 minutes (per interviewee), were conducted across the research sites some at interviewees' homes (mostly women), on farms (especially for the men) and a few at the village centres (depending on participant preference). Interviews were recorded; however, when an interviewee appeared uneasy with this, the researcher resorted to taking field notes. The key informants were drawn from key government officials in the ministry of local governance, the ministry of water and natural resources, from extension workers, chiefs and the village heads (Poggie 1972, 23-30); this was useful in substantiating data gathered using the main data collection techniques. Gatekeeper permission was solicited here. During an interview, a researcher questions the research participant on a certain subject. An interview can take various forms (e.g. informal conversations, general interview and open-ended interview) and the kind of interaction can vary (e.g. face-to-face or

telephone interviews). Limitations to this kind of data collection are firstly that participants may be taken out of their natural spheres which can provide indirect information (participant observation). Also, there may be bias in the response due to the researcher's presence (Creswell, 2003).

These limitations in this research were minimised by undertaking all the interviews in the individual villages or home-settings of the interviewees, and in using the interviews in combination with data collected from the questionnaire. Interviewing has been successfully used in a number of water-related areas, including 'water usage' studies (Katsi et al. 2007), 'management of water' (Machingambi and Manzungu 2003), 'gender and water' (O'Reilly 2006, Laurie, 2005), 'water availability' (Hersch-Martinez, Gonzalez-Chevez and Alvarez 2004; O'Hara, Hannan and Genina 2008), 'water and sanitation needs' (Bapat and Agarwal 2003), and 'water improvement projects' (Laurie and Marvin 1999). In this study, interviews were used to add in-depth and detailed information to the questionnaire data (completeness) and to answer queries that arose from this data (explanation). Specific interviews were undertaken with farmers and with the head of each village to add context to specific areas, such as that determining the level of gender awareness and participation in the indigenous water management available in the community. The interviews were semi-structured and took place at the interviewee's farms and homes. Unstructured interviews and informal conversations were undertaken with the gatekeeper, a local woman, a local man, or the local government official at the water treatment plant. The data from these interviews were used to develop the questionnaire (method development), build on the context of the study gained from other methods (completeness), and to explain the findings generated through other means, such as passive observation and the questionnaire (triangulation). See Table 3.2 for a summary of the justification for using mixed methodology (adapted from Bryman 2008).

3.4.2 Focus Group Discussions

Focus Group Discussions (FGDs) dealt with the major limitations of the surveys and unstructured interviews, by providing an opportunity to encourage respondents to talk and interact with one another. A Focus Group Discussion a formal way of getting groups of people to discuss selected issues. The FGDs in this research comprised eight males and eight female dwellers most of whom were drawn from the participants of the in-depth interviews or the surveys. In each of the three communities, there were two FGDs, one of eight males and one of eight females held at village centres. FGDs between the males and females were conducted separately in all the study communities to gather experiences around the gender sensitivity of the community in indigenous water management as this affected practices and sustainability.

3.5 Quantitative methods

Table 3.1 shows the main characteristics of the quantitative approach. Quantitative methods involve measurements which enable data to be compared and correlated using statistical methods. The quantitative method was used in this study to identify and examine the various indigenous approaches present across the study sites, which complements the qualitative approaches used to probe indigenous approaches and gender implications in rural water management. Figure 3.4 shows how questionnaires and other methods were used to address specific research questions. The main disadvantage of quantitative methods is that what you are measuring must be known.

3.5.1 Questionnaire

'Questionnaire' is a term that is used in many contexts, but in this thesis, it is defined as a structured way of recording respondents' answers to a "cautiously created and methodical set of questions intended to find the required information without either vagueness or bias" (see Patton 2002). The function of a questionnaire is to measure and obtain dispositional information such as attitudes, ideas and views and situational information such as demographics and resources

(Warren et al. 1995). Questionnaires are generally classified as a quantitative approach, but this classification is dependent on the structure of questionnaire used. There is an overlap with interviewing methods which are normally classified as a qualitative approach, although the classification of interviewing methods is also subjective. Questionnaires can be classified in the way in which they are managed (e.g. self-completed questionnaires, postal questionnaires, telephone questionnaires, web-based questionnaires, administered questionnaires) and the forms of questions they contain (open or close-ended questionnaires) (Oppenheim 2003). The survey in this research examined the prevalence of perception and attitudes towards an indigenous-gendered approach towards water management in all the communities in Ondo. The survey questionnaire, with instructions on how to complete it, was given out to 31 males and 31 female participants (ordinary people living in these villages) from Ese-Odo with a population of 120 people; 51 males and 51 female participants from Ile-Oluji with a population of 170 people; and 75 males and 75 female participants from Ose with a population of 247, using Krejcie and Morgan's Table (Field, 2005). The researcher trained four research assistants who helped with the distribution and retrieval of the questionnaires. They also assisted with the first level transcription from the recordings of FGDs and in-depth interviews while the reasercher did the second and final transcription in order to check that nothing was left out.

3.6 Research Sites Sampling and Ethics

This study aimed at interviewing and administering questionnaires to an equal number of men and women respondents across the study site, but the actual field realities (due to the fact that the men were not readily available), gave me a shortfall of two, and in some cases three, male participants. In the first study site (Ile-Oluji), questionnaires were given to 50 men and 53 women, interviews were conducted with five men and five women, and FGDs were conducted with seven men and eight women. In Ose, questionnaires were given to 75 men and 73 women, interviews were conducted with five men and five women, while FGDs were conducted with eight men and eight

women. In Ese-Odo, questionnaire were given to 30 males and 32 females, interviews were conducted among five men and five women, while FGDs were conducted with seven men and seven women. Respondents aged between 25-65 years old were considered for the study. Pseudonyms of participants were used with their consent so as not to compromise their privacy.

3.7 Secondary Analysis of Data

Secondary data was collected through reviewing and analysing reports and documents relevant to this research from the village, documents from Councils' office, Local Government Area and Ondo State Digest of Demographic and Vital Statistics.

3.8 Sampling Strategy

3.8.1 Research Sites

A purposive sampling strategy was used for both the qualitative and quantitative methods. Using non-probability sampling, the researcher takes decisions about the individuals that made up the sample which could range from specialist knowledge to readiness to participate in the research (Oliver, 2006). The use of purposive sampling in this research enabled the researcher to select participants that had appropraite knowledge and who were willing to participate in the research. The aim was to select an information rich location which would illuminate the connection between gender, water and livelihoods. Ile-Oluji, Ose and Ese-Odo was selected as study sites, because they are representative of what is available in terms of water (stream and rivers) and indigenous approaches across Ondo state. Respondents were selected based on the quality of information at their disposal. Age was used to screen respondents and only those whose ages ranged from 25-65 years (Ijiekhuamhen and Omosekejimi 2016) were considered. Potential respondents were approached at farms, market centres, including individuals performing household chores (having solicited gatekeeper permission from the area chief). The researcher was able to identify people who were willing to take part in the study, sought permission to meet

at various community centres at convenient times to discuss the study in detail. Approaching people in common spaces can be the most effective way of identifying a specific population.

3.9 Data analysis

Interviews were mainly done in English which is the predominant language in the selected villages. However, where respondents felt that communicating in the local language (Yoruba) would aid their understanding in interviews and FGDs, I did not hesitate to speak their language which was not difficult for me. All interviews were recorded with the consent of interviewees, and those in Yoruba were translated and transcribed by the researcher. Collected data were grouped into themes for further analysis. Thematic analysis, inferential statistical, descriptive statistical analysis and discourse analysis were used to analyse data. Excerpts of narratives are presented verbatim and were used in thematic analysis. The questionnaires were first prepared and systematised for analysis; this was done by making sure that all the responses were readable, that all the significant questions were attended to, all the responses were complete and all applicable contextual information was included (for example, data, time, place, researcher). The unit of analysis in this study is the individual. Individuals consisted of water managers and users, who use water for different purposes, such as domestic water (drinking, washing and cooking). The quantitative data collected was analysed using the Statistical Package for the Social Sciences (SPSS). Data were organised using descriptive statistics; summary of data by average has been presented in the form of frequency distribution table and graphs. The findings from the informal surveys with the key informants were incorporated into the findings from the SPSS, and they have been very useful in explaining many of the findings from the household heads or individuals involved in indigenous water management.

3.10 Thematic Analysis of Gender Needs and Indigenous Water Management – IWM

Thematic analysis (TA) is entrenched in the much older practice of content analysis (CA). TA uses many of the principles and procedures of CA, a historically qualitative practice that dates back to the early 20th century within the social sciences, but further back in the humanities (Sandelowski and Barroso 2003). CA involves creating categories and then counting the number of cases in which they are used in a text or image. It controls the frequency of the incidence of particular categories. Many content analyses depend on counting attributes in data (e.g. particular words or images). CA is interesting because it suggests a model for systematic analysis of both prompted and naturally-occurring data.

Gerald Horton, the founder of thematic analysis, introduced the term '*themata'*, and this inferred that preferences for certain kinds of concepts are shared in groups without conscious recognition of them. The idea of thematic analysis was established in part to go beyond "visible material to more implied, tacit themes and thematic structures" (Merton 1987).

3.11 Validity and Reliability

According to Mishler (1991) validity in qualitative research describes "trustworthiness: grounds for belief and action". Scheurich (1997, 82) argued that validation is the procedure a researcher goes through to be able to make claims about his findings and evaluate the trustworthiness of reported observations, interpretations and generalisations. According to Hammersley (1990), reliability refers to the degree of consistency with which instances are assigned to the same category of different observers, or by the same observer on different occasions. Scholars such as Caelli, Ray and Mill (2003) argue that such research should be rigorous, while Richardson (2000), Atkinson (1998) and Cheek (1996) describe what makes qualitative research credible. Generally, trustworthiness, dependability and credibility are terms used to describe validity and reliability in qualitative research. However, in quantitative research, Korb (2015) describes validity as the

extent to which or accuracy of an instrument used to carry out a study. In this study, the verification strategy involved the researcher givign the participants the opportunity to listen to the transcription from all the recordings which was read to them in all group meeting in each of the research sites. Richardson identified five basic measures for appraising social scientific studies: substantive contribution to understanding of social life, aesthetic merit, reflexivity, impact, and expression of reality. This study meets all these criteria required for credibility, dependability and trustworthiness. Two FGDs (of eight men in one and eight women in another) were conducted with in-depth interviews (five men and five women) to complement data from the survey questionnaires (314 respondents) across the three communities of study. In addition, the following steps were taken to further enhance reliability: training of research assistants and comparing of field notes from all the research assistants with the main researcher's field notes.

3.12 Ethical Considerations

According to Henderson (2005), research ethics is described as the researcher's 'moral abilities' while embarking on a study which prevents data mishandling and assists thorough investigations. Janesick (2000) argues that the 'invasion of privacy, dehumanising discomfort, anxiety and harassment' are problems that are peculiar to social sciences data collection procedures. To protect participants, sensitive issues around gender and water management were not discussed in open groups and informed consent was given before commencing the study. McCormick (2013) accentuated the importance of informed consent before embarking on a research study. Informed consent involves respect for 'autonomy', protection of 'vulnerable persons' and the participants' freedom to participate. The research process was in accordance with the University of KwaZulu-Natal's research ethical codes set by the ethics committee. Ethical clearance was approved by the University of KwaZulu-Natal to carry out this research for degree purposes. Gatekeepers' permission was granted by the chiefs (for small villages) and the king in all the study communities. The prospective participants were furnished with information about the purpose of

the study, what participation in the study required from them, the time it would take and how data would be used. The respondents were assured of 'confidentiality and anonymity' (Madriz 2000). The researcher was aware that consent was not necessarily absolute and that there may have been a need to renegotiate consent in cases where the respondent appeared to be uncomfortable and did not answer questions. Finally, consent was sought before using tape recorders and transcriptions were labelled in ways that would not compromise the anonymity of the participants.

3.13 Conceptual Framework

This research draws on a feminist framework and gender-based participatory paradigm in Indigenous Water Management. The mixed methodology and this conceptual framework assisted with an in-depth understanding of indigenous water management and practices in the villages in Ondo, and with an overall understanding of equitable gender and indigenous approaches. Scholars are being challenged more than ever with dealing more wholly with the complex ways that social power, identity and subject construction relate to the regulation of water resources management and practices. Hagg and Emmett (2003) have described the broad range of everyday practices of 'compensation' in Delhi's water management, that residents utilise to access water, which involves among others, staying away from work to fetch water. According to Batra (2004) and Coles and Wallace (2005), water is directly connected with gender, class and religious identities and is enmeshed in rival understandings of the rural-urban environment and the state. Hence, 'power, rights, and citizenship' in the community are shaped due to the varying consequences of water practices (Swyngedouw, Kaika and Castro 2002). While 'political ecological' investigation has given more consideration to the socio-environmental processes that produce water inequality in the various communities, research has been more directed towards analysing the construction of class and the distributional extents of inequality on a community rather than considering how several 'social differences are (re)shaped' in and through everyday water practices and management (Swyngedouw 1997, 311-22)

A ‘Feminist Political Ecology’ framework, like the feminist framework, through gender, class and other social power relations and by re-directing attention to the ways everyday approaches are produced, has shown that it is essentially important and useful in “analysing daily proportions of resource inequality” (Mehta 1996, 180-202). I argue that both these frameworks can enable a reconceptualisation of water inequality to more fully include inequalities associated with processes of social and spatial differentiation and their consequences for everyday life in the community through probing the embodied consequences of water and indigenous management practices. Feminist approaches to water management are mainly useful for understanding the production of, and interconnections between scales of analysis, precisely revealing how everyday practice is tied to the construction of scales such as the body, families and community at large. A thoughtful consideration of the ways in which gendered and indigenous water management practices are productive of certain social differences interrupts a framework in which distributional differences and ‘access and control’ become the only means of appreciating how water practices are linked with power and inequality (see Mohanty 2003, 225). Exploring the rich tradition of feminist analyses, Cameron and Gibson-Graham (2003, 145-158), have examined how life experiences, approaches of informal practices, the “economies and micro politics observed daily, are product of, and produced through gendered ideologies”’, structural power relations and processes of both rural and global change. Specifically, Nagar et al. (2002 257-284) argue that, in order to reveal how women’s lives and gender are shaped by larger economic forces, a more “holistic research into the informal spaces” and practices of globalisation, including family relations, and the feminisation of spaces and labour within communities, is required. This kind of analysis would allow us to connect “transnational political and economic structures and ideologies of capitalism to everyday life and local gendered contexts and ideologies” (Mohanty 2003, 225). A feminist framework focuses on shifting regimes of gendered access, control and local management of water among rural settlers at the local family level and

communities that, with the help of more research, could assist us to probe into daily environmental practices in the context of production of inequality and differences. However, the procedures for social differentiation, enlightening the complex ramifications of water and its rural management strategies, have been specifically analysed through recent feminist contributions by studying the importance of water in everyday practices for shaping gender ideologies (O'Reilly and Richa, 2010; Hernandez, Escartin and van Dick 2014; Hersch-Martinez 2004; Laurie, 2005).

Of course, feminism is not to be viewed with a narrow perspective of women gender, instead it is now understood as not only an issue affecting only women, but also men (see also Ellis, 2000; Matiza, 1994; Elmhirst and Resurreccion 2008). Since women and men exhibit mutual but non-exclusive socially and culturally-determined differences in behaviour, roles and responsibilities on gender concerns imply that all decisions regarding planning, design, location, operation and maintenance, management and assessment of water are based upon recognition of their differences (see van Wijk, 1998; GWDR 2003). The redefinition of the policy framework from a 'beneficiary-orientated approach' to one based on 'stakeholder participation' was as a result of the importance and the need for equity, efficiency and effectiveness. A wider view of gender dimensions with respect to the perspective of 'women as beneficiaries' was first transformed to "women's accentuated involvement in operation and maintenance" (van Wijk 1998; Narayan 1995), and thereafter women's perspective in participation has been expanded to the domain of water resources management as a whole, which also includes a broader opinion on gender. This led to the Ministerial Declaration at the International Conference on Freshwater (Bonn, 2001): The role of both women and men in the sustainable use of water resources should be such that it benefits and involves everyone, with men and women having an equal voice in management. This participatory approach would allow the role of women in water-related needs to be reinforced and their participation broadened in water resources management.

3.13.1 Feminist Framework

A feminist framework examines inequalities in gender-related issues. It uses an intersectionality approach which recognises the discrimination and violations of human rights women experience, not only on the basis of their gender but also from other power relations. According to McCall (2005, 1771-1800), intersectionality is a methodology of studying "the relationships among multiple dimensions and modalities of social relationships and subject formations". As one of the theoretical tools it also assisted me to better analyse and understand the circumstances surrounding the exclusion of women from community water management and the discrimination they experience when it comes to water management beyond the home. Ritzer (2007, 204) maintains that an example of intersectionality theory might be "the view that women experience oppression in varying configurations and in varying degrees of intensity".

During my study, it was observed that women were sidelined, especially poor women, from every developmental activity in the rural communities which is a form of oppression. Hence, intersectionality helped me to improve inclusivity and diversity. Not only does intersectionality reveal multiple identities, but prominently it also reveals the different types of discrimination and the impact they have on different contexts. In addition, Weedon (1997) has exposed the discursive strategies used by many of the men in the study, in their quest to sustain male hegemony. The study also uses a hegemonic masculinity concept which serves as an analytical tool for classifying those attitudes and practices among men that perpetuate gender inequality which involves men's supremacy over women (Delgado and Zwarteveen 2007). Hegemonic masculinity "embodies the currently most honoured way of being a man, it requires all other men to position themselves in relation to it, and it ideologically legitimates the subordination of women" (503-511). In societies like the one among the rural settlers in Ondo, where men's contributions are more valued and recognised than those of women who are more actively involved in water management, men are seen and are more 'positioned to represent', the water-related interests and needs of the household

at the level of the rural community (Boelens and Zwarteveen 2002). These ideas are partly and often implicitly based on a unitary model of the household, and a representative division of the world into two clearly delineated spheres of activity: the public and the private. Additionally, women are often detached from their individual experiences and the experiences endorsed by the culture, which places masculine viewpoints and arrangements high above women's viewpoints in community developments – a widespread practice across various villages in Ondo. Thus, women's viewpoints tend to be silenced or marginalised to the point of being discredited or considered invalid. However, Sanday's study of the Indonesian Minangkabau (2002) revealed that in societies considered to be matriarchies, women and men tend to work cooperatively rather than competitively regardless of whether a job is considered feminine.

Recent feminist contributions to the study of water management specifically analyse the importance of everyday practices in 'shaping gender ideologies' and processes of social differentiation (Nightingale 2011, 2). Women's presence in water governance through representation and participation in local decision making relates to women's strategic gender needs. In rural settlements like in the study sites, there is a discrepancy between women's rural water needs and the management of indigenous practices, because of women's underrepresentation in the public domain where strategic decisions are made. The reproductive roles of women at the level of the household make local water a practical gender need for them. Hence, this has led to women's practical gender needs, like domestic water, being inefficiently considered. These needs are regarded as women's issues that belong to the private domain and are not of community interest. Therefore, adopting the Rao and Kelleher (2005, 57-69) model called 'What are we trying to change' so as to analyse the formal and informal structures affecting women's participation and performance in the local decision-making spaces and rural water management would stress the need for shifting the rules of the game in the inequitable social systems and institutions, both at personal and social levels, and in formal and informal relations.

Although the formal structures provide women with opportunities to participate in decision making, the informal structures that govern women's actual access and performance (Kabeer 2005) do not, which is the prevailing structure in the rural settlements (Sokile, Mwaruvanda and van Koppen 2005).

3.13.2 The Gender-Based Participatory Paradigm

Blackburn et al. (2000) emphasised that participation can conceptualised as representative of partnership and ownership, which is a 'bottom-up' (see Cornwall, 2002) approach involving people at different levels, ensuring that decisions are soundly made and based on shared knowledge. Although these levels and perspectives on communal participation have been differently constructed (see Cornwall and Gaventa 2001, 127), there are three levels highly relevant to this study. First is consultation, where "administrative bodies consult community members to learn from their knowledge, perceptions, experiences and ideas and ways of livelihood in gender relation[s] and water management among rural settlers". At the second level is participation in the "development and implementation of plans and programs" where rural community members participate actively by discussing issues and contributing to the solutions of these issues. At the third level, which is also the highest for 'active participation', both men and women are involved in decision making and become partly responsible for the outcomes of these decisions. However, in the context of local governance, this implies interaction among participants and stakeholders in determining their development agenda and in managing resources to implement the delivery of potable water among households, which is their development priority. It includes a "bottom-up process built upon a strategy that stresses people's empowerment and participation, gender equality, legitimacy, transparency, accountability and effectiveness" (see Evertzen 2001). The new institutional structures introduced under gender-equity based participatory models of local governance seek to balance out the gender inequalities by presenting a platform where women can be organised alongside men and be allowed to express

their opinions as well as contribute effectively in decision-making processes. With respect to the rural water management, women's participation seeks to correct inequalities perceived in terms of access to water resources and benefits from rural water development projects as well as the exercising of decision-making powers with respect to the management of these resources (UNDP 2003; GWA 2003a). To translate the ethics of enhancing stakeholders' participation, especially that of women in local water governance processes, new institutional spaces have been created such as through decentralisation. These institutions may be interpreted as consisting of new sets of rules that structure the relationship between the stakeholders from rural communities and the government by determining their range of actions with respect to issues in rural level water management (see UNDP 2003).

3.14 Gender Dynamics and Research Experiences

Gill and Maclean (2002) argue that certain advantages can be introduced to the analysis of the social circumstances by introducing different issues and new ideas, and also that gender sensitivity may increase the awareness of the limitations placed upon the researcher. It then becomes necessary and of utmost importance to include the gender dynamics that stem from the research process, most importantly in the interaction between the interviewer/investigator and the interviewees, as well as the research environment (villages). There were big differences in my experiences and interaction with the men and the women.

3.15 Conclusion

A detailed outline of the research design, methodological approach and methods of research has been provided in this chapter. The conceptual framework and how it guided this study was described and the various challenges faced during the research period were highlighted. This research used a mixed methodology approach that probes indigenous approaches and the implication of gender in rural water management. Purposive sampling was used, and methods of

enquiry included focus group discussions, in-depth interviews and surveys. The steps in data analysis were also described in this chapter. Other aspects of research, such as ethical considerations, were discussed. In the next chapter, demographic information is provided on research participants and findings with respect to gender needs and indigenous water management (IWM) are analysed by themes and data systematisation through constructing coding frames for each of the data sets. The results were structured according to the major themes (rural water management (RWM), indigenous knowledge practices, gender needs, perceptions about the involvement of women in RWM and livelihoods that emerged from the research findings. Other sub-themes developed under the major themes were then structured around the research questions and are also presented in the next chapter.

CHAPTER FOUR

GENDER NEEDS AND INDIGENOUS

WATER MANAGEMENT– IWM

4.1 Introduction

This chapter introduces the body of data examining the various factors which influences challenges and successes around IWM practices in the rural communities in Nigeria and, specifically, Ondo state. This section identifies various indigenous practices and knowledge used across the study area and their impact on the provision of potable water. It also identifies and examines the implication of women's strategic gender needs in indigenous water management practices. It was observed that IWM practices in the rural communities in Ondo vary from one village to the other. While some of the women engaged in practices ranging from the use of alum, filters, salt, charcoal, kerosene and fired clay pots, other women engaged in spiritual means like praying to the water that had been collected and using anointing oil before drinking. Due to the harsh financial situations among the villagers, particularly the women, many do not use any of the indigenous approaches since the materials are expensive and not readily available.

In the coastal part of the state around Ese-Odo, it has been observed that many of the women fetch their water from a spring that flows all through the year and never runs dry. The spring is said to be supplied by a water goddess, Yemoja, who is believed to give protection and special provision of water to the entire community. Water from this source can be used and taken without any further indigenous management approaches. This spring is 'decorated' all year round at its surface with a particular wide and circular leaf with no root attached to it. This spring water source is believed (by the rural dwellers) to possess the ability of self-cleansing, and this particular plant is one of the indicators used to determine the kind of water that is supplied by Yemoja. Indigenous practices and knowledge among rural dwellers in the research sites were observed to be a strong

anchor for local livelihood and survival among the women. However, for men and women to achieve their desired livelihood, the 'Foucauldian concepts of governmentality' (Foucault 1990; Garcia 2001) about 'power relations' (albeit in a rural context) examining the impact of social relations and improvement on the participation of men and women in rural water management, were investigated in this study. In all the research sites, men were generally seen to be more involved in decision-making around the management of water at the community level, and very few or no female representatives were allowed.

According to Hope et al. (2003), through patriarchy, men's supremacy gives them 'unequivocal rights' and access to control resources in the society while the women are 'exempted from and marginalised' in management activities and decision-making bodies, leading to problems of effectiveness and equity. In Ese-Odo, Ile-Oluji and Ose, women were not allowed active participation at the community level where decisions around water management were made. Their access was restricted to those things that were within their duty and roles which pertained to caring and providing for their homes or whatever their husband permitted them to have access to. Hence, gender inequality, which was observed at the research sites among men and women in relation to the management and provision of potable water and their livelihood, makes it impossible for them to achieve the Strategic SGNs and Practical Gender Needs (PGNs) of women which potentially could have been responsible for the protracted challenges with respect to the provision of potable water at the community level.

4.2 Demographic Information and Indigenous Water Management Practices

The following are some of the participants across the research sites whose demographic information was known and who participated in both the FGDs and in-depth interviews. Participants who did not disclose are not included. All the participants were given pseudonyms throughout this study and in the data analysis. The following section includes these names and a

brief description of age, sources of water and indigenous approaches used to make their water potable. They have been grouped into female and male participants. This list of some of the participants is included so that the reader can have a 'face' in mind that can be attached to the narratives and the analysis of the data.

4.2.1 Female Research Participants

Aanu (Key Informant)

Aanu is 43 years old and was born in Ile-Oluji. She gets her water from the stream and the well. While she was growing up, she observed all forms of water management practices. When she was 20 years old she began using alums and white cloth for filters, so as to make her water potable. She believes that village life is hopeless with respect to the quality of potable water.

Mattar

Mattar is 40 years old, and she gets her water mainly from the well. She has been actively participating in indigenous water management practices for over 25 years now. She was not born in Ile-Oluji but was brought into the village at a young age. She believes that the indigenous water management approach is very helpful.

Grace

Grace is a 65-year-old woman who came into Ile-Oluji in her 20s. She inherited the indigenous water management practice she is using now. She gets her water from the stream and the well. She said everyone in this village uses alum and filter cloth for indigenous water management. She complained of the stress of boiling water, hence she drinks water filtered through cloth or alum..

Eniola (Key Informant)

Eniola also inherited various indigenous water management method. She depends mostly on the well for drinking. She thinks that the water is clean enough for drinking without the use of alums and filters, which she grew up seeing people use.

Olaolu (Key Informant)

Olaolu is 44 years old and she has been engaged with the indigenous water management procedures since she was young. Whatever she is doing now was learned a very long time ago from her parents. Her sources of house water are the stream and well. She has been using a special clay pot to keep her water, after adding alum and filtering.

Olomo

Olomo is 61 years old and was born in Ose. She has been actively using the indigenous water management methods all her life. Her source of water is the borehole. She has been using this method for approximately the past 40 years. She uses charcoal in the place of alum.

Toyin

Toyin is 53 years old and was born in Ose. She has been involved in house water management for over 30 years. She buys her water from the water vendor or from the borehole owners around her. She uses alum and filter cloth for her water management and believes that they are solving the water challenges.

Bidemi

Bidemi is 62 years old and was born in Ose. She has been participating in indigenous water management practices for about 50 years. She fetches water from a neighbour's borehole or buys from the water vendors. She uses charcoal or alum, and thereafter filters the water with filtering cloth.

Bimbo (Key Informant)

Bimbo is 38 years old. She was born in Ese-Odo and, since then, she has been involved in the household water management. Her major source of water is the stream, but sometimes she can get water from the borehole owners; they only have two functional boreholes in the whole community. In her opinion indigenous water management practices are solving their water challenges, more especially with the addition of salt to water fetched from the *Yemoja* spring which flows all through the year.

Kehinde (Key Informant)

Kehinde is 49 years old. She was born in Ese-Odo and uses an indigenous water management approach for the provision of potable water. Her primary sources of water are streams and the seasonal rainfall. According to her, the most important part of the indigenous water management approach is knowing where to fetch the water. Unless you are told, you cannot identify the Yemoja spring water. She believes that as long as they continue to fetch from this source, little or no treatment in the water is needed.

4.2.2 Male Research Participants

Josiah (Key Informant)

Josiah is 60 years old and was born in Ile-Oluji. Early in his life, the villagers solely depended on the stream for water but, from about 30 years ago, they have used wells as their primary source of water. Some people here use alum and filters, but he uses the 'just-fetch-and-use-it' method fetching the water when it is needed and not storing it. The big problem here is that they do not have enough water, so people still go to the stream to add to water they get from the well.

Jacob

Jacob is 63 years old and has been in the village for over 30 years. He gets his water primarily from the well and the stream. He uses alum and filter before he drinks the water. He feels that

they have been forgotten by the government, so they have to survive by using all available methods.

Adekunle (Key Informant)

Adekunle is 49 years old. He was also born in Ile-Oluji as a farmer. He has inherited all the water management approaches used in this village. His own approach is to boil water from any of the sources and pour it into the fired clay pots. He believes that this approach can solve the water problem, especially as there do not appear to be any alternatives.

Taye (Key Informant)

Taye is 54 years old and he inherited water management approaches. His major source of water is the well, but those whose residences are closer to the stream still fetch from water from there. When the water is fetched, it is poured inside a fired clay pot, alum is then added, and it is then filtered. Sometimes they use boiling instead of alum since they have wood readily available.

Dipo

Dipo is 35 years old and was born in Ifon. Their source of water here is the borehole, similar to a well but deeper. Most boreholes are around 400 feet deep, while the wells go about 40-70 feet down. They buy water there, and he thinks many buy water there because it is expensive to dig a borehole. He said that he prefers to boil water, but when this is not possible, he just drinks it. The major challenge is the availability of the water; it can be very difficult to find.

Bamidele (Key Informant)

Bamidele is 48 years old and was born in Ifon. He has been managing his water indigenously for over 30 years. He drank from the pipe-borne water before the dam was vandalised. Their major source of water is the borehole and rainwater. When there is no rain, they need to buy water from

vendors. Every 25 litres of water costs 200 naira, and in a day, you can use at least 100 litres of water.

Isaac

Isaac from Ifon is 57 years old and has been actively using the indigenous water management practice for over 35 years. His major source of water is buying from water vendors, and sometimes he goes to neighbours who have boreholes to fetch water too. He has been using alum and cloth filters, but recently had to stop because he perceived that the water was clean enough. He for one is earnestly crying for government intervention because all the various approaches to IWM practices are not solving their problems.

Chief Alabeni (Key Informant)

Chief Alabeni is 62 years old from Ese-Odo. He inherited IWM practices from his father. Their sources of water are the stream and rainfall. According to him, so many materials can be used to take care of water; these include: kerosene; charcoal; special fired clay pot; fetching from the right source, etc.

Ajakaye

Ajakaye is 48 years old from Ese-Odo. He has used indigenous practices for a long time. According to him, the stream is their major source of water. Kerosene and charcoal have been used round here to take care of water and it has been very effective. He thinks that, for as long as they are not dying of water diseases, it is solving their water problem, although not 100%.

Akinyemi (Key Informant)

Akinyemi is 56 years old. He has been using passed-on indigenous approach since he was small. Since he was born in Ese-Odo, he is familiar with various approaches. The major source of water is the stream or the river. He uses charcoal and filter to manage the water that has been poured

into the clay pot overnight. This method is used across this entire village and it goes a long way solving the water problem.

David

David is 52 years old and has been living in Ese-Odo all his life. He said all the methods used here were handed over by their parents. Their major sources of water are the rain, streams and river. Among the indigenous knowledge used in managing their water, is charcoal – knowing where to fetch it, alum, filter cloth and clay pot. He believes these approaches can solve the water challenges they are facing.

Felix (Key Informant)

Felix is 63 years old and has been using indigenous practices all his life. His source of water is the stream and the river and he does not use anything in the management of his water. According to him, as long as you fetch from the right source (Yemoja spring), you can drink the water right away. He feels strongly that if everyone did this, the water challenges could be solved.

4.3. Gender Awareness and Rural Water Management-RWM

Women in the rural communities especially in Ondo and in surrounding developing countries, are largely 'invisible', both as actors in and possible recipients of RWM and development processes that could assist the participation of women in rural water management. This is in agreement with Sigenu's work observing that, since 1950, there have been a number of definitions and approaches that have guided programmes for women in developing countries that are targeted at assisting women (2006) participation in water management. However, earlier research (Downer 1997; Fonjong 2001) on women and development documents that 'development had underplayed' the important role of women from various communities, hence making it impossible for women to be part of the planning, decision-making, implementation and management of developmental projects. The researcher's own observations confirm that women in Ese-Odo, Ile-Oluji and Ose

are not seen to play any major role in their communities outside of their homes. The data in the study showed that some of the women were satisfied with staying behind at home due to their low social-economic power and because they were not able to logically engage with their male counterparts at their community meetings (also as a result of their low educational status as compared with the men). Hence, this shortcoming is further strengthening the seemingly culturally-defined roles of women which continue to restrict them to their households by making gender equality merely a mirage. Nightingale (2006, 165-185) further argues that while the roles of women and men are different, they do not only play different 'changing roles' in society but also often have different needs considering their positions within individual homes and different control over resources in the environment.

Some of the women at the research sites, by way of survival, were observed to have small shops in front of their homes since they are unable be out farming or fishing like the men due to the amount of time needed for household water management. This was also is a reason given by some they don't have any extra time for such meetings even if they are invited. According to one of the respondents, a woman is seen as honourable if she sticks to the prescribed cultural role of being a full house wife so that she can be able to manage the affairs of water which is her major challenge. However, according to Moser, differentiating SGNs and PGNs and understanding the connection they have between women and men can make the provision and management of potable water sustainable, while meeting the practical needs of men and women without compromising the women's strategic gender needs. Molynuex (2007, 227-40) argues that 'needs' are related to divisions of labour, power and control and may embrace such issues as 'assuagement of domestic burden cum labour and childcare, freedom of choice, and measures against male violence, supremacy and control' over women, which was also clearly observed in the experiences of women in rural water management (RWM). Actualising these needs does not

only help women to achieve better equality, it also alters existing roles and therefore challenges their subordinate positions.

Strategic Gender Needs and some actions that were addressed in this research are:

- permitting women to take part in decision making, e.g. participating in rural water management, representation at the local water management planning, establishing and supporting women's groups; and
- encouraging equal chances for engagement, e.g. equal pay for comparable opportunity (even if there is a gender division of labour), equal opportunity for livelihood and promoting women's access to roles traditionally held by men.

On the other hand, 'PGNs are needs women classify as their socially-accepted roles in community' (Joshi and Fawcett 2006, 119-36). Frequently, these needs do not challenge the gender divisions of labour or women's subordinate position in the society, although arising out of them, but are associated with their roles as mothers, homemakers and providers of basic needs. Practical gender needs are always a response to an immediate perceived obligation which is recognised by women within a specific context. They are concerned with shortfalls in living conditions, such as potable water provision, health-care access and employment, which are practical in nature. Contrasting with the strategic needs, practical needs are articulated directly by women in these positions rather than through external involvement. As stated by Molynuex (2007), they challenge the 'dominant forms of subordination', even though they arise directly out of them (Moser 1994, 40). Practical needs arise as needs of women from their impoverished situation. Rural Water Management schemes can meet the practical gender needs of both men and women in the rural areas of Ondo State, without necessarily changing their relative positions in society. Examples of actions that address practical gender needs are:

- reducing women's workload, e.g. making sure the pathway to the stream is accessible, providing sufficient support with fetching of water, allowing good and fair representatives at the Rural Water Management;
- improving services, e.g. primary schools, housing infrastructure and transport facilities for easy access to rural water management materials;
- increasing income, e.g. skills training, credit initiatives and easy access to the markets.

4.4 Water Sources and Impact on Gender Needs

4.4.1 Gender Needs and Water Management

Some researchers (see Prokopy 2004 and Singh 2008) have been able to address the practical gender needs of women which are often related to women's domestic responsibilities and concerns regarding inadequate living conditions. These are issues that are keeping women in a 'deprived situation' compared to men and are the strategic needs linked to women's empowerment needed to rise above their subordinate position. However, the implications of these needs in indigenous water management have not yet been adequately researched. Most importantly, the potential positioning of women in rural community water management beyond the households in the provision of potable water and the livelihood of the women is, arguably, under researched in certain contexts.

In Ile-Oluji as well as in Ese-Odo and Ose, the management of water at the household level varies from household to household. Those responsible for water management are described in this research as 'water managers'. These are the people the questionnaires, in-depth interviews and FGDs were aimed at, to be able to examine and identify the roles and responsibilities of the women and men in rural water management, and also to investigate if stakeholders in water management have equal access to other sources of livelihood. Profiles of the household water managers in this research have been described earlier in this chapter since age, location,

occupation, gender and education may influence management perceptions, practices of drinking and household water quality.

Figure 4.1 shows the male-to-female ratios across age distribution of the respondents in Ile-Oluji. It was observed in Ile-Oluji that the age bracket of between 20-40 has the highest male-to-female ratio (57%), followed by the age bracket 41-60 with a male-to-female ratio of 37%. The age distribution and the male-to-female ratio indicates the presence of younger people (less than 50 years). This was also obvious in the kind of occupation the men were involved with, which was cash crop farming which is a huge source of income for the men and a means of sustaining their livelihood. In Ile-Oluji, the women do little farming because of their duty to provide water for their households.

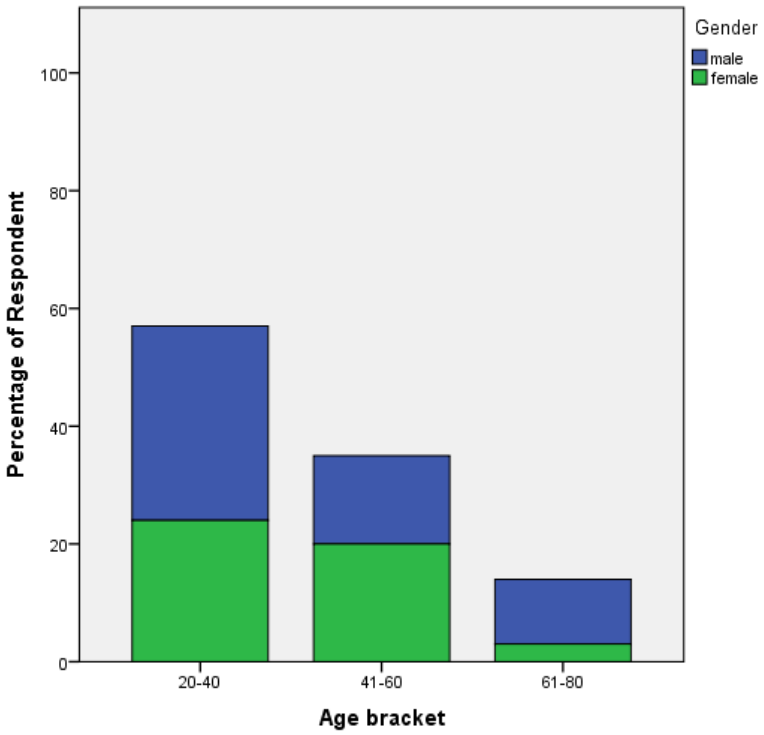


Figure 4.1: Age and gender of the respondents in Ile-Oluji 2017 (n=106)

It was also observed that, at ages above 55, there were more men in the community and that the women were aging faster than their male counterparts. This can be seen in Figure 4.1, where, in the age bracket 61-80, the number of women was about 5% compared to 16% men. Multiple factors could be responsible for the reduction in the number of the women from this population, and the in-depth interview and FGDs shed some light on this.

When asked how far women and men, differently or together, go to fetch water, the responses were:

NARRATIVE 1

Anu, a 43-year-old woman who has been in the village for more than 20 years, said:

"The source of water is far away from our house. Since we depend on well and the stream, we get a few from the stream if I can wake up as early as 3:30/4am." She said mostly she is too tired to wake up. The next option is to walk for close to 3km to go to the stream.

NARRATIVE 2

Mattar is a 40-year-old mother who moved into the village when she was in her early 20s. She expressed her concerns with respect to the challenges faced by water, especially potable water:

"The well is very close to my house, but to fetch I still have to wake up before 4am, if not I will have to go the stream which is far."

According to Crow and Sultana (2002), technology, transport, money and distance are further influenced by social relations of access. If water is available from the tap at home, everybody collects, and everyone is involved; however, if it is necessary to draw water from underground, women and children do this; if it is necessary to walk some distance to fetch water, it then solely

becomes the responsibility of the women and girls. However, men will collect if technology and/or transport are used. Feminists like Cameron, Gibson-Graham, and Nagar et al. (2002, 257-284) argue the need for further research into the ‘‘informal spaces and practices of globalization”, which includes household relations and the feminisation of spaces and labour required in water collection. This eventually would reveal how gender and women’s lives are shaped by larger forces like economy and class. Similarly, Mohanty (2003) argues that the ‘‘micropolitics of context, subjectivity, and struggle’’ provide critical insights into “everyday life and rural gendered contexts and ideologies to the larger, transnational political and economic structures and ideologies of capitalism” (225). All these arguments revealed the everyday activity and labour of the women within their homes and local environment. In this study, all the participants revealed how hard water provision has been and wondered why it has to be the role of the women. Anu and Mattar are examples of female respondents whose main duty is to provide for their family, good drinking and useable water through walking long distances everyday. For them, and like all other women, it is an everyday activity that must be done or else there could be a crisis at home. Even for Matter, whose residence is located near to one of the three sources of well water at Agric Farm in Ile-Oluji, she still has to wake up very early for her to access the water that can then be managed indigenously. Anu, who rather unfortunately lives far away from the well, must wake up much earlier than Matter and others who stay close, or she would have to walk for about 3km (one way) in search of water. For her to have enough water for her family, she must make the trip about three times in a day. After every day water activities, women in this village are tired and are seen sleeping late into the morning while their male counterparts are busy farming. However, they must wake up again before 2pm to attend to the needs of the family and those of their husbands.

The section that follows compares the narratives above with that of a male participant in the same village:

NARRATIVE 3

Josiah, a key informant, is a 60-year-old man who was one of the first people to enter into this village. *"I do not participate in the fetching of water because my wife is capable of this task while I have to do other things. But if it is not far like if we have a well at the backyard, why not I can fetch sometime?"*

This kind of activity, that is the fetching of water, has nothing to do with the men, more so when they have to cover some distance, because in this village the men are not seen fetching water under any conditions. However, if the distance is very short, Josiah said he can assist sometimes. According to Figure 4.1, these roles performed by the women on a daily basis could be responsible for the lower population number of women in the 61-80 age bracket by comparison with the number of the men in this same age bracket. By implication, women age faster and possibly die faster than the men. For the women, water management is not a choice, while for the men it is a choice. In addition, since the men in this community have hired labourers working for them, they only supervise and sometimes do not go to their farms at all.

The other question which I am of the opinion is responsible for the quick reduction in number of women in this population of the women from this population is:

How long does it take to get local materials used from water management?

NARRATIVE 4

Grace is a 65-year-old woman. She has been around this community for over 40 years. Indigenous approaches have been all she has had to survive the challenging water issues they are faced with. She said the following:

"None of the materials can be gotten from this village, we have to walk for over 3km to the market in the town or wait till when we can get a motorcycle that would carry us. The good part is we only go for these materials about three or four times in a month."

Eniola is a 56-year-old mother. She inherited indigenous approaches from her mother, and she thinks that if used properly, it can help them solve their water challenges:

"Personally, for about 30 years I have been drinking this water without any serious local management. But recently, since the water are not too clean again I use just alum if it is available, because I do not think I can cope with the stress, are you afraid of dying? At least I am 56 years old now."

This reflection, with respect to distance covered to get local materials, shows another major task for the women in this community to be able to provide potable water. Eniola feels she can no longer cope with these challenges. She even asked if we were scared to die. She knows that the right thing to do is to buy the necessary materials needed for water management, but, due to the distance involved, she would prefer to drink it as it comes. Exploring the rich tradition of feminist analyses (Cameron and Gibson-Graham 2003) therefore, examines how 'life experiences', approaches of local practices, the economies and micro politics are observed daily in communities, and the way they affect the way of life of the women. The women who are the 'household water managers' depend therefore on the culture and values of the local community

Water is collected/fetched and managed mainly by the female water managers with little or no assistance from their male counterparts. This not only affects the quantity and quality of water available per day, but also, most importantly, the productive lifestyles of women in Ile-Oluji, making them perpetual petty traders, a task to which they cannot even be very committed because after everyday water management activities, they are worn out and want to rest because the distance covered alone is equivalent to a full day's job.

Table 4.1: Gender and Distance covered for water by respondents in Ile-Oluji 2017 (n=106)

Distance Covered (km)	% Distance Covered by Men	% Distance Covered by Women
< 1	84.9	9.4
1 – 3	11.8	80.4
4 – 6	3.3	10.2

Table 4.1 corroborates the qualitative analysis, showing that the majority of the men would not assist their wives farther than a distance of 1km. Of the men, 84.9% would not got go further than 1 km, whereas only 9.4% of the women fetch water from this short distance away; there are only a few scattered wells. To be able to fetch from the closest well, one must be up very early which, according to the women, is not safe for them. About 90% of the women would routinely cover a distance of 1-6 km in search of water daily, either for domestic purposes or, primarily, for drinking. During my research process, I experienced how early the women rise in search of water and how far they go to make sure water is available for their households. Integrating the strategic and practical gender needs of women, most especially in local water management and their right to participation, could reduce the gender inequality by empowering women. Evertzen (2001) posits that not everyone who validates the aim of improving women's participation would also approve any and every discussion that validates this objective. However, the 'Gender-based Participatory Paradigm' (see Cornwall and Gaventa 2001, 127) proposes that consulting stakeholders in water management learn from their knowledge, perceptions, experiences and ideas and ways of livelihood in gender relation and water management among rural settlers and this could ease the burden of water management for women.

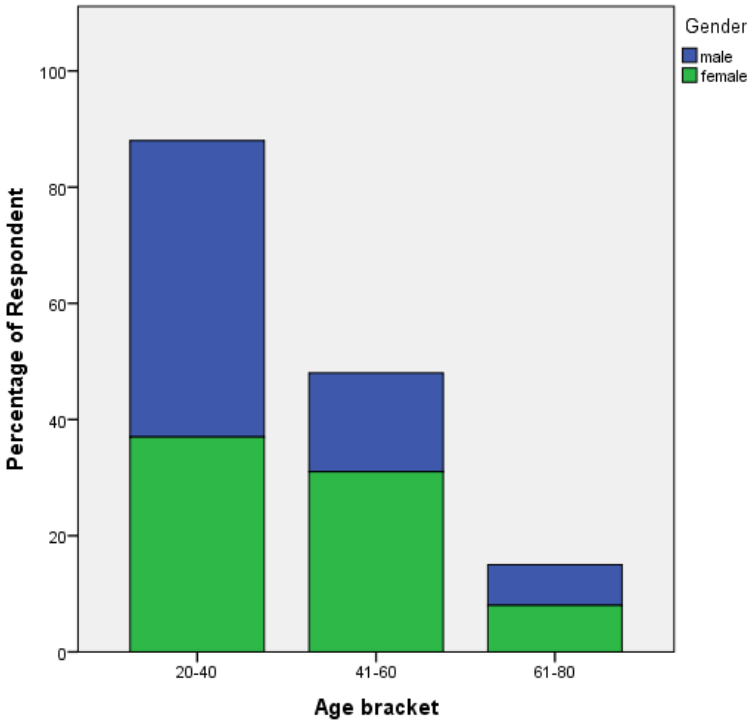


Figure 4.2: Age and gender of the respondents in Ose 2017 (n=152)

The research site in Ose presented a different adaptability to water management. The presence was observed, like in Ile-Oluji, of younger men and women who were between the ages of 20 to 40 years. It is also important to note that, as their ages increased, there was movement out of this community, one reason for which was the challenges of water collection. While the community was good enough for farming and economic activities through farming, it was largely unable to solve the challenges of water beyond the indigenous approaches of individual households. Men and women in Ose in the age bracket of 20-40 years amounted to 88%, which far outweighed the number of men and women in the age bracket of 41-60 years and 61-80 years (Figure 4.2). A qualitative analysis of the situation surrounding the movement of the younger generation from this community after reaching Figure 4.2 shows some disparities in the percentages in the ages of women and men present in this community, which can also be as a result of the following excerpts from the respondents affirming why the younger age group (20-40) seems to be prevalent

and the older groups, 41-60 and 61-80 years, seem to be in the minority. Certain ages further revealed some of the factors, among others, responsible for this massive migration to the towns.

When they were asked about the sources of water in the community and the reliability of this water, one respondent replied as follows:

NARRATIVE 5

Fadekemi is a 61-year-old woman. She recounted her challenges with respect to water. She lives in Ose, where the challenge of water is different from Ile-Oluji. Here they buy water, which is not even clean for drinking.

"Boreholes or you can also call it well and the rain water [holes] are our only source of water. Although some people who are close to the stream use it too. Of course, you can count how many houses have the borehole because it costs about nine hundred thousand naira to construct. Even at that the water is still not safe for drinking. It would take me at least three hours every day to get water."

This narrative excerpt reflects the source of water in Ose community and the challenges around fetching it. The community is fairly large with a population of about four hundred households but only about ten houses have borehole water which some other people call 'the well'. The cost of installation is a little less than a million naira,[19] so only a few houses can afford this. This also does not guarantee the purity of the water, only its availability at least for households. Since the majority of the men and women in this community are dependent on those who have water, the women would have to buy from them while their husbands were busy with the farming activities.

[19] A dollar is about 304.00 naira

This alone is an open door to gender inequality which is almost becoming a norm even among the women.

NARRATIVE 6

Toyin is a 53-year-old woman. She does not care about the source of the water she buys but if she does not buy, there is no water to use at all. She said she cannot go from house to house begging for water, but rather buys whatever she can from the vendors.

"Some get their water for free based on relationship but generally we buy water, because I cannot have the borehole due to the cost. This water is not clean, but they are better than none. The other alternative is for the women to buy from water vendors which is worst. But whichever source, what is important is water we no longer bother about how clean, since we have our own way of making it clean at least."

NARRATIVE 7

Bidemi is a 62-year-old woman.

"Buying water from the vendors is the major way to survive here. Most time the people with the borehole do not even have enough for the household talk less or selling. If the women want to fetch from the borehole they might end up visiting about four houses before they have enough water for the day. The water is manageable but using our local method to keep it clean is why we still surviving."

The excerpts above showcase how unclean their water sources are and the burden on the women in providing potable water for their households. Since the borehole is not dependable in that you have to visit more than two houses before you can have enough water ready for local water management, they would rather buy from only one source, which is from the vendors. Definitely

the water supplied by the vendors is worse than the water they get from the boreholes. However, the consolation is that when they have the water, the women in the individual houses can then proceed to making it potable in their own way. This burden of responsibility, which affects women the most,, has made most women here either full housewives or, for those who are probably stronger, they are able to add a petty shop just in front of their houses to earn some money. The women do not see the indigenous approach as a challenge, which is having the water readily available which can then be indigenously processed into potable water. Hemson (2002) iterates that a major issue to be reflected on in the failure of water projects is women's participation and involvement in their design, planning and management processes which is a way of not only potentially assuring development with respect to water projects but also of alleviating the burden from the women of the provision of potable water. This gives more women opportunities for empowerment.

NARRATIVE 8

Ronke is a 56-year-old woman. She believes that the indigenous approach is the only means for survival abd has been neglected by the government.

"Water is making life difficult here. We are here because of the farming and the little money we get from it. After I have safe enough I will leave to the city because the water here is not too good and the stress involved in fetching and the management is time consuming."

NARRATIVE 9

Raimi is a 44-year-old widow. She also wishes that she can leave the community at some point to a place where water is available. However, she is poor and weak.

"The challenge of water is so much that we do not even have enough money to buy from the vendors. Apart from buying we have to still local manage it to make it potable. That is why you

can see that some of these children are leaving after they have small money, but I am alone here and cannot not go anywhere again I am getting old and have no money."

Ronke's decision of leaving with her family is also as a result of the scarcity of water they are facing while she primarily shoulders the responsibility for the provision of water and the local management processes. Women in this community are seen as giving up so much for their families because that for them is the only way they can survive. Both the young and the older women are seen all over the street from as early as 5am up until 9am with water containers on their heads looking where to buy water. Ronke, like every other young woman, is only hoping that after they have been able to save enough money, she and her family will leave for the bigger cities. However, for women like Raimi, leaving this community is not an option to be considered, but rather finding a means to survive which could be the buying of water and managing it indigenously. She is a widow whose children are not living with her. She also buys her water from the water vendor, which for her is much easier but not as clean as the water from boreholes. But since she is alone without assistance, she will wait until the water vendors come, then she will buy and locally make it fit for drinking. Kabeer (2005) argues that SGNs of women as well as their PGNs would be addressed if good water governance with a gender-approach is set out to provide 'context-specific information about women and men's different experiences with gender analysis which will contribute to recognising inequalities' where they exist and in making a case for developing policies that address these inequalities; this would ensure a functional water management that would reduce the water burden on women and men.

Kabeer (2005) further iterated that it is important to allow women who are often marginalised to have a strong voice by promoting the participation of women and men in decision making in the community, so as to ensure that their assessments of the water crisis are taken into account. Begum et al. (2002, 732) also asserted that 'promoting gender sensitivity will lead to greater

equality' in decision making by providing opportunities for poor women and men both in water management and in issues of livelihood.

Another major challenge faced by men and women in Ose is the difficulty encountered in acquiring indigenous materials used for the management of their water, which on its own is also a major headache. The observed major challenges are that the sources of materials used are too far, some of which are the filter cloth, alum and water storage containers; also, the fact of little or no support from the men is a major concern for the women, which in so many cases affects the quantity of water that can be processed to be good drinking water.

NARRATIVE 10

Fadekemi

"To get the materials to use to make the water bought from vendors fit for drinking is another task but if you can fetch from boreholes by moving from one house to the other that can help you to avoid this process. Even the support we get from the men is not good enough, despite the stress they will still abuse you."

NARRATIVE 11

Bidemi

"I do not have enough money to buy water that would satisfy the house every day. Sometimes I buy from the vendors and go from house to house to buy more from the borehole's owner. I wish I can afford the bigger water tanks, but since this is all my effort, I will keep doing what I can at least for the children."

Hence, according to Zwarteveen (2008), the idea of 'making women visible' was and is, of course, still necessary for effective management of the scarce resources which is seen as

undisputable from issues of effective governance connected in a 'means-ends relationship'. Therefore, within this framework, participation of all stakeholders, which is a means that can address women SGNs, women and men equally are seen as the primary factors needed for achieving effective water management from the level of the household to the community.

Cornwall and Gaventa (2001, 127) thus argue that through 'enhanced and more influential roles', women should be brought into decision-making within local water management frameworks with the intention of turning concerns towards advancing their status from 'users and choosers' to 'makers and shapers'. Residents of Ose (one of the the research sites) use the well as their primary source of water. This source of water has an average depth of 400 feet which made them sometimes refer to it as 'their borehole' and only a few individuals can afford to bear the cost (₦900,000.00) of drilling and installing. Sometimes, the cost of installation can be as high as ₦1,500,000.00) naira[20], which cannot be afforded by many of the rural dwellers. Therefore, most people buy the water from those who are able to install water in their compounds. Each 25litre keg which is used to fetch water is sold for 300 naira. Others who can afford it also buy containers as big as 200 litres and 500 litres to store water purchased from water vendors. The majority of the people in this community are in the category that buys water whose purity is not guaranteed because the source of the water is unknown to the users or buyers.

The third research community, Ese-Odo, presented a similar pattern of both men and women's adaptability to water and various sources of water as was observed both in Ile-Oluji and Ose. The primary source of water in Ese-Odo is the streams and the river, although a few individuals are able to dig wells in their compound. Figure 4.3 shows that more than 35% of the respondents who

[20] Nigerian currency

depend on this source of water are found in the age group 20-40 years. Some of the respondents also revealed why the younger men and women prefer fetching from this source.

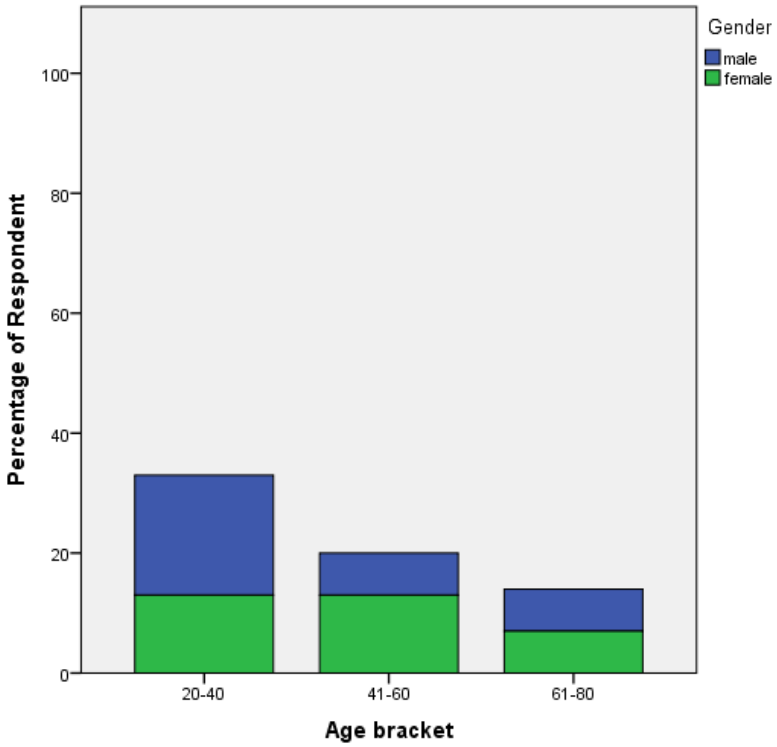


Figure 4.3: Age and gender of the respondents in Ese-Odo 2017 (n=67)

NARRATIVE 12

Kehinde is a 49-year-old woman who inherited various indigenous practices because she was born in Ese-Odo.

"Our main source of water is the river. It is not really too far from here but would still take about 30 minutes for one trip and daily I do about four to five trips. Thereafter, we add salt depending on what you know, some just pray on the water. I was born here but do not want this kind of life for my children."

NARRATIVE 13

Ibikunle is a 52-year-old woman. She is one of the women in this village who thinks that the life of a woman should be about more than what they are made to do, which is the fetching of water and preparation of food.

"The women go to the river but specifically to the Yemoja spring source where you can fetch the clean water. It is not a big source, so you must get there very early. It has not been easy for the women here, all we do is this water things and give birth." (Laughs!!!)

NARRATIVE 14

Romoke is a 50-year old woman from Ese-Odo.

"I do not plan to stay here forever, because the water challenges are huge. A lot go into getting a potable water daily, and since the men do not see it as an issue, who am I to talk about the challenges since I am not educated."

Women who reside in Ese-Odo feel that their marginalisation is based on their weak educational and socio-economic power. They all share the same source of water and go through the same stress in making sure that water is made available for their households. Kehinde and Ibikunle described some of the practices engaged to make sure water is potable and useful for domestic purposes. The water source of Yemoja is held in high esteem. After fetching water from this source, you can decide to drink with any other indigenous practice or just add a little salt to the water. However, the Yemoja spring source, which is located at the bank of the river, is quite small and can only supply a few people. The other alternative is to fetch directly from the river, but this water require a full-scale indigenous management process, which involves fetching water with a fired clay pot, adding two or three pinches of salt, then adding a drop of kerosene and keeping it overnight to give the best natural odour, thereafter sieving with a filter cloth. The sieved or clean

water is then poured back into the clay pot for drinking. This is a daily practice for all of the women. Kehinde, who later became quite emotional, consoled herself that this was a sacrifice she was prepared to make for her children, implying that she too would leave the village at some point. Ibikunle who laughed about the role of the women involving water management and reproduction solely, said that women could do much more than culture had reduced them to. If you did otherwise, you would, however, be tagged a rebel. Romoke said outright that she would not be staying there for long due to the water challenges. She said if you stayed in this village, you could not have the better life of other women. She said the water challenges could be resolved if the men who are responsible for taking decisions did the right thing and took the right decisions. "*But since it is customary to be quiet as a woman and do what you are meant to do, we will continue to do it until when we can be free."* Romoke also noted that key inhibiting factor that makes women 'backward' is that they are not as educated as the men: *"How can you be educated doing this kind of activities every day? I am doing this not even involving my female children so that they will not have to go through this."*

This participant said the only way you can be heard and be visible in the village is if you are educated or have very educated and successful children as a widow, then the men will listen to you. At the International Conference on Freshwater in Bonn in 2001, the importance of a policy statement highlighting the need for a gendered approach which allows for the participation of men and women by strengthening the roles of women, was discussed. Furthermore, equality was also highlighted during the statement of the Third World Water Forum in Kyoto, 2003. At the 8th World Water Forum in Brasília, 2018, it was observed that it has become progressively accepted that women should play a pivotal role in water management and that this role could be improved through the strategy of "gender mainstreaming which allows for women's as well as men's concerns and experiences to be vital in the design, execution, monitoring and evaluation of policies and programmes in all spheres so that women and men benefit equally". Since all the

water from various sources across the study site still needs to go through some level of indigenous management carried out by women at the individual household level, except for the spring water found only in Ese-Odo, a strategic approach which should involve both men and women, could potentially manage the challenge of potable water.

4.4.2 Gender Needs and Approaches to Indigenous Water Management

The integration of the knowledge of indigenous people into the management of water and even the environment, from times preceding colonisation, has to a large extent been endorsed within a "paradigm of a static repository" (Dove et al. 2007). Without doubt this must now be recorded to re-establish the survival of various communities disrupted by globalising commercial management. Indigenous knowledge can be passed on during practical activities in a community meeting so that it is recollected and verbally transferred as narrative in very different genres. Among these knowledge and practices common to all the communities are the use of indigenous materials that are listed below in Table 4.2 and those in the category 'others' includes fired clay pots, fetching Yemoja spring water, salting, prayer/anointing oil, use of lime and kerosene. Indigenous knowledge and materials used in water management throughout Ondo have been seen as an alternative method of survival, since tap water or government water is no longer available in towns or cities, let alone villages. Across the LGA, the percentages of respondents' use of the indigenous materials among the women in the category 'Others' for the local management of water was highest (62.1%) at Ese-Odo (see Table 4.2). This percentage shows that villagers would still prefer these options (others) compared to other available indigenous materials. Ese-Odo has the highest use of the option 'Others' (62.1%, n=314) compared to other indigenous materials because of its higher dependence on stream water as opposed to Ile-Oluji and Ose which have wells and boreholes with lower dependence on stream water. Geographical location alone does not affect their adaptability and responses to indigenous knowledge and materials. Some other factors that could also be responsible are the level of education, their occupation, age and also

their cultural perception. However, the indigenous material in the category 'Others' under Ese-Odo was observed to be highest due to the fact that the villagers are more of a lower income bracket, and because of their strong cultural beliefs compared with other villages. This also applies to other coastal areas and villages in this region: the Irele, Okitipupa and Ijaw communities where women are mostly responsible for indigenous water management.

		INDIGENOUS MATERIALS					
		Alum	White Cloth Filter	Sand	Sun	Charcoal	Others
A	Ile-Oluji	13.3(%)	18.2(%)	-	-	12.2(%)	56.3(%)
	Ose	17.2(%)	16.2(%)	-	-	14.2(%)	52.4(%)
**LGA	Ese-Odo	11.8(%)	10.4(%)	-	-	15.7(%)	62.1(%)
	P=Value	0.339	0.248	-	-	0.251	0.087
	*X	2.165	2.785	-	-	2.767	11.04
	Df	2	2	-	-	2	6
B	Male	46.3(%)	8.7(%)	-	-	19.85(%)	25.15(%)
	Female	21.5(%)	29.1(%)	-	-	31.25(%)	18.15(%)
Gender	*P*=Value	0.484	0.487	-	-	-	0.346
	*X	0.489	0.483	-	-	-	0.889
	Df	1	1	-	-	-	1

** Local Government Area and research sites

* Mean Value of Pearson Chi-Square

Table 4.2 Relationship between gender and the use of indigenous material in water management across the selected research sites, 2017 (n = 314).

Table 4.2 in the lower B sections also shows the percentage gender relationship and their use of the various indigenous materials. Across the three LGAs, it was observed that women were more

likely to use various indigenous materials, compared with the men who were more interested in the use of alum (46.3 %, n=314). Women are, however, more involved in these activities because of their natural connection with water and their love for nature. Figure 4.4 further confirms that the role of women across the LGAs was more pronounced in their quest for Indigenous Water Management (IWM) materials and the distance they were ready to cover in the provision of potable water. Of the men in Ose, 15% (n=314) compared to 2% (n=314) of the men in Ese-Odo and Ile-Oluji would travel less than 1 km, whereas among the women there was a progressive increase in percentage of distance covered for IWM materials. Women would go as far as 4-6 km (n=314) across the three LGAs in search of IWM materials. I observed this every single time they needed to provide potable water for their entire household. Ese-Odo presented the lowest percentages for the use of IWM materials due to their peculiarity and their more spiritual approach.

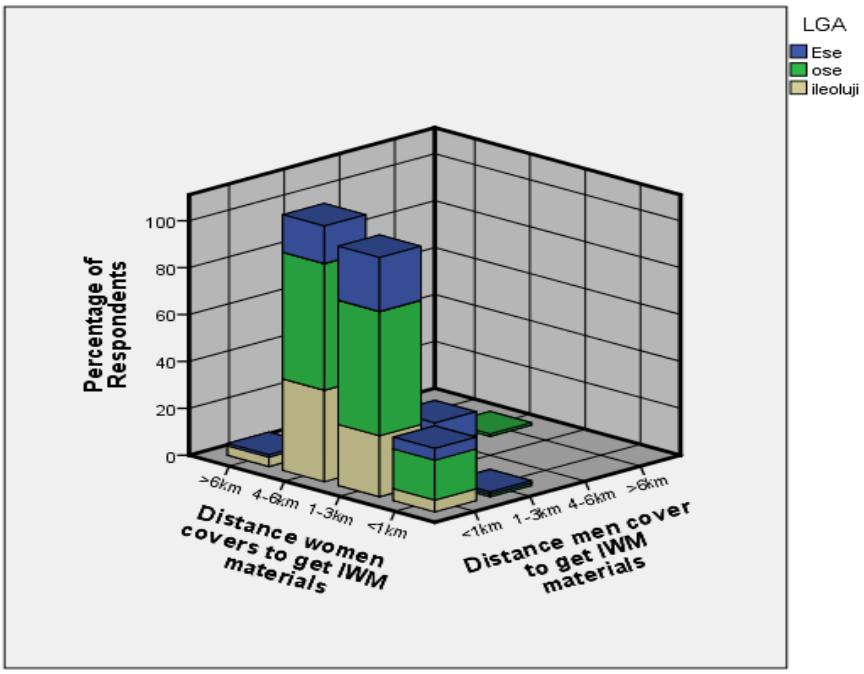


Figure 4.4: Comparing the distance men and women are willing to cover for IWM materials across the 3 LGAs, 2017 (n=314)

The role of water management has been shouldered by the women largely because they are seen as passive and primary beneficiaries of water. Caroline Moser and other scholars (Lewis, 2006: 420-437; Kemmis and Taggart, 2008: 271-330; Krumer, 2009: 279-296) have discussed women's needs in terms of practical and strategic gender needs while the cultural approach tries to meet their practical gender needs by making available things that would keep the women at home in the provision of potable water. However, this approach does not consider their strategic needs which might question the traditional / naturalised roles of women as the ones saddled with the responsibility of both domestic water provision and use. The formal recognition of the role of women as domestic water managers was first announced at the UN Water Conference, in Mar del Plata, Argentina, in 1977, where performance of this role was documented to be faced with factors such as inaccessibility and non-reliability of water sources arising primarily from the challenges of water quantity and quality and leading to heavy inputs of time and energy that are constantly responsible for their adverse health conditions and those of their families, as well as potential loss of their productivity and competences (Elmendorf and Isely, 1983). While all this does, in a way essentialise the role of women as being culturally domestic, it does also, arguably, recognise their importance in the context of water management. In India, rural water supply programmes aimed at installation of low-cost improved water technologies in local communities able to take care of the needs of rural women with respect to water, have been recognised (see Boelens and Zwarteveen 2002). The needs of local women in Nigeria are hardly recognised due to the heavy (also cultural) responsibility that overburdens them with other domestic labour.

Most of the villages in Ondo were observed to have shifted or 'downplayed' the result and effect of a participatory approach to indigenous water management (IWM). The present water crisis still being faced by the rural areas of Ondo shows that many of the poor women (and some of the men) are unable to live out their dreams and even support their families due to the

daily routine of potable water provision. Although both in theory and according to the respondents across the research sites, the men with the women believe that increased participatory efforts in indigenous water management practices can help improve not only the quality of the water they drink, but also the quantity. However, this is easier said than done, based on my interactions across the three communities, as the men are hardly involved in these practices except for planning and taking decisions. The source of potable water in Ese-Odo is the Yemoja spring, despite not providing a lot of water, it flows throughout the year. Figure 4.5 shows how the gender perception and the effectiveness of the IWM practices is implicated in the distance men and women were ready to cover in the provision of potable water. It was observed that men's perception and participation over the quality of the indigenous process is either minimal or culturally biased. Men would not go beyond 1 km (n=314) in the search for IWM materials. Women's participation in these processes was higher (18%, to 67%, n=314)] as shown in Figure 4.5.

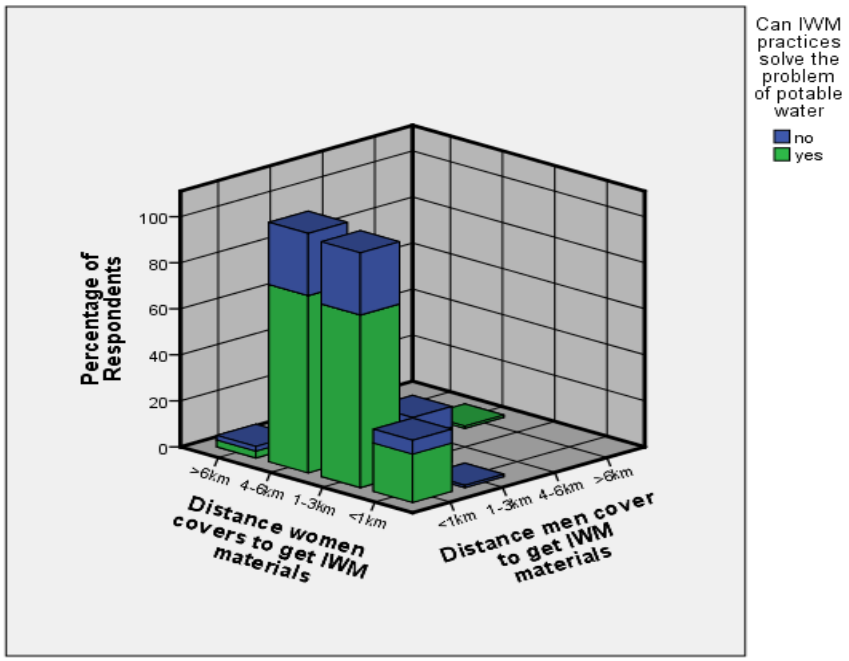


Figure 4.5: Perception about the relationship of the effectiveness of IWM practices and the distance covered by men and women for IWM materials, across the 3 LGAs, 2017 (n=314)

Hence, any indigenous water management initiative should not serve to reinforce existing inequalities; instead it should improve the opportunities to help support people's efforts to build more 'equitable societies' and economies. The importance of specific attention to gender and equality issues is all the more critical given the generally low profile of these issues among many rural water decision makers. The different roles of men and women in the household also affects their involvement in decision making and management of water facilities (Bhandari and Grant 2009). Therefore, since roles are different, effectiveness and performance of the local-based approach can be improved with both men and women's participation in the provision of potable water.

The following narratives from the female respondents have revealed the grudges and the dissatisfaction with the way in which the women are treated, not only in the issues of indigenous water management practices but also in community development. It was observed that without specific attention to gender issues and initiatives, projects can strengthen inequalities between women and men and even increase gender disproportions. Although many of the indigenous water management initiatives are thought to be 'gender neutral' (Bhandari and Grant 2009), this is hardly the case. Gaps between rich (wives of the kings) and poor women can often increase as a result of development interventions.

NARRATIVE 1

Aanu is a key informant from one of the council offices and she is 43 years old. She believes that equal participation in indigenous water management would make life so much easier for women by reducing the stress in indigenous water management procedures.

"Our water here cannot be taken without local management processes. After fetching we usually add alum for about 30-60 minutes and then filter it."

NARRATIVE 2

Mattar's source of water is the well. She mostly boils her water because when the children come in from the city, they will not drink unless it is boiled.

"Other times I just add alum and thereafter filter it. I do not think excluding the women group from Indigenous Water Management planning and decision would help us move forward. Presently, I am the only one among the women that has an opportunity to attend any of these meetings."

NARRATIVE 3

Grace is old and sickly, so she depends on her daughters to assist her with water management activities.

"If the men could assist properly, it would help the girls to do more better things with their life."

This view was shared by Eniola and Olaolu who are much younger and wish they had time to do other things; they need to put so much time into the IWM procedures that it affects their productivity. Issues around water management, most importantly local water management in the villages, require attention because women's way of life is critically affected even in ways not realised by the women themselves. Those who are aware can usually do nothing due to cultural stands. Interview gave them an opportunity to voice their concerns and experiences in the village. It was observed that there were three major levels or procedures required before potable water could be made available:

1. Identifying the right water sources, which comes with experience, most importantly for those using the stream as a source of water.

2. The distance covered to fetch water and how early, sometimes 4am, which is one of the biggest burdens.

3. Lastly, indigenous materials used which vary from alum to anointing oil depending on the community.

According to Charisma (2010: 11-26), "women in the global South and in the 21st century continue to fetch water for domestic use in the way they did at the end of the nineteenth century". It was their sole responsibility to provide both potable water and other domestic water each day. As much as this lifestyle has been accepted as their fate, they wished that some of this burden could either be removed or reduced. This is addressed by one of the feminists' theorists – see the contribution made by Nightingale (2011) who addresses intersectionality which is the discrimination and marginalisation of women which has led to different degrees of gendered hardships, physical labour, and public shame that has shaped the situated position of women within families, communities, and class groups in the communities. This is also as a result of their creative navigation of bodily practices (bodily practices and experiences including the wear and tear due to water labour and water-related health problems) and their life's circumstances which is impacted by their subjectivities and experience of difference (Nightingale 2011). During the 1960s and 1970s, feminist scholars observed that the major and primary source of a woman's marginalisation was the traditional patriarchal family – a major site for the subjugation of women. It was rightly argued that equality and equity desired by women are hampered when the patriarchal family is regarded as beneficial to social stability, hence keeping the women and the girl children trapped in local water management (see Laurie 2005 and O'Reilly et al. 2009).

Several female respondents shared their experiences with respect to the challenges of water management and provision:

NARRATIVE 4

"If you want very pure drinking water and you can cope with the stress, then you can first start with the charcoal overnight. Then in the morning you add the alum for about one hour then filter off. Some of us had resorted to using the charcoal and sometimes without the filters, because it can take about 40minutes to get the materials."

NARRATIVE 5

"Due to our culture, it is difficult for us to participate in the local water management (LWM) team because, the men are always busy with making all kinds of decisions and planning which sometimes does not require the presence of women. As one of the women leaders, I do not think that men are doing enough with respect to water management in this place."

NARRATIVE 6

"A good participation between men and women from my experience here would help to relieve the burden of water that is presently on the women making it impossible for them to get themselves empowered like the men, which is a reason for our backwardness. Now that I am retired, I use more of the charcoal and the clay pot because it is affordable, accessible and dependable in making sure that water is made clean."

Indigenous water management is an activity the women are used to doing and because it requires so much time, together with the food activities, they are left with little other time to do anything meaningful. Hence, most women remain at home and some try to open small shops in front of their houses. One of the respondents, although not a key informant, provided rich and sensitive

information about gender relations in indigenous water management. She had been engaging in various methods of local water management for over 40 years. She shared that they have been using boreholes as a major source of water for about 20 years now. According to the respondent in Narrative 4, she grew up fetching water from the streams and the major practices of women for water management involved using charcoal, alum and filter. She argued that keeping women away from the local water management meeting, planning and activities would not solve the present water challenges because women are skilled and passionate about providing water at the household level. While the men are only looking for an opportunity to make a profit from the LWM activity, the women are mostly interested in making sure that everyone has access to potable water with or without economic values. This does not allow for reform of gender relations. Duncker (2001: 39) presented statements made by women regarding how they feel 'inferior to men' claiming that men are 'still the heads of households', even if there are no men. Views from some of the respondents read as follows:

"Women can give suggestions and their views can be considered but not decision making, because women must agree and respect the men and so they should speak first and last."

The view that 'women can give suggestions and their views can be considered' was born out of their strong religious belief that men are the head and that women must continue to show their submissiveness even if they have to sacrifice a considerable amount: "God has a way of paying us back" (Duncker 2001, 39). However, while some of the women felt that the burden is being inflicted by their cultures, others viewed it as normal and felt that nothing could be done about it. The women who blamed culture insisted that the participation of women and men would go a long way, not only in reducing their burdens but also in helping women to be empowered and making the provision of water more sustainable in the village. These women further argued that the freedom of the women's group and its participation in the decision and planning process of the

indigenous water management team could bring a turnaround in the water challenges faced by their villages. They believed that women are endowed with skills and indigenous ability to know which source of water is best for drinking and the process required to get the water ready for drinking. Therefore, involving them in the process of indigenous water management processes can bring an end to life-threatening water issues. Other women who viewed this as normal and felt that nothing could be done claimed that the involvement of women is asking for too much in the hegemonic world of men. They accepted the supremacy of men in the planning and decision-making around indigenous water management because, according to religious creeds, men must always be the head while women stay back at home to fulfil the desires of their men.

Female respondents in Ese-Odo shared the following:

NARRATIVE 7

"Various things are being used in the management of the rural water, the one I use very well is the addition of a little salt to the water. We do not like to talk about the spiritual (Yemoja) source of water, because it is out of respect to conceal it. Nevertheless, a good cooperation from the men and appreciation of the effort of the women would go a long way to reduce the challenges of portable water here."

NARRATIVE 8

"Water from the Yemoja spring source does not need a serious management, except that during the rainy season, the water could be a little cloudy, and then we have to add either alum or salt before filtering. She believes that the man is the head over everything by the power of God, and anyone trying to bring him down by making him do things that are outside his duty or role like fetching water is bringing the wrath of God on herself."

Ese-Odo is a coastal area and the major source of water is the streams. The streams are closer and is a relatively pure source which has been handed over to them by their forefathers. Water from the Yemoja stream offers very clean water all year round; it is not affected by seasons. Both the male and female participants in this coastal community accept that the burden of potable water provision is huge on the women and the girl child; however, they see this as an act of God which should not be altered at the household level, since women were made to serve the men. Water and food is the duty of the women in the home. A close look at the various narratives from women showed that the majority are not happy that since they are seen to be the principal beneficiaries from water, they are naturally, or rather culturally compelled, to bear the burden of potable water provisions alone.

Other female respondents shared:

NARRATIVE 9

"The Yemoja sources are of two types, there is one which is very close and that is what most people fetch. The other source is farther away from the bank of the river and can only be accessed with the use of a canoe. A good participation from the men however, would definitely make the risk and the burden in the provision of potable water a shared one."

NARRATIVE 10

"Any woman whose husband is seen around water is a witch, meaning that she must have hypnotised or put her husband under a spell so as not to be able to stand his ground and retain his power as a man."

Although there are policies both in terms of good representation in water-project steering committees and regarding easing the burden placed on women in the rural areas, these policies do not automatically ease their burdens of the provision of potable water for their households. Consequently, in South Africa a review of gender-balanced policy in water delivery and management *(Agenda Issues)* (Mehta 2006) raised the question of the very 'slow advancement' in improving the participation of women within the water sector globally. This agrees with the research by Singh (2008), which shows that studies around the world 'implicate women' as being responsible for the reproductive activities of cooking, cleaning and care, and that they are the primarily more into local water management activities. Water for various household uses is mainly fetched, transported, stored in clay pots and managed by rural women, thereby leaving women with little time to effectively participate in local water management due to their domestic responsibilities (cf. Moser 1994, on women's triple role), which makes it impossible to address their SGN while meeting their PGN. This same group also argued that the involvement of men in the role accorded to women by God, could be against the commands of God. Therefore, they do not want to be part of the activities of men in the planning and decision-making around potable water; they simply want to continue to do what they can do. As much as villagers have their own rights to their views, it is important to note that advocacy for gender-balanced participation is difficult, if not many women see the importance of equality in gender participation in IWM practices.

Remilekun

"The clay pot plays a lot of roles like making the dirt in the water to settle faster, makes the water more natural and tasteless, then cools the water faster. After fetching water from the stream, I will collect any of the trees growing in the same water and use it to wipe off the surface of the fetched water, then pour it inside the clay pot."

Ebigbola

"Most boreholes are like 400 feet deep while the wells are about 40-70 feet down. We buy water here, and I think very many of us buy water here because it is expensive to dig a borehole. I prefer to boil water but when this is not possible, I just drink it like that. My major challenge is the availability of the water which is very difficult to find around. Most of the water here is good but difficult to get. I do not see any problem with the participation of women in IWM."

The views of some of the men did not sound different from the women, most importantly regarding equal participation of the women in indigenous water management. However, it is not what they actually practise. Men are seen as the head of the household, and when it comes to domestic activities like cooking and fetching water, they are naturally exempted. At the community level, where decisions and planning are made, the men are regarded as the head. However, some of the women believe that if water issues were allowed to be deliberated on by the women who are mostly affected by them, there would have been solutions many years ago. The common denominator among the male respondents' views is that equal participation is a good idea, although they feel that this must be done carefully, because not all women are submissive, and it could make women misuse the opportunity because they cannot manage power well.

NARRATIVE 14

Bamidele is 48 years old and was born in Ifon. His source of water is the borehole which, by his own assessment, is not very clean.

"We have to go through the local or indigenous methods of making the water potable. I know I have to do some little extra things to make water potable, but I do not have the time."

NARRATIVE 15

Adefemi, also born in Ifon 27 years ago, has been involved in various IWM approaches. Since his major source of water is the borehole, and he is not sure of the cleanliness of the water, he uses alum and then filters to make the water safe enough for drinking.

"I think an equal participation of men and women in indigenous water management practices is good but not feasible."

Indigenous water management practices have been undertaken for more than 30 years. Residents in this particular community buy the water they use from water vendors, which is not very clean, but all the men do is make sure that filters (white cloth) are readily available for use. According to Adefemi (one of the participants in the interview), this approach has been useful for his family members although they wish to do more than simply use filters. He also agrees with others from his community in Ifon that good participation can enhance better availability of water. However, some of the men believe that equal involvement between men and women is good but not possible because the women are better managers of water at home, "since we are hardly available for things like that", but not at the community level where women are also not available since they cannot neglect their roles at home to handle community responsibilities; this was also argued by Nightingale (2006), that there is a "need to study gender as a socially-constructed concept and how gender roles change, which is revealed by struggles over limited resources". This can only be achieved by viewing 'gender as a process', as Nightingale did, hence making it possible to evaluate how "subjectivities and interactions with developmental projects and the environment changes in the course of time" (2006, 165-185).

The following narratives are excerpts from the male respondents with respect to their views on equal participation in indigenous water management beyond their homes.

Chief Alabeni

"As a chief, I have more than one wife and I think equal participation among women and men beyond the homes with respect to indigenous water management is welcomed. But as a religious man I am not sure that would be accepted by God and culture because women are meant to be restricted to their house duties which are so much."

Ajakaye

"I am a traditionalist and believe that the role of women if allowed at the community level can bring a lot of changes to the issues of water confronting them and all of us, because we know and appreciate their role in water management at home. If this knowledge and skills is allowed at the community level with the little available resources things might get better."

Akinyemi

"All my life, my approach to IWM practices has been 'always fetch rightly and drink fresh'. Sometimes, after fetching from the stream we can use charcoal, filters and clay pot to manage the water. Like the men in general I think equal opportunity into indigenous water management planning and processes would be giving women too much power that they cannot cope with due to their weakness."

Chief Alabeni is a key informant in Ese-Odo. He is 62 years old and has been assisting in indigenous water management practices for over 50 years. The source of water here is the stream and occasionally, rain. He argued that a collective working together between the men and the women would yield great results with respect to providing quality water and improving the available water. This participant meant by 'fetch rightly' that there is a particular section of the stream that is supplied by Yemoja and that is where to get drinking water. He has not for once added anything to his water. He collects and drinks it like that, because the leaves like plates on

the surface of the water have their own cleansing power, so they do not remove them. He said that was an inherited knowledge and it has not failed once. However, his perception about an equal participation is more one of being indifferent, because he thinks that even if women would be given an equal space to function, what would happen to their daily house responsibilities? Most of the above narratives across the study sites from Ile-Oluji through Ose to Ese-Odo implicate men's bias about equal participation in the indigenous water management planning, processes and practices. Generally, it was observed that the men do not fetch the water unless it has it has its source in the house or very close to their home and they would not allow the women into their meetings at the community level for reasons not given but seemingly related to the pride of men. Men would not go farther than a distance of less than 1 km, whereas the women, regardless of the distance, would do anything to make sure that water is provided, and whatever has to be done to make it potable, is done.

Hence, the perception about unequal participation can be as a result of culturally and religiously-held beliefs. This of course was observed to have put a heavy burden on the women to the point that even if they wanted to do things that would help their families and communities, their stressful lives would make it impossible. Hence, involving both women and men in indigenous water management initiatives can increase project effectiveness and efficiency. Participation by both women and men improves project performance and improves the likelihood of sustainability across Ondo. In other words, a project is more likely to achieve what planners hope if the women and men (both rich and poor) are active participants and decision-makers, and not women being practitioners while the men are the decision makers. Nevertheless, understanding the different gender roles, relations and inequalities between women and men can influence how individuals respond to changes in water and can help explain their choices with respect to water sources and management practices. In most villages, the men are always and customarily richer than women, which gives them the power and the voice needed in decision-making among these communities.

Hence, women (and poor men) generally are less likely to be considered for positions on water committees or rural development committees.

4.5 Conclusion

Gender participation and equality in rural water management has been documented to facilitate women's strategic gender needs and practical gender needs. It is important to reduce the burden of potable water provision on women which has been observed from all the study sites as a major problem that can cause the migration of the younger men and women to the cities. Gender awareness and sensitivity among the men could potentially re-order the perceived cultural role of women, limiting them to reproduction and as household managers of water by bringing them into active involvement in community development, especially as it relates to rural water management. In the next chapter I will discuss the impact of stereotyping in indigenous water management and how various perceptions about the participation of women in rural water management beyond the household has affected their livelihood.

CHAPTER FIVE

ACCESS TO POTABLE WATER AND GENDER STEREOTYPES

5.1 Stereotypes and Perceptions in Indigenous Water Management

Ondo, like other communities across the globe, especially in the rural areas, operates with a patriarchal system which is similar to what was observed at the research sites where the women's voices remain invisible beyond their homes. This was expressed and investigated during the FGDs and the in-depth interviews when male and female respondents were asked about their perceptions on the role of women in rural water management, both at home and in the community. At the household level, the burden of the provision of potable water falls on the shoulders of the women. This makes it impossible for them, for reasons discussed earlier like their weak socio-economic power and lack of education, to productively engage with their male counterparts or actively participate in water management activities at the community level. By way of community awareness movements and engaging of the women in supervisory positions, stereotypical sentiments around women can be dismantled, with respect to their involvement in rural water management. O'Reilly (2006: 958-972) also agreed with the notion that gender stereotypes can be "dismantled during rural projects by making desirable alternatives available to the women which could be constructed through awareness raising targeted at specific group like the traditional heads".

5.1.1 The Perceived Role of Women versus Men in Indigenous Water Management

Stereotyping among the rural population in Ondo has been entrenched into the way of life so that it has become a norm. Whatever does not conform to this norm is therefore seen to be defiant of culture and the way of life of the people. One might assume that this practice should not be seen in issues around water management because the scarcity of potable water is experienced by all, irrespective of gender, and it affects everyone almost equally. Both males and females across rural

communities have been moulded either by fate, class or education into a particular role around indigenous water management practices, which has continued to affect the availability of potable water among rural settlers without access to pipe-borne water. While the women are continuously being mentioned as the 'beneficiaries' of water management and approaches, they are never involved in the decision and planning process of indigenous water management, which is always dominated by men (Finn and Jackson 2011). However, Elmhirst and Resurreccion (2008) argued that such approaches, due to the ways in which they support gender stereotypes, create additional burdens for women by reinforcing the male hegemony in indigenous water management. The gender and development (GAD) approach aims to re-integrate gender into all development systems, structures and practices by promoting changes in institutional practice, women's empowerment and gender equality (see Elmhirst and Resurreccion, 2008).

The following narratives from women across the selected rural communities reveal how gender stereotypes are being practised unconsciously among the rural dwellers and the way in which this has impacted on the availability of and access to potable water in the villages.

NARRATIVE 1

Aanu

Aanu is 43 years old and was born in Ile-Oluji. She gets her water from the stream and the well. While she was growing up, she observed all forms of water management practices. When she was 20 years old she began using alums and white cloth for filters, so as to make their water potable. She believes that village life is relatively hopeless with respect to the quality of potable water.

"You can see why I cannot but wake up at 3:30am every day. By 5:30 or latest 6:00am, I would be through with the fetching of water, the next is the indigenous processes which will end around 8am. We must do this every day, so that we can have potable water for the next day. Another side

to the challenge of water management is the buying of local materials used for management. All the materials are purchased from the market in the town, which is far from here, about 45 minutes on motorcycle."

NARRATIVE 2

Mattar

Mattar is 40 years old and she gets her water mainly from the well. She has been actively participating in indigenous water management practices for over 25 years now. She was not born in Ile-Oluji but was brought into the village at a young age. She believes that indigenous water management approaches are very helpful.

"I did not complain when I was younger, so I cannot now because that is the way of women which is provide potable water regardless of the stress, and that is the life we have chosen from God. Before 10:30 am I am through with all the water activities. I think these days, things are changing and some of our women want to be doing what the men are doing, I think that is against God and reversing the order of God."

NARRATIVE 3

Grace

Grace who came into Ile-Oluji in her twenties is 65 years old. She inherited the indigenous water management practice she is using now. She gets her water from the stream and the well. She said everyone in this village uses alum and filter cloth for indigenous water management. She complained of the stress.

"Really, we are helpless, because a woman does not have a voice in this community and so there is no point trying to make a point. After every day's activity of getting water and making some of

it potable, thereafter providing food for the house hold, we are so tired and useless such that most women are either sleeping or resting or just lying down on their bed to catch their breath at between 10am and 2pm."

Apart from the challenge of access to water, access to some of the materials used for water management (also the responsibility of the women) is another problem. Men do not take on this role and the women have somehow accepted it as a cross that they must bear due to their gender. Their 'culture' forbids complaining as a woman, hence from what they shared, they have to suffer in silence. Among other challenging experiences is that when decisions around water are taken at the community level, women are neither consulted nor are their needs considered. Community-level meetings comprising of men only relate to the women through the wife of the community high chief. The only responsibility giving to the women at the community level is to cook during their meeting, which the men believe is one of the fundamental roles of the women. Efforts to enhance community participation where women and men have an input into their development conflicts with local 'socio-political complexities' (Agarwal, Delos-Angeles and Bhatia 2002). While the core role of women in water management in the 'Global South' has been widely studied (Agarwal et al. 2002; Bakker 2007), it is not yet clear how exactly 'gender and power' are being maintained by 'social hierarchies and stereotypes', according to Shah Scott and Buechler, 2004, 361–70).

NARRATIVE 4

Bidemi is a poor widow aged 62 years old with three daughters and four boys. All seven children live with her and some have their own children. Like every other person around the community, her source of water is the borehole. She is lucky to still have her daughters with her to share the burden of water provision and management.

"You can see I have a large family, and I am the head of this house, how much water can we buy that would satisfy this crowd, so we have to buy a few good ones for drinking and go for the free water that is not good, since we have a way of taking care of them to make potable water."

She grew up to know the stream as their source of water. She has been drinking from this water since her parents were alive. Her own children have also drunk from this source and no cases of illness have been attributed to the water.

"We were promised, that we would have some representative in the committee that would be selected, but I can tell till date none of us was called, but what they do is put the wife of the king as secretary of the committee. You can see the problem, can the wife of the king speak against her husband or the chiefs, no she will never do such a thing, even when she sees something wrong, she would look away. We have complained enough now everyone is trying to survive by themselves, since no one is out there to assist us, now I am getting old I do not want to be seen as rebel, for the sake of my children, I have stopped fighting for our participation."

NARRATIVE 5

Kokumo is younger (38 years old) and does not accept the way women are being treated in the issue of water management.

"Although we have a large body of water, you cannot just enter and collect the water, you collect from the Yemoja source which is the safest point of collection on the stream. It is really not a very big spring of water, which I think you have seen, but clean and has healing powers in it. It is a difficult life; the women are all alone in this practice. I am just saying this, I cannot say it louder than this because I would be labelled as a bad woman, not even by the men, but by my fellow women who are facing this same problem, but either scared to open up or talk about the unfairness of the men."

In Ese-Odo, women here wake early too to fetch from the Yemoja spring water source at the bank of the river. After collection of this water, they need to wait a while or come back in the evening, in order for the spring to replenish itself.[21] The other option is to use a boat to go further from the bank to get water from the main Yemoja spring, which is huge. This location is, however, dangerous, because at that point the water is very deep. The women all stated that their men do not fetch water or engage in local water management; their effort is primarily for the future of their children. The committee that looks after the water does not allow the women to take an active role in water management meetings – all the women do is make sure that food is available each time there is a meeting.

NARRATIVE 6

Romoke is 50 years old and from the same village as the participant in Narrative 5. She also believes that although the role of women with regard to water management, most importantly in the house, is the sole responsibility of women, some mercy should be shown: women should be allowed some kind of assistance in the home water management activities and should be given a voice at the community level with respect to water management too.

"These simple steps start every day at about 4:00am and ends at about 8:00am and can be more, depending on the number of people fetching the water that day. Well I have been doing this since I was fourteen years old, it is almost like an addiction for the women. All my children are in the town far away from here, so I still have to do it since there is no other water available for us here. This is a woman's role and but if the men can give us some assistance, this would mean the world to us. I do not think this is fair, and I believe there are more meaningful activities a woman too

[21] Yemoja spring water

can be engaged with that cannot just help the family but the community, but where is the time to do them."

Narratives 4 to 6 reveal the reflections of women with respect to their cultural role in the indigenous water management activities. One of the women from my interactions with over 15 women stood out: she was curious to know what the questions about equal participation would achieve in the management of their water. She did not see the usefulness of equal participation; she believed that the issues around water can only be successfully managed by men as this is part of a role given to them by God. She observed that recently people (women) are beginning to grumble about their activities in IWM activities, which she does not see a need for. She is over 60 years old, and alongside the cultural beliefs about why women should not complain or expect the assistance of men in water management, are strong religious sentiments, revealing that, from Creation, God had already made the man to be above the woman, and that a woman was supposed to learn in submission and serve with submission. She quoted from the Bible where Sarah called Abraham her lord *"like Sarah, who obeyed Abraham and called him her lord"* (1 Peter 3:6). She argued that women who are pushing for 'all that nonsense' about equal participation do not understand the order of God in the way things should be done. Although she agreed that the burden of water provision is huge and that assistance should be sought from the government, she felt it should not be sought from the men because, by doing so, one is trying to rearrange the order of God.

Other women did not share this opinion. These women were interviewed separately though even in the FGD the pain of the women was evident and some were clearly scared to show their feelings because of what people might say. But, due to the open discussion during the FGD, they all eventually shared their pain. More than 95% of the women agreed and argued separately that the present challenges they are faced with as a community with respect to potable water are due to

the little or no assistance from the men and their low or no involvement at the community level. The women all said that their involvement in household management is huge and 'killing', coupled with the fact that water is becoming scarce and more difficult to access in the villages, and that the management of it, which has always been a 'woman issue', is gradually becoming unbearable. They all suggested that although their role in indigenous water management activities is clear, most importantly at the level of the house, equal participation would go a long way not just to relieve their burden but "*because we are human beings too"* (Romoke).

They described the collection of water which they do daily very early in the morning (some as early as 3:30am) until around 7:30am and would then proceed with management for around two hours which makes the water potable. Therefore, altogether every day, the time spent on indigenous water management activities starts at 3:30am and ends about 9:30am, which is aside from other regular household chores like cooking, which must also be done daily. These women lamented how much else they could have done in that time. Furthermore, it was observed that even at the community meetings and planning with respect to water management and community development, women in all these villages only had as their representatives, the wife of either the king or the high chief, who thereafter would call a women's meeting to give them feedback on the developments in the community. Generally, women across these villages do not have a voice.

Male respondents also shared their challenges with respect to water management and their perceptions about the role of women.

NARRATIVE 7

Dipo is 35 years old and his perspective about the activities of women and their involvement in indigenous water management differed from most of the other men. He is from Ose, where they depend on a borehole because it is about 300 feet deep, unlike the well in Ile-Oluji that is just 60

feet deep. A further difference here is that water is predominantly sold from the compound or by individuals who can afford the cost of having a borehole at their houses.

"How much water are we going to buy that would be enough for each day?"

Dipo is somewhat sympathetic towards the women, especially his wife. He narrates their ordeal*;*

"She wakes up very early in the morning (5am) to fetch water and would not be through with just fetching until around 9am, because she has to go to more than one point to buy. If I put the distance from all of this point together, daily she covers about 3km just to fetch or buy water, I can tell you that the men do not do this because this role has been designated to the women."

NARRATIVE 8

Adefemi is quite young (37) and has a girlfriend who has two boys from him already. His view on the role and impact of women is that it is not different from those of the men. He believes that women, or at least his wife, have no other role other than to look after the children and make sure that, among others, potable water is readily available for him and the children. Like everyone else, their source of water is the same (borehole) and they have to queue to buy and fetch water.

"Water is not easy to get here, one day I wish I am able to dig the borehole too in my house because this problem of fetching water is not easy. As her role is, every day she is up at 5am to start the water activities and then around 8:30/9am she would be through with all the management activities to make sure that water is available and potable for drinking. The role of women in making sure potable water is always available is undoubtedly commendable and cannot be brushed aside. The amount of water or potable water available for us every day is the amount she is able to fetch daily. After fetching, she then adds alum to it for about an hour, then it is ready for use and drinking. Majorly my wife and her sister are responsible for these activities, when she is done she then goes to her shop where she is selling a few things. Over 2km is covered

just because of water, you can see why I said I must have my own, and such that when she is through she is already too tired to open the shop early in the morning."

Adefemi does not fetch water, as this is not the duty of men in their village. He said he knows his role and his wife should know her duty and then everyone can be happy doing what they are meant to be doing.

NARRATIVE 9

Chief Alabeni from Ese-Odo who is 62 years of age has a different source of water from the respondents in Narratives 7 and 8. The chief believes strongly that the women should stick to their roles and should not think otherwise due to civilisation and modernisation, because it will only cause more problems.

"When I had the first wife, she wakes up as early as 5:30am to go to the stream with women in the village, they would for about five to six times before we have what is enough for the house. But now they are three, most time they rotate their roles or do it together to make it faster. You can see that the women cannot be brushed aside when it comes to water management in the house."

NARRATIVE 10

Olubode is 48 years old. He inherited the local water management practices from his parents. He said the women would be able to say more because water activities are part of their daily business.

All I can say is that they are trying to make water available in the house most especially drinking water. The women wake up very early in the morning around 5:30am to go to the stream. She would only be through with fetching around 8:30 in the morning and put alum and or charcoal till the next day. You can see that she has to do it every day or else, there will not be water for the next day. She also adds a drop of kerosene to make sure that taste is like that of the tap borne

water, the one they drink in some places in town. She is able to do this effectively because there are no other women around to distract her or make her start to gossip about things that could cause a fight in the community. When she is done she would then join me in the farm to bring the harvested food back home or if there are no harvest, she brings back all the tools and materials used in the farm."

The multiple narratives are presented here in an attempt to allow the reader to 'get inside' the lived experiences of the villagers and portray a multitude of issues and emotions.

Ese-Odo is slightly different from other communities in that it is riverine and the residents here depend on the stream for water. The men claim that issues around water management are the women's responsibility, and that it has always been like that since they were born, and it will continue to be. It is a lot of work, they acknowledge, and after all the activities often they have to go back to sleep because they have been up since very early in the morning. The men do not participate in these activities; this is not an act of 'deliberate wickedness', they said, simply a way of sustaining the culture that has been handed down to them. For them, it would be strange to see a man participating in the activities, most especially in the fetching of water or the household management of water. It was observed that they appreciated the efforts of the women but that they hardly communicated this to the women, so that it did not affect their effectiveness and productivity in the area of water management. They expressed their concern about the interviews, especially among their women, because they thought these kinds of questions might not be good for their women who might start to say things that could affect their normal daily activities. This shows that the men were threatened by what might come to light from this study. One of the male respondents said:

"I would not want you to ask my wife any questions, everything you have to know is what I am already telling you now. If you are not satisfied, you can ask me again, I will tell and explain to you, but you would not ask her anything."

The men, because of the impact of religion, also see the women as positioned under them in a way that is not equal to men. Therefore, they argue that any right-thinking man would keep his wife at home so that she can effectively perform her God-endowed basic functions. It would be hard, except for the wife of the high chief, to show an interest in being part of the indigenous water management procedures because the women know their roles and are made to feel they shouod trust the men, even though they are dissatisfied, to perform their roles without any problems. Some of the male respondents confirmed that women are central to the management of water at the household level but not so much at the community level. They also confirmed that men have their own schedules different from the women designated either by culture or by God. Men did think the women could have an impact if allowed in indigenous water management decisions and planning, but they are not ready to give up either their culture or beliefs. The different roles performed by men and women in the application of indigenous knowledge practices (IKP) in water management processes reflect the power relations in societies and their impact on gender. Women are faced with the burdens of ensuring that their households have enough potable water, and in so doing perform most of the tasks. Dávila and Nieves (2005: 49) agreed with this claim and maintained that most water sector decisions continue to be made based on the false assumption that they are gender neutral, that the population is a 'homogenous whole', and that benefits reach everyone equally, which is not true because the benefits are largely for the men while the labour is for the women.

In reality, the right of women to water is not acknowledged. Significantly, gender divisions that apportion many water responsibilities to women but confer most controls and rights to men, are

experienced in most water issues. These divisions differ in the domestic water sector and the irrigation sector. Gender differences are paramount in the priorities chosen by men and women for water use and water management (Rutgerd and Zwarteveen 2002). When only the men are permitted and have the opportunity due to the framework of water management project planning, valuable opportunities to build the most operational community water schemes can be lost in a given community. Sandys (2005) argued that promoting equitable water resource management involves the abolition of gender biases as a key instrument for developing the efficiency and reach of water sector investments. Hence, making the water issues more comfortable for women would necessitate modifications at many different levels and in many different arenas. It involves altering divisions of labour that presently assign water responsibilities to women without allowing them the accompanying rights by changing the current routines of public decision-making that would encourage and necessitate women participation (O'Reilly 2008).

In all the study sites, women were allocated particular roles, one of which was the provision of potable water for their households which, in all of the study sites, is a huge problem since water is not readily available and what is available cannot be taken unless it is properly managed. Due to culture and religious beliefs, the woman must always be at home to look after the house and, most importantly, provide food and potable water. In all study sites, the men strongly resisted any attempt to talk them into assisting their wife in household water management and give them opportunities to contribute at the community level. It was made clear that even the women themselves would resist any form of assistance, because nobody would want their husband to be ridiculed and become a laughing stock in the community. Nobody would want to be called a witch or be labelled to have bewitched or cast a spell on her husband. A large percentage of the women appeared to be dissatisfied with all these roles and wanted some form of assistance from their husbands and to be given an opportunity to be part of the local management water scheme. Less than 2% of the men saw the need for the women to be assisted and be allowed to be part of the

local water management schemes. This is all an obvious display of male supremacy in rural water management and supply, in which the importance of the role of men is emphasised while the role of the women, especially in the community, is overlooked or underplayed (see Van Wijk-Sijbesma 1985, 1998; Hemson 2002; Singh 2008). Recognising the hegemonic nature of these routines and the struggle of changing them, women in the northern part of Burkina Faso are presently refusing to marry into villages where there are huge water issues, because it is obvious that the burden of water provision and management will not be shared. However, the question of how the low level of women's participation will affect the longer-term sustainability and management of water projects is a complex one. Nevertheless, development practitioners have been able to argue that projects like issues of potable water would be more sustainable if those whose lives are most affected were in control or played an important role in the management.[22]

Some women seek equal participation, which could alleviate the burden of water production and make the stress a shared one such that women too can a participate in a productive life aside from their reproductive function (see Van Koppen 2001 and Gleitsmann et al. date?). They argue that the organisation of reproductive and productive roles, which are presented in various forms of literature on gender and the household, should indicate a 'gendered division of labour' in provision, uses and management of water (Van Koppen 2001; Gill and Maclean 2002). This was hardly the case in all the communities under study as a gendered division of labour was against faith and cultural tenets. Local water management consists of many activities that start very early in the morning with different responsibilities revolving around fetching, managing and using water as well as paying for water from vendors. All these activities were also observed to have

[22] Although, this argument seems irrefutable, regrettably it has been difficult for researchers to link the level of participation of women with the sustainability of projects, as there are also many superfluous features involved in project failure apart from women's participation only, and these issues lie outside the purview of this study.

affected the educational and productivity level of the women in all of these communities, as substantiated in the quantitative analysis.

5.1.2 Perceptions about the Participation of Women in the Local Water Management Team

Water and its management are supposed to be a public affair as much as water is accepted to be a public good, which should be available, accessible and affordable to everyone in a community. However, these villages are a typical model for a hierarchical system, driven by class and gender discriminations (see O'Reilly, 2008).

The excerpts of the following female respondents in the qualitative narratives also show the perceptions of different women during the FGDs and the in-depth interviews.

NARRATIVE 1

Olaolu

Olaolu is 44 years old and she has been engaged with the indigenous water management procedures ever since she was young. Whatever she is doing now was learned a very long time ago from her parents. Her sources of water in the house are the stream and well. She has been using a special clay pot to keep her water after adding alum and filtering.

"We are the ones solving the issues around water at home, why would their own be an issue or be difficult. They know that if we are involved, some of them might be rendered jobless, because some of them do not even know what they are doing, all they are waiting for is when to share the next political money."

NARRATIVE 2

Olomo

Olomo is 61 years old and was born in Ose. She has been actively using the indigenous water management methods for 40 years. Her source of water is the borehole.

"All we want is let this water system be working well so that everyone can start to fetch from here, and the stress of looking for well or waking too early which is very dangerous would stop. Most of the women know what they are doing, but the men would want us to stay away from such meetings because almost all the women here did not go to school but the men had schooling opportunity."

In the FGD, the women showed some restraint about the discussion of their participation in the local water management activities, and none of them were going to talk about their challenges publicly. Olaolu, who is a key informant, said the presence of women in indigenous water management at the community level would solve all these problems. This was also supported by Olomo who lives in same village (Ile-Oluji). She shared that there would not be good water without the women because of their natural love for it. Hence, whatever it would cost, they were ready to pay to get good water. However, Mattar, one of the female participants, for fear of the backlash from men, was unwilling to talk about her challenges and said she would prefer to stay at home.

"The tasks at home are much and you struggle to finish every day why you are trying to add other community activities to our responsibilities."

Moreover, she felt that asking a woman to be part of the community water management team would be adding to her burdens.

NARRATIVE 4

Grace argued that all women should allow the men to perform their functions and do what they need to do while women should continue to play their role in the provision and management of potable water at the home. The narrative below also reveals complex issues of gender and, to an extent, cultural complicity on the part of women, who 'accept' that the man is the 'head' and part of God's plan. Grace shared:

"The men are sufficient to cause a change in the issues around water, because God made them the head and they would always be regardless of how much we may know and can do. Pushing to be part of what the men are doing in the matter of water management would be going beyond ones' limit, which is called pride. Sometimes they can invite us, even at that you do not count it as a right, it is only a privilege."

NARRATIVE 5

Eniola

Eniola inherited the indigenous water management methods she uses. She depends mostly on the well for drinking. She thinks the water is clean enough for drinking without the use of alums and filters which she grew up seeing people use.

"We do these things every time and they only do meetings and even some of the things the use they ask us at home, I think if they allow us to be actively involved in this local water management process, there would surely be an improvement, more specially, when there are opportunities the women should seize it. It is all about contributing to the development and the survival of our people, women would not be asking for too much because eventually everyone would benefit from it. Yes, it is true our religion in a way forbids us from these public activities, however we should

not fold our hands when we know we have the capacity to render a helping hand on issues that affects everyone together."

The preceding narratives are revealing. However, Eniola disagreed with Grace feeling that men should be kind enough to hear the women, "*because we are well experienced and knowledgeable too*". This, if employed at the community level too, could turn around the present water challenges. However, male cultural perceptions about the role of the women would make this difficult. Since gender relations are based on attitudes, perceptions and behavioural patterns between men and women, this would affect the socially-constructed practices that manifest themselves in the division of labour, roles, responsibilities and access to resources such as water (see Agarwal 1994, 1997; Parpart et al. 2000; Rao and Kelleher 2005).

NARRATIVE 6

Bimbo

Bimbo is 38 years old. She was born in Ese-Odo and, since then, she has been involved in the household water management. In her opinion, the indigenous water management practices are solving their water challenges, more especially with the addition of salt to water fetched from the Yemoja spring which flows all through the year.

"Do not forget that we are still the one managing and providing potable water at home, and there has not been complaints at any time. If women are included in the local water management, this would solve a lot of the water issues we are faced with. Every human being is limited, only God that is unlimited, therefore they should know that God did not create the women or the men to operate alone."

NARRATIVE 7

Kehinde

Kehinde is 49 years old. She was born in Ese-Odo and has used an indigenous water management approach for the provision of potable water. Her primary source of water is streams and the seasonal rainfall. According to her, the most important part of the indigenous water management approach is knowing where to fetch the water. Unless you are told you cannot identify the Yemoja spring water.

"No community can make much progress if they continue to keep their women away from issues of community development especially around water issues. We know so much about water and still they would hardly allow us to participate in the local water management scheme. I know that one of the reasons is just to keep us away from the financial benefit, which we are not keen about. All we are after is for the problem of water here to be solved, which is a possibility if only we can put our pride aside and work together."

NARRATIVE 8

Bidemi

Bidemi is 62 years old. She has been participating in the indigenous water management practices for about 50 years. She fetches water from a neighbour's borehole or buys it from the water vendors.

"There are trainings we actually went through from our mothers while we were growing up when there was very little civilisation, which some of the men are aware of. These skills and indigenous knowledge had preserved us up until now, with nobody complaining about anything. Some of this knowledge has been improved, like while we solely use some leaves then and some spiritual

means, now we hardly use spiritual means except that we still fetch from the Yemoja source, then put very little salt into it, but make sure the water is stored in clay pot immersed halfway into the earth."

As the above narratives reveal, every woman in Ese-Odo insisted that the participation of women would bring a dramatic change into the water management scheme because they are badly affected. Although at the FGD they could not express these much, one could read dissatisfaction in their faces, mixed with a little fear. It appeared the lack of talking in the FGD was because no one wanted to be found reporting to her husband or talking about her husband in group. Barreteau, Bots and Daniell (2010) further expressed that identifying various benefits of full and equal participation ranging from increased legitimacy of decisions to the development of participatory democracy, in addition to representative democracy, is an action in the direction of a sustainable development. Some of the benefits of participation which are also in line with the Gender Participation Paradigm are:

- Qualitative decisions: When the knowledge, skills and ideas of different actors across gender is brought together and, properly integrated, this can lead to good decisions.

- Acceptance of decisions: By involving people who are mostly affected by the decision, a wider arrangement can be achieved, which will generally be accepted by all for execution.

- Advancement of social capital: Through the participatory process, intensive interaction of respondents can build new networks which, in turn, can make it easier solve problems and new conflicts in the future.

An FGD interaction with the various interviews conducted among the men sheds light onto why this is predominant around each village in Ondo, as shown in the narratives below. Even while they appeared to praise the women for their domestic work, they simultaneously provided their own rationale for why the women could not participate.

The following excerpts also show the men's perceptions about why the women cannot be part of the local water management team.

NARRATIVE 9

Josiah is one of the first men that settled in Agric farm, Ile-Oluji.

"I do not think they should be allowed into this, because in the first place they are not complaining that the water we have now are insufficient, why are we then talking about more. Secondly, if you are a Christian, you should know the place of men has against that of women. If we understand this and continue to practice this, we would never have problems at all. God put them in the house, because He knows that we are going to be busy out there providing to the family."

The men raised some issues that make it impossible for the women to strive beyond their homes with regard to water management. For example, they do lots of unscheduled and impromptu meetings that sometimes go late into the evening, and no man would allow his wife to be part of these meetings on the grounds that it would interfere with their domestic evening duties.

NARRATIVE 10

Jacob said, "*Women are our backbone, women they stay at the back, to learn from men, they function well right at home that is my belief and thinking. Everyone knows that the participation of women can bring about a positive change to the issues of water management in this*

community, but we do not practise it. But not until that happens, women should just stay at home, look at those machines, do you expect the women to be operating them or switching on the generator, or what? Women do not have that kind of strength, we know they are strong, but not to do the things men are capable of doing.

(Laugh! Laugh!! Laugh!!!)

"If you give a woman an opportunity into the indigenous water management team, which is just a group of six men and sometimes seven, the seventh being the wife of the High Chief, it is putting power into the hands of a woman. This is like personally inviting problems to you; you do not give them so much power outside the ones given to them at home to assist in making sure that potable water and other things are always available at home."

Josiah, unlike Jacob, does not see what the role of a woman would be outside the house. He felt only men are capable of doing what they do and that the women could not handle any of the things that men do. Specifically, he said they said lots of things in meetings and sometimes late into the night. In their tradition or culture it is only an adulterous woman who goes outside at night. This stereotyped perception has kept the women perpetually in the house, disallowed their full participation in the local water management and continually assumes that their roles are those of water delivery and provision. This perception that also questions their capabilities beyond the household in local water management is a good reflection of the stereotypes and gender bias probably unconsciously in the minds of the men. This bias derives from their culture and religion, and they believe that women, in asking to be part of community water management, would not attend to their roles at home. They also believe that women are better off at home, and that any opportunity to bring them out of the home at such a level is only inviting the devil. Hence, the general perception upheld by the men in the research sites is that the women are better off when they stay out of public places and act as support for their husbands at home while the men handle

the issues in public. When it comes to advanced leadership positions, women are generally underrepresented in most societies. Even in the Western countries and in spite of political interventions like the introduction of quotas, this imbalance prevails (Catalyst 2014). Several factors contribute to this (Hernandez et al. 2014). One is that there is a "selection bias which suggests that male leaders support and endorse other male leaders favourably" (Bosak and Sczesny 2011), hence the male-dominated management level extends and does not include females.

NARRATIVE 11

Dipo

Dipo is 35 years old and was born in Ifon. Their water comes from a borehole. They buy water there and he thinks many buy water because it is too expensive to dig a borehole. He prefers to boil water but when this is not possible, he just drinks it without any purification. The major challenge is the availability of the water.

"Cooperation is powerful most importantly, when it is between men and women. We have never achieved any good success with regard to our water management here in Ose; I am not even sure that that scheme is still functioning well, I am not part of it and it has been long since I checked it. Take the home, for example, the cooperation between the man and his wife, where that is possible would definitely bring about some level of success in whatever they set their heart to achieve. I do not know why this impossible to practise in this community."

NARRATIVE 12

Adekunle

Adekunle (49 years old) inherited all the water management approaches he uses. He boils water from any of the sources and pours it into the fired clay pots. He doesn't believe there are alternatives.

"With these present challenges, involving the women beyond house water management is necessary. Although, these roles are meant to be carried out by women, because they have been doing it and they have a lot of experience, since women are more affected with this scarcity, they can be allowed to participate at the level of their strength. But the meetings alone could take hours, let alone monitoring and supervising the management processes, which also takes a lot of time."

NARRATIVE 13

Taye

Taye is 54 years old. His major source of water is the well but those who live close enough to the stream still fetch water from there. When the water is fetched, it is poured inside the fired clay pot, alum is then added and it is then filtered. Sometimes they boil water instead of using alum since wood is readily available.

Men obviously feel threatened by women if they were to participate more fully in roles traditionally assigned to men, as indicated in the comments below.

"My son 'never gives a woman more power than she has at home, because she cannot manage it'. That is a way to say that the men are not capable to handle their task in the community, like saying the men should leave and the women should take over.

(Laugh! Laugh!! Laugh!!!)

"If you allow them that opportunity, there might be chaos. I even doubt it if any woman had ever asked or showed interest in such activity, but we used to invite the wife of the High Chief, she also is always too busy to be part of it. If they are allowed, they cannot be available due to the heavy task at home, which they have to still do, before they leave the house."

Adekunle and Dipo from the above excerpts believe in the participation of women beyond their homes most especially in the issues of local water management (LWM). They feel that if the women can manage the water provisions at the household level effectively, nothing should stop them from doing it better at the community level. If the women's responsibility is restricted to water, even outside their homes, this should not be a problem. But the men did not feel comfortable handing over positions of power to the women "*because they could abuse it, since they are weaker vessels"*, one of the participants commented. This argument was supported in the survey analysis (see Table 5.1). The majority of the men (44.1%) agreed to the notion of restricting women and a considerable number of the women (26.4%) (whose perception has been affected by culture and religion) also agreed to their restriction at home in issues of local water management, while only 21.3% disagreed with restricting women. Another participant said that due to women's highly emotional nature and that they are not 'hard' enough to manage some of the challenges men handle in such meetings, bringing them into such activities would not be good for them. All this remains an obstacle to their involvement in rural water management. Hirsch et al. (2010, 23) also showed how "participatory models can be steered in the political and cultural context of Uzbekistan", where usually little opportunity for stakeholder participation is provided. The men *in theory* agree that allowing the participation of the women could affect the local water scheme positively, however, there is a general fear by most of the men that the women would abuse the power and opportunity. One of the participants called me 'Son', as if about to reveal some deep mysteries, and said: *"If you give a woman power like the one you are talking about, that power would destroy her that is why God made the man first."*

Opinion About Restricting Women from LWM Practices	Male (%)	Female (%)	
Agree	44.1	26.4	
Disagree	7.7	21.3	
	Chi-Square Test		
	Value	**Df**	**Asymp.Sig**
Pearson Chi Square	33.832[a]	1	.000
Phi	.323		.000
Crammer's	.323		.000

Table 5.1: Opinion about Restricting Women from LWM Activities in Ondo State, 2017 (n=314)

Some women, as the narratives show, have a level of (unknowing) complicity. The women often did not find it easy to talk about this except during the (private) interviews because talking about it is like seeking to be in competition with the men. The men also talked about the rigorous meetings and the length of time it takes them to finish. At times there appears to be no confidence in the outcomes of the meetings – one of the women asked:

"What benefit has their meeting brought to this community, most especially with respect to potable water? All they do is share political money."

It is observed that two major factors are making it impossible for the women to be fully involved in the local water management outside what they do at home. One is the fact that the men themselves are not really in support of women's participation in community indigenous water management activities; the men appear to think this indicates they are not competent enough. Men do not want women to compete with them – this could lead to the women out-performing the men leading to other kinds of issue at home. The other factor is that women are overburdened with house chores. These two factors, coupled with the fact women are also 'behind' educationally,

which also affects their kind of occupation, contributes to making women feeling inferior and incapacitated. The few women who were able to break through these factors attaining the same level of education as the men, were observed to be pushing for the presence and active participation of women in all issues including water management in the community. Thus, at the village level, an important cross-cutting theme in the examination of water management and provision is gender, because it is an 'analytical variable' in rural areas; the household provision of domestic water is a gendered issue and has its management at the community level (Mandara et al. 2013).

5.2 Conclusion

This chapter has discussed the women's role, which is primarily and culturally water collection, protection, maintenance and storage at the household in rural communities in developing countries, including in the research sites in Ondo. A substantial amount of a woman's time is spent on these activities; the women also plan the usage of water for their household carefully, because this can have a direct positive or negative impact upon their families' health. During the International Drinking Water Supply and Sanitation Decade (1981-1990), the fundamental role of women was documented and has since been widely deliberated in the drinking water sector. In the context of potable water and its indigenous management for the provision of potable water projects, both the women and the men across the research sites agreed to the involvement of women beyond their homes. This however, was observed to be a theoretical consideration based on the women's contribution to water management at home; beyond the sphere of the home, they were not culturally allowed. In the next chapter, the role of men in the various research sites was discussed, both at the household level and beyond. The chapter also discusses masculinity and its impacts on rural water management.

CHAPTER SIX

PATRIARCHAL ROLE IN INDIGENOUS WATER MANAGEMENT

6.1 Introduction

All across the villages in the research sites in Ondo state, men were observed to be the key factor which stood as an historical institution against gender equality around indigenous water management activities beyond the homes. Chapter 4 revealed that a good percentage of the women wanted to be part of the various indigenous approaches beyond their homes, but due to the religious and the traditionally-constructed roles, women would have to stay back because men would not want to be seen doing things women should be doing, while the women do what men should be doing.

Generally, across the study sites during the in-depth interviews, female respondents revealed the principal role of men in their villages and why it was going to be very difficult for women to actively participate beyond their homes in indigenous water management practices because women, according to traditional hierarchy, are not meant to be ranked with the men or be doing what men do in the public sphere. They said the men would feel like they had lost respect when they got home, more so when an error was constantly being made by the man, which could affect his ego. At the household level, one should not expect to find men involved in indigenous water management practices because of the perception of the role of the women in water management at home. Although, some men do assist, which makes the process of water management easier and faster, others would not want to be seen to be taken advantage of by their wives, or would not want people to label their wives as '*witch',* since she appeared to control the husband to work at home.

6.2 Hegemonic Masculinity in Indigenous Water Management

Although the men in all the villages might not be actively involved in the indigenous water management activities, like the fetching of water, collection and purchase of indigenous materials, they were observed to play an active role at the (powerful) managerial level where planning and decisions affect the continuous access to water and indigenous materials. It is at this point that a good percentage of the women have shown interest in being part of the decision-making group, but male domination will not allow this.

The following narratives are the voices of women and their perceived role of the men in their village:

NARRATIVE 1

Aanu

Aanu gets her water from the stream and the well. While she was growing up, she observed all forms of water management practices. When she was 20 years old she began using alum and white cloth for filters to make their water potable.

"When election is fast approaching they would be buying water and distributing it around the village, which I think is better than the well we are drinking, and at the same time reduces the stress of water at least for that period."

NARRATIVE 2

Mattar

Mattar has been actively participating in indigenous water management practices for over 25 years. She was not born in Ile-Oluji but was brought into the village at a young age. She believes that as long as they survive, the indigenous water management approaches are helpful. She noted

that the men who were supposed to be supporting water management were largely ineffective and that each household took responsibility for their own water management.

"More than five men are involved in the indigenous water management maintenance in the village and I can tell you that there is nothing they are doing there because the water we use every day is been provided for by individual house and nobody is depending on them for any water because they do not even have water to give you."

NARRATIVE 3

Grace

Grace, from Ile-Oluji, is 65 years old, and gets water from the stream and the well. She said everyone in this village uses alum and filter cloth for indigenous water management. Boiling water can be hard work and men, she feels do not help. Women want to contribute to and be involved more in community developments.

"Men do not fetch water here, but sometimes they can help with the well, but never would you see a man going to the stream with you, unless he is going to bath. Our importance is only felt at home, even outside indigenous water management, we cannot participate in the community developments meetings unless it just for cooking and their welfare during a meeting, we want to do more, we can do more."

As shown in the excerpts above, men do not merely keep women from participating at the community level. A situation of 'hegemonic masculinity' appears to exist where the men exert full authority about the position and the place of the women. This was evident from the amount of fear exhibited by the women during the FGDs. In many of the questions connected to the men, women in their FGDs were careful about answering and sometimes kept quiet and looked at each other. In contrast, in the male FGDs men all spoke out about why the women must be restricted to

their homes. The survey questionnaires and the in-depth interviews provided an opportunity for the women to open up, as demonstrated in the responses below. All three women have been actively involved in home water management for many years and feel strongly they could contibute to water management at other levels too.

NARRATIVE 4

Olaolu

"Another big challenge we are having here is that women should not say much, she is meant to be by her husband's house. Therefore, going out to want to be part of the men's activities is going beyond your boundaries, when you have a whole lot of activities at home."

NARRATIVE 5

Olomo

"I am also aware that they sometime talk about water challenges in their meetings, but we have not seen anything close the solution. Here in Ile-Oluji, the men are the head not only at home but also out there, so when it comes to meetings either community development or on water issues, we are not really involved in things like that."

NARRATIVE 6

Toyin

"All I can tell you is, it is all talk and talk, and they come home with nothing ever since they have been going. We are only saying that since the issue of water cannot be separated from women in the quantity we use directly on ourselves or as demanded for the children and even the men, because we are the one that makes this available, we are asking that at most three women to be a

part of that meeting they go for, just to talk about water and thereafter we can leave, while they continue their meeting. I tell you there would be drastic improvement in the quantity and quality of potable water that is available to us. We do not just want our effort and abilities to be appreciated and seen at home alone, we want to make life easy for ourselves and our children coming up, so that they (our girls) can live a better life than us."

The women believed that the men only cared about themselves. They were certain that their involvement if allowed could turn around water challenges, because they felt the men were only in the meetings for personal gains. Women felt they could contribute to useful developments which would bring relief and empowerment to the women in the community. Participation has been observed to be an instrument for institutional, social and ecological change among any community. Among others, Enserink et al. felt the participatory approach in water management could lead to developing and sustaining an anticipated "ecological, social, and political state" (2007, 24), which would eventually bring about good governance and the sustainable management of natural resources (see Pahl-Wostl et al., 2008).

NARRATIVE 7

Eniola

Eniola was frustrated over patriarchal dominance with regard to water management:

"We cannot continue this way, nothing is changing we are having a difficult life here due to water. I know you have been around for some time and you can see for yourself, the stress we go through every day to get water. Well, that is no longer a big problem since there is almost nothing that can be done to it. All we just want is a proper representation of this village by the men, with respect to water because if only they can put as much effort that we are putting in our different homes to make sure that potable water is available every time, then gradually an end might come

to the issue of water here. It is like they do not see it as a major issue, because they are not directly affected by it, since every time they come in, there is always water to drink. Sometimes, they do not even know the stress we go through to make sure water is available, while they are sleeping we are out to get water, before they wake up we are almost done, they will only wake us to see the various indigenous method to keep the water clean. More than five of the men in this village are in the committee and they constantly meet their colleague in town."

Away from Ile-Oluji, I also interacted with other women in Ose and in Ifon, where they seemed to share the same story about the perceived role of the men and what they expected from them with regard to indigenous water management activities.

NARRATIVE 8

Bidemi

Bidemi has been participating in indigenous water management practices for about fifty years. She fetches water from a neighbour's borehole or buys from the water vendors. She uses charcoal or alum and thereafter filters the water with filtering cloth. Regarding the community development meetings run by men, she felt they were ineffective in terms of water management.

"It is a group of about seven people that meet regularly to see to the development on this community, with one woman occasionally with them. She is the wife of the king, which of course you should not expect her to always stay with them in their meeting. However, in the area of water I cannot say exactly if I know what they are doing, because here we do not have water from the stream all we depend on the borehole water that we buy from those who have it or the ones we buy from water vendors."

NARRATIVE 9

Bimbo

Bimbo felt that women could contribute practically to addressing issues such as dirty water tankers and that men were unaware of the importance of such issues, thus required the contributions of women in sommunity meetings.

"Well, that is the women's duty again, one of the things we suggested to them is to make sure that, since people are buying this water and it is not free, they should be interested in the source of the water, the hygiene around the fetching of the water, and also the cleanliness of the water tanker. A lot of these tankers are so dirty, such that after buying you see visible dirt how much the invisible ones. The men are only interested in making sure that this water is available to everyone, but the quality of the water and the process of delivery is really an area they do not give much attention. We are women and we give so much attention to very little things and that is why our presence in their committee at community level could reduce the stress the women are facing here. If the water is clean from the source, and the container transporting is clean, a little would be done at the various household levels to make it potable.

Eniola and Bidemi are not satisfied with the role the men are playing, especially with regard to water management at the community level. Together with other women they believe that there are some things the men cannot do effectively, and water management and provision of potable water are part of these. Gendered participation and the involvement of the women in the making of decisions across most communities in the study area is obviously minimal or non-existent. Women are generally curtailed by education and socio-economic class, thus only the wife of the king or high chief that has a voice among the women and she is expected to represent them on issues pertaining to the women. As one of the participants said, "*You cannot expect much from the wife of the king because she has to support her husband even when there are reasons to speak*

otherwise, she would rather look the other way". Men are more educated than women and of course wealthier which was sufficient to keep the women quiet; the women accepted their fate and preferred to stay at home. If the women were well educated and were able to communicate at the same level as the men, they might be given a space at the meetings but men would not want this due to the competition they would feel. Cleaver (2001, 36-55) noted that the poor "uneducated women are left out of water management institutions and the making of decisions process because majority of the women do not even know how the community works".

NARRATIVE 10

Fadekemi shares,

"Anyway, the men might not see this as important to them because it does not have any instant monetary value and making it an issue could be wasting their time. As much as we appreciate the men in the effort in keeping our community safe and habitable, the area of water is also an aspect they should start to prioritise, so that the women too can have time to do other important things with their time. Why is it even impossible for us to be part of that committee, well it is culture and I believe that the way things are going, it will soon change because our children are not happy."

NARRATIVE 11

Kehinde also feels women need to be involved,

"The men do not really care about the issues of water like they care about other community issues. Some of them think each time we raise issues around water is because we are seeking for attention, which is not. See I am I widow, and I am about sixty-years old, I know the pains and the challenges water is putting on us more so since just a few of us has the borehole in the house. This can be managed properly at the community level, and unless those who are more affected by it are allowed to be part of the decision making and planning, nothing will really change."

NARRATIVE 12

Toyin was fortunate to be chosen as one of the community meeting representatives at the insistence of the king's wife, and expressed her views with respect to the role of the men in indigenous water management activities and its impact on the provision of potable water for the community. She is one of the key informants that gave considerable insight into the water challenges of the people of Ose.

"The issue of water in this area did not just start yesterday, we have been living with it for a very long time. I have been privileged to know a few things apart from personal experience from the water issue, but also as casual member of the community committee. I can tell you that as much as the challenge of water here is historical and fundamental, it can mostly be attributed to bad leadership. Some years ago, some people also came around like you, and I told them the same thing. Water problem is a woman's problem, why is it difficult to bring them in good number into various committees that can look after the water issues around here."

Toyin was the most vocal of the women. She is well educated and wealthy and it seemed she spoke for the women who could not speak and who endured their suffering quietly. Her socio-economic class meant she was chosen to represent the wife of the king among the men in most of the committees. Even if women were asked to attend meetings it was felt they would not be able to understand or give opinions in public.

"We are not even asking for too much, only in the area of water, we need to be well represented, because we alone know the challenges we go through before we get water and then subject it to various indigenous approaches. It is almost becoming a major assignment for the women here, like a job you are collecting nothing for. Sometimes the men try their best to make sure water vendors are always getting to places where the challenge of water is more biting. As good as this

is, we want more from them, like question where the water is coming from, how clean are their water containers, because we are buying the water, and so we should know what we are paying for."

According to Toyin, even when a female participant is 'enlightened', her views would only be listened to at the end of the various deliberations – this was frustrating, and hence she felt it was not even worthwhile attending their meetings.

NARRATIVE 13

Ibukun shares,

"The men's role is such that we cannot fit into, looking at the rigorous time of meetings, sometimes late night, which none of the women would want to be a part of. That is why God has put the women in the house to make sure that she manages the affairs of the house and make sure that potable water is readily available to all. Although the water might not be very clean, but I think half bread is better than none, since that there was a time we will wait for days looking for water. What we do now is whatever the source of the water, we have our own way of making sure it is potable at the different household level, so there is no worry about the source of the water."

NARRATIVE 14

Kehinde like the other women, implied that the men, as much as they tried to manage the community, did not pay enough attention to detail. She also implied that the presence of women alongside the men in local water management could improve the quality of life not only for women, but for everyone in the community.

"Why this is painful is, the harder you try, the more difficult life becomes, because we cannot even afford to buy enough water sufficient per day, since there is no money, no time to make extra

money outside what your husband gives you and you cannot stress the men beyond what they are doing. Surely, water supply has improved so well as against some years ago where you do not know when the next water supply is going to come, so the ones you have must be used judiciously. Things are a little better now, but at the same time, we cannot sit down like this and watch when we know life can be better for everyone if only things are done right. Among the good the men are engaged with, I will subscribe to the inclusion of women at the committee that oversees water management in this area. They cannot do much more than they are doing, it is like saying we should also be doing the things they are doing which definitely we cannot due to our nature and our roles at home. All we are asking for is that women should be represented in the committee so that the things that they forget to talk about or give attention to we can cover for it."

The perceived opinion on the patriarchal role of men and its influence on indigenous water management activities was also considered at the third research site, Ese-Odo and the women's perceptions noted. They did not open up during the FGD, but were much more open during the in-depth interviews regarding the role of men and their impact on the local water management.

One participant noted that the issue of potable is not something foreign because everyone knows how they to get water and how to make it potable. Men in the village appeared to be proud and disliked progress in women. Bennett (1995), also cited by Parpart (2009), argued that "gender-differentiated outcomes is as a result of water development policies and projects, which are always presented as gender neutral in practice since women have different criteria for evaluation which is based on their different roles and responsibilities". However, improving water supply and quality among rural dwellers would benefit women most directly by giving women and children free time and energy to be more active and successful in school and/or at work, which would not only affect family income positively but their health too.

NARRATIVE 15

According to **Omolewa**, men need to ensure paths to water sources are accessible and safe.

"There are over five men who constantly oversee the stream and the use of it, their office and duty I learnt is rotational. They are doing so much because the path to the river is always clean and accessible every season even in the raining season. I am sure no woman would be interested in this activity, because we do not have such energy and time. Another thing which I think the men are constantly working on is the security of this community. Whatever they can afford to do, is what they do, because they are the head of the family according to the Bible, and so they decide what they want to do, and we cannot object or question them, we just find a way around the task at hand and do as much as we can do."

NARRATIVE 16

Akinola lamented how women are meant to keep quiet.

"A large percentage of us are just full house wives, a few still find time to fish for small money, others have some petty trade outside their home. We are not having any issues with doing what we are doing, but since that is all we have, we are only asking that the men would wake up and do more for us here. There is so much they can do for this community in their capacity as a man. Unfortunately for us we are women and we are meant to be quiet and learn in silence, not complaining at all but let our men rise up and stop early morning drinking and late-night drinking, which is just foolishness, I will tell you why."

The women did not at any point take the effort of the men for granted. They were quite aware of the differences in genders, but percieved these differences as potential sources of strength.

"They know we are different and the men do what they are meant to do and women too, we should be able to do the same outside at the community level."

Zwarteveen (2008) identified a wide range of research and policy issues that recognised the need to engage with and allow women to participate in water management and development across their local environment and at a national level.

Remilekun shares, *"I think our men can go and learn from other community where things are working and try what they have done to make life easier for their women. You may want to go that community and find out this one thing, their women are busy with fishing and bigger business, even their young girls are more in the city than us because they have gone to school, can you feel my pain now. The most frustrating about this whole issue now is, not just the men are, sorry to use this language 'not thinking' because you are also a man, but the women are also heavier drinkers than the men such that every month there is a useless drinker's competition, which is all a show of shame. We need our men to wake up, or else our life and that of the children would only probably end here, since the men are not doing much work that can get them money, and due to our traditional role of providing potable water and food, we only wait on our husband."*

"Since her adult children are all in the city now, makes life difficult for her, because she has to go to the stream every time since this kind of water is such that you use fresh. The men here are not treating us fairly and this is the reason for some of the water challenges we are facing. Why I said that is because, we see what is going on in other communities not far from here, having the same source of water, yet their lives are improving drastically but ours is just on a stand still. In the last community meeting we had myself and very few other women let out our voices with respect to the local water management process here which is way behind what others are doing."

Around this particular community (Ese-Odo), there are three smaller villages. Though smaller, each has been able to manage their water effectively, channelling it from the streams to their homes and making life easier for their women. It was observed in those communities that their women were more educated and rich than those in Ese-Odo. They are also a patriarchal society and women are largely responsible for water management. Although the source of water is relatively close, it still takes the women about three hours every day to complete the task of water management, which in the neighbouring communities takes only about 30 minutes every day. There are several issues around this discourse in the participation of women in community water management, which include to what extent there is inclusion of women. Gendered participatory approaches can further expose the "conceptual and practical limitations of water management because for it to be effective it would first require some level of negotiation and resistance which are not sufficiently understood" (Kesby 2005).

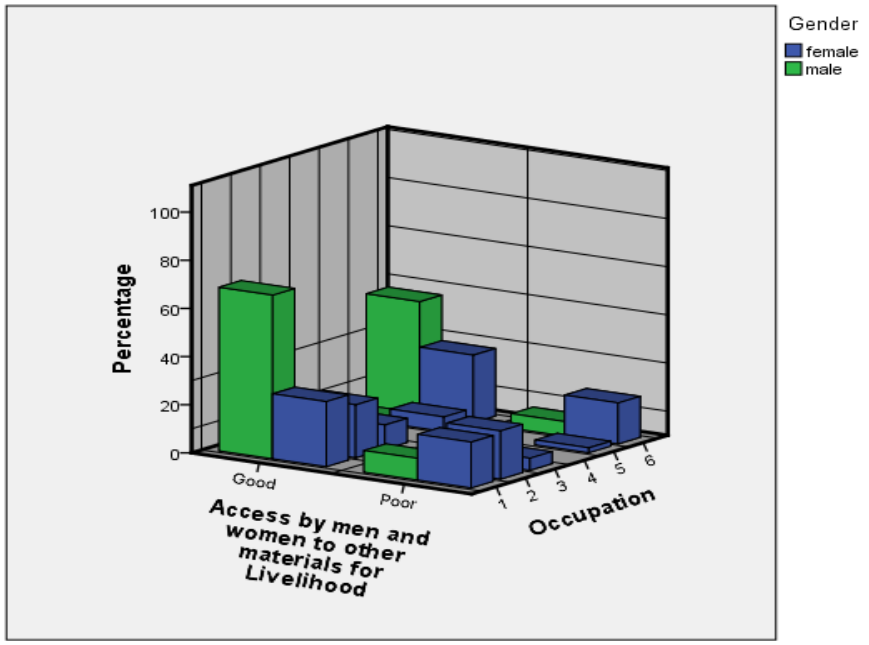
6.3 Renegotiating Masculinity Effects on Livelihood

Outside the home, women's views are hardly solicited and they are meant to be fully submissive to their husbands. In addition, men have customarily dominated every role associated with local water management. Zwarteveen (2008) argued that water management functions would be carried out by men, thus "strengthening and homogenising the situation by making it appear evident, clear or natural" and questioning this traditional standard becomes an 'abnormality'. Connell and Messerschmidt (2005) also reiterated that the pattern of practice that allows men's dominance over women to continue is understood as 'hegemonic masculinity', where its "pre-eminence is promoted through culture and sometimes religious faith, institutions and coaxing". Today, there are huge frameworks of scholarships and policy that document the eminent importance of engaging with the women in water management and development at the local level (see GWA 2003; Laurie 2005; UNDP 2006; Molle, Molinga and Weston 2009; UNICEF-WHO 2011). This can be achieved by engaging with a greater cross-section of people in the practices, planning,

managing and operation of much-needed water infrastructure, and properly considering gender issues and incorporating them in water management at these levels could bring about some level of development in the water sector. These experiences were confirmed among the villagers in terms of the respect they give (or are expected to give) to their husbands, which is evident from the way the husbands are addressed as ‘my lord’.

As much as this is peculiar to the cultures of south-western Nigeria, it has also affected the possible role women can play in community development and importantly in water management. I do not disagree with the claim that there are different forms and types of water, forms of management and decision-making, gender roles and gender relations (Dávila-Poblete and Nieves Rico 2005). This research examines and challenges masculinities in water paradigms by reviewing the possibilities of a gendered representation and inclusion in rural water management in the selected sites.

Figure 6.1: Gender and Access to Materials for Livelihood



KEY: 1.Farming.2.Trading.3.Fishing.4.Traditional Doctor.5.Teaching.6.Others

Figure 6.1. shows that 73% of the men as against 22% of women across the three research sites said they have access to materials for daily sustenance and livelihood, which also impacts the kind of work/jobs or occupation the men or the women are able to engage in. This implies that only a fraction of the women has access to daily sustenance and livelihood, which is as result of the fact that the time they put into household water management in the provision of potable water has a negative impact on their potential productivity in other spheres.

Across the three communities/sites of research, masculine supremacy was evident and prevalent. Women did not appear to want to usurp male authority but are compelled to accept the status quo. It was obvious that the livelihood of the residents, most especially that of the women, is badly affected as a result of the approach to indigenous water management beyond the household level. This concurs with the argument of Davidson and Stratford who claimed that the 'normative masculinity' and "superficial gender-neutrality of individual ownership of water rights can affect the economic reinforcement' in most communities" (2007, 224-40). In Ese-Odo, Ile-Oluji and Ose fixed gender roles and relations around water management are evident, which has contributed negatively to their socio-economic livelihood issues. In most of the houses across the villages, the gender roles and divisions of labour in water-management have always been the sole responsibility of the women. As a result, jobs that women should be able to do or contribute to at the community level or outside the household chores are impossible due to the amount of time spent at home on their culturally-constructed roles around water, which can further challenge 'cultural norms' about socially acceptable behaviour for women and 'constructions of femininity' (Boelens and Zwarteveen 2002).

6.4 Conclusion

This chapter explored through focus group discussions, in-depth interviews and survey questionnaires, the impact of patriarchal roles in indigenous water management. Through the

various narratives, hegemonic masculinity was observed in the various rural communities which did not allow the participation of the women in rural water management beyond their homes. The next chapter emphasises the role of gender, indigenous water management and livelihood and considers how the livelihood of the women across the three study sites has been negatively impacted.

CHAPTER SEVEN

GENDER, INDIGENOUS WATER MANAGEMENT AND LIVELIHOOD

7.1 Introduction

Many scholars (Hatch 1996; De Haan and Zoomers 2005; Derman and Hellum 2007) argue that women and children are largely responsible for the fetching of water and for indigenously managing water, which has negatively impacted on their livelihoods. If water is not easily available and accessible to the family, the burden and responsibility fall on the women. Thus, poor water access among rural dwellers can perpetuate gender inequities in a 'vicious cycle' because the relationship between gender, water and livelihood is 'complicated and dynamic' (see Wallace and Coles 2005). Gender influences impact how people get access to and use water, because water, as was evident in all three research sites (Ile-Oluji, Ose and Ese-Odo), affects social relations. All endeavours and efforts meant to advance access to water should thus be based and founded on gender analysis, because social relations will influence the outcome of water management, participation and procedures.

According to Lawuyi (1998), Hemson (2002), Hope and von-Maltitz (2003), water, which is primarily necessary for survival and for meeting basic human needs, has received the greatest attention in water declarations, recommendations, standards, practices, management and programmes. While local efforts are being made to manage water using indigenous knowledge and wisdom to handle pressing water concerns, at the same time at the international level, more research, policies and programmes are focusing on the most pressing water concerns since the availability and accessibility of a population to potable water for survival and basic needs is more a rural problem. In rural contexts (such as my study sites), there are fewer options for survival, as

infrastructure coverage and development are much slower in rural than in urban centres. Hence, water as a means to livelihoods is most critical among rural dwellers because white-collar job opportunities are not available or extremely limited. People are therefore forced to draw on assets that are available or accessible, which include the natural resource base, indigenous knowledge, traditional practices and to engage in a wide range of activities to make ends meet.

However, the major challenges that are faced across most of these villages are that the issues of livelihood are never gender sensitive, which has been seen and observed in the planning, decision making and composition of participatory bodies in rural water management provision (see Wallace and Coles 2005; Mehta 2006). Women's productive water needs are disregarded, making the women disadvantaged in water management beyond their homes and in the rural economy (see also Michael 1998; Schreiner et al. 2002), which further excludes them from management roles and decision-making.

7.2. Gender and Livelihood Strategies and Indigenous Water Management

This study across the three communities visited during the field work has been able to identify various livelihood strategies, namely farming, fishing, trading, traditional healing and teaching, which have differently affected their lives based on the access and availability to potable water. Ile- Oluji is 85% populated with farmers and they are actively involved in planting cocoa, oil palm, cash crops and a few arable crops. These activities are dominated by the men while other occupations like trading and teaching are common among both men and women in Ile-Oluji. Ose presented a more diverse means of livelihood. Ose is also largely made of residents who are actively engaged in farming of cash crops (cocoa) and arable crops. While the men and women could be found in occupations like teaching, only very few women are found in the local government offices and trading. However, in Ese-Odo, which is a coastal area, almost all the male

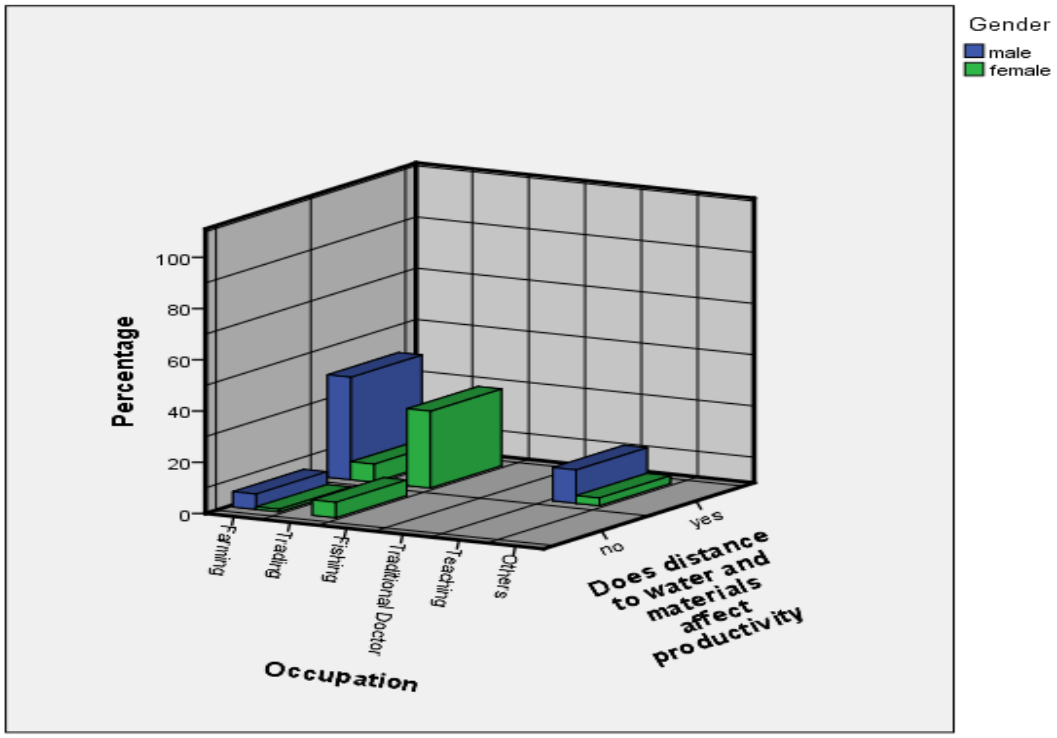
residents are involved in farming and fishing with a few women working at the local government office and in trading and teaching.

7.3 Livelihood and Impact of Indigenous Water Management on Residents of Ile-Oluji

It was observed that in Ile-Oluji, one of the research sites, livelihoods were centred around trading, teaching and farming, activities that varyed according to gender. Farming activities were observed to be more of the men's duty in Ile-Oluji since only men are involved in the growing of cash crops. Everyone agreed that their productivity was hampered by challenges faced by water, and the distance and time required to get indigenous or local materials needed to make water potable.

Furthermore, Figure 7.1 shows that while both men and the women agree to the fact that their performances are affected by distance to water and materials, 45% of the men are still very active in farming compared to 5% of the women. Almost every house in the village has a man with a cocoa plantation which was the sole economic strength until the early '80s. Women find it difficult to combine the production of water and most importantly, potable water, with an active farming activity. Farming takes time, effort and supervision and money is involved, with farm produce frequently stolen especially at the time of harvest. Women, in contrast, are seen doing things easily combined with their so-called culturally construed activity of water and potable water provision for their households, which is trading. This was observed to be petty and almost inconsequential compared to what the men could make from their farms; 33% of the women are actively involved in trading, mostly just outside their homes for easy access.

Figure 7.1: Gender and Livelihood, 2017 (n=104)



7.3.1 Water Management and Livelihood, Implication on Women

Perpetual gender stereotypes in water management across the communities of study are a form of oppression that has affected the livelihood of women, making them so poor that they have to depend solely on their husbands, which has further contributed to their subservient attitudes. The following narratives illustrate how women are trying to survive in their communities.

NARRATIVE 1

Aanu lamented have lost her land and the fate of women having to be full-time housewives.

"I used to have a very big farm that was actually very big but lost it all to land invasion, of course to men, a woman cannot invade my land. This was really possible for them because when my children were becoming big and demanded more attention, I could not keep up with the commitment of farming, so I could not fight for my land... (Silence!)

...Maybe that is our fate, I really desire to do more than this, for example see how difficult this water issue is, it takes almost 80% of the time and then cooking. I wake up so early to get good water and thereafter, had to sleep back because this body is not stone, if you do not take care of it will take care of you. After all the water activities from fetching to the local way of management, just to make water potable, coupled with normal cooking things, you now see why some of the women are just full-time housewives."

NARRATIVE 2

Mattar

Mattar has been actively participating in indigenous water management practices for over 25 years now.

"Sometimes I go there to see them when I am taking his food to him and what the men working with him are going to eat. They go very early in the morning, sometimes even if there is nothing to do there, they still go there just keep the farm safe cos there are too many thieves now in the farm, that we do not even know where they are coming from; so, while they are busy with the farm activities, I am busy at home to make sure that whenever they get back, they have enough and good potable water for themselves."

NARRATIVE 3

Olaolu, in her early 40s, wished she does not have to spend so much time around water. She has a fairly big shop in front of her house, and she felt her business could do very well if the stress from water management was removed.

"Come around to the well at 3:30am and you would see what I am talking about. Anyway, I saw some of you once, but that is what we have been doing every day since a very long time, not five,

not even seven. The activity has become so part of us, that we can barely do anything again, except for some of us that are so bent on doing something to assist the family because the man would not always have money. Sometimes I have to close the shop or open very late, 11/12am, and you still have to close before your husband gets back, since he too would need your attention. I wish I have the time for farming, because that is where you have the big money, and I want the big money, unfortunately I cannot farm because it requires a lot of time. Other things I do is to help out in the community primary school, I teach them English and Science, because we have some of our children attending the school."

As evidenced in excerpts from the narratives above in Ile-Oluji, the scarcity of water especially its poor management has been noted as not being supportive of the livelihoods of men and women, particularly among agriculture-dependent rural livelihoods. In sustaining rural livelihoods, indigenous knowledge and practices have been observed as promising and effective, mainly because they "appear resilient in the areas of natural resources management", like water (Charisma, 2010, 11-26). Intersectionality as a theoretical tool assisted me in understanding the circumstances surrounding the exclusion of women from community water management and the discrimination and oppression they experience when it comes to water management beyond the homes. Ritzer (2007, 204) maintained that an example of intersectionality theory might be "the view that women experience oppression in varying configurations and in varying degrees of intensity". The marginalisation of women all through my study sites revealed that women, especially poor women, cannot participate in any developmental activity in the rural communities because of the amount energy and time required for household water management and their cultural restrictions. As effective as indigenous approaches are in the provision of potable water, they are energy and time consuming, most importantly when water itself is not readily available, making the whole process cumbersome. The narrative below describes Olaolu's ordeal in the village:

"*Taking care of the family alone is too much a challenge for us here, when there is no assistance from the men, because all they care about is the farm, which is good but… (Silence)! (Silence)!! (Silence)!!!*

The collection of water starts extremely early in the morning and with its management, ends late in the morning which leaves women stressed and exhausted. This has become their lifestyle, rendering women in this village almost helpless, and fully dependent on their husbands.

Another woman said:

"I wish I have the time for farming, because that is where you have the big money, and I want the big money, unfortunately I cannot farm because it requires a lot of time."

Women are not lazy but cannot combine all their tasks with farming (where more money can be earned) (see Chemeda et al., 2005).

7.3.2 Masculinity in Water Management and Livelihood

Men are referred to as 'lords' in the various study sites. They have access to everything that supports their livelihoods such as farming loans from the government, land opportunities for farming, and ready markets for the sales of farm produce. This makes it easy for the men across the community of study to be able to sustain their livelihoods and engage in farming where their socio-economic power is increased.

The following narratives are excerpts from the men about livelihoods and water management:

NARRATIVE 1

Josiah

Early in his life they depended solely on the stream for water but from about 30 years ago, they have been using wells as their primary source of water.

"I built a place here and brought my wife and my first son. One big challenge we have had from that time till to date is the issue around water. Our water is not too good for drinking unless we carried out some measure like the use of various local materials, we cannot just drink it like that. When I first got here, we go as far as three or four kilometres to the streams to get water, but now about fifteen years back, we have like two or three wells that we are still managing here which is not enough for us."

NARRATIVE 2

Jacob

Jacob gets his water from the well primarily and the stream. He feels that they have been forgotten by the government, so they have to survive doing the best they can and using all available methods.

"I am a farmer and I have made a lot of money from cocoa farming such that I have three of my sons who have graduated from the university, that were trained from the profit and earning of this farm. I also started the primary school in this village, because I have the teacher basic training certificate. Since we have children and they cannot go into the town for schooling, because then, there was transport, to go to school in town would require trekking about ten if not more kilometres."

NARRATIVE 3

Samson

Samson is a cocoa farmer and inherited all the water management approaches used in this village. His own approach is to boil water from any of the sources and pour it into the fired clay pots.

"We had to start a primary school then which started with just three children, and now they have primary one to six. What we do is plant cocoa, employ some local security to watch it most important during harvest, because there had been times before we started to use local guards, when you will come to the farm and you will meet nothing on your farm. It is a lot of work because one thing is to farm and have them matured such that the pods are properly kept so that you can have a good sale."

NARRATIVE 4

Adekunle

Adekunle, who also came into the village when he was young, has been actively involved in farming all his life. He also relocated from the town and came into the settlement to assist his father before he passed on. Now he is fully in charge through inheritance of his father's farm. He plants both subsistence and cash cocoa crops.

"We are really so busy, because this work requires a lot of attention, monitoring and supervision. We set out into the farm as early as 6:00am and we come back before 5:00pm. This kind of work is not for lazy people see how long we stay in the farm; my wife brings our breakfast and lunch together when she is coming. She does not stay too long so that she can go and do other things at home. We have made some money from this work, although we still have a challenge that we are coping with, which is even better now, and that is water. We fetch the one we can take to the farm

while my wife would be busy at home to prepare more water for the next day. Since I am involved in two different kind of crops that is the arable and the cash crops, I spend so much time on the farm. The farm is quite big, I have three hectares of farm land; two hectares is used for cash crops and one for arable. It is easy to do because we have some support from the women at home, I am not always at home, my wife makes sure whatever is needed at home most importantly potable water is provided for while I make sure that money through this farming is always available."

The above narratives show how the men are so busy with their daily activities, and how the women who chose due to culture to stay at home, made it easy and possible for the men to be able to sustain their livelihoods. Livelihoods among the men in the same village (Ile-Oluji) are relatively easy and not affected by the factors affecting the women, because the men have women who are able to manage their homes and take care of the children. Weedon (1997) exposed the discursive strategies used by many of the men in this study in their quest to sustain male hegemony. The hegemonic masculinity concept which is in full play among this community serves as an analytical tool for classifying those attitudes and practices among men that perpetuate gender inequality which involves men's supremacy over women (Delgado and Zwarteveen 2007). Almost all the men were into cash-crop (cocoa) farming, which was initially an important part of the Nigerian economy in the 50s and early 80s. The activities or the livelihoods of the men, which have to continue, have left women in helpless positions within their communities and with little livelihood improvement as a result of gender power relations and access to resources (Slater, 2002: 116-129).

7.4 Livelihoods *Indigenous Water Management,* Ose

Ose is located in the north-eastern part of the Ondo State that is generally characterised by very low water levels. In Ile-Oluji, the depth of the well is about 40 feet deep, while in Ose the depth of

their wells referred to by the residents is about 350 feet. The lives of all the residents here is completely dependent on the availability and accessibility of water. Very few could afford their own boreholes because of the cost implications. However, the residents, both men and women, have found adaptability mechanisms around water and ways of coping. A general overview of their livelihood shows that they are adversely affected by the scarcity of water, which has implications for their productivity. It was also observed that their livelihood spreads across farming, trading, teaching, and other (hairdressing, barbers and welders). A closer look shows that, like in Ile-Oluji and across the entire state, farming is predominantly a livelihood strategy, which is generally common among men.

FIGURE 7.2: Gender and Livelihood, 2017 (n=150)

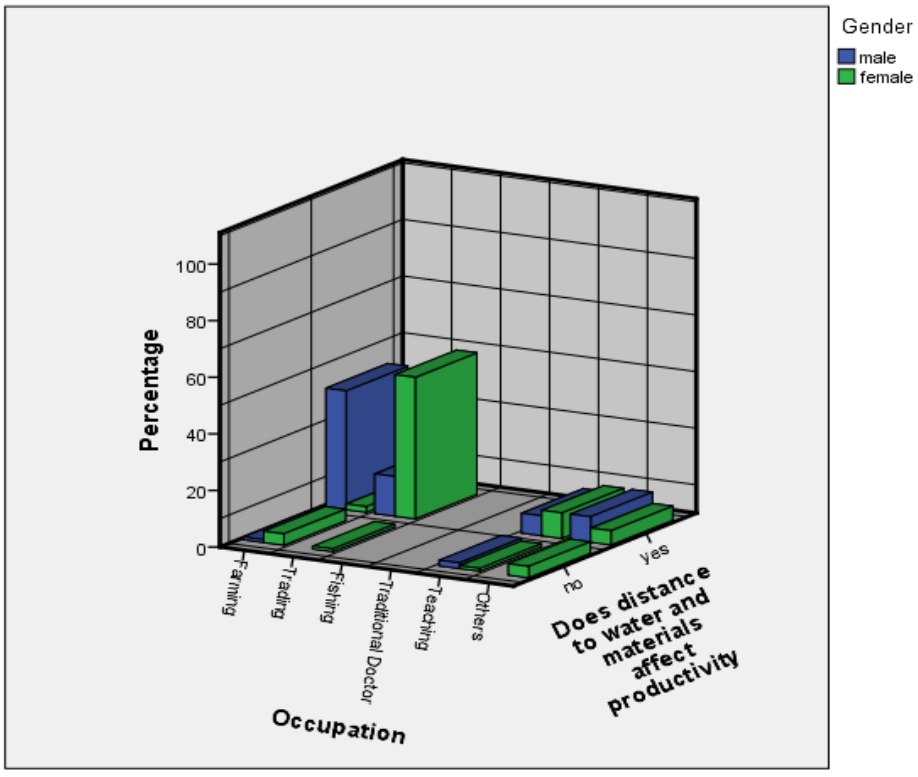


Figure 7.2 shows the impact of limited water supply, most importantly potable water, on the livelihood of the residents and their responses in terms of the kind of livelihood they could engage in. It further shows that 40% of men are into farming, while 5% of the women are able to combine

farming with trading. Trading seems to be more popular amongst the women than the men: 48% of the women as against 10% of the men are actively in trading. The trading lifestyle of the women in Ose is better than that of Ile-Oluji, because the women here were observed to have bigger shops than those of Ile-Oluji, and their commitment to trading is far greater than that of the other communities.

7.4.1 Water Management and Livelihood Implications for Women

The following excerpts from the narratives of women show how their present roles have impacted on their livelihoods:

NARRATIVE 1

Fadekemi is 61 years old and has been in Ose for over 40 years now.

"Things were not this bad in the past, where the government tap water was on every street, this is like thirty years ago, and even if you like you can even go to the stream to get water. No one goes to the stream to fetch again because the water is highly polluted, and it is not flowing very well again, so we are fully depending on water vendors and few boreholes around. Around here there is only person with the borehole and it has ceased to function for three years now. Everyone around here waits for the water vendor every day to buy water which you do not even know the source, but since we can always take care of it locally, we just have to continue to buy. The most annoying part is that our life is so centred on it because there is no exact time they are coming, you cannot predict, you just have to be around or else you will not have water for that day, because there are a lot of people waiting for the water vendor too, and you cannot ask too many questions about the quality of the water, because there are people waiting to take whatever they are given."

NARRATIVE 2

Bidemi is a year older than Fadekimi, and she was born here.

"Well I am not very old, because there are still people older than me here, but I will tell a lot, because some of us are not happy, not just with the government, but with the head of this community. I have been taking care of myself since I was twenty-three, and women here are so disadvantage, and this became glaring when the water challenge we are facing started to bite very hard. I can tell you authoritatively that more than 80% of the women here are so dissatisfied with the quality of life they are living, because we also desire the best for our children, yes our own life is over, but these children should not follow this path. One major crippling economic factor here is the scarcity of good water. Imagine when you use the most important part of your day looking for good water, and you are not sure of when it is going to come."

NARRATIVE 3

Raimi is in her 40s and is married to a farmer who controls large amounts of farmland, where he has both arable and cash crops.

"I even wanted to have a shop outside this house, so that I can go out and come in too, but he will not allow it. Anyway, it is OK but I do not think this is the best, yes I am lucky but I still feel that it is not the best. The bad thing is I have only been to the farm three times, if any bad happens to him, I do not even know the extent to which he owns land. People come here to buy water from us since we have a borehole outside the house, so what I am doing is while the buying of water is on, which goes on all through the day, I have a small shop outside the house that keeps me busy too. He wants me to mostly attend to the sale of the water, since the neighbours depend solely on it, and we are making some money from it too. But sincerely I want to do much more than this."

Most of the female participants in Ose were able to voice their dissatisfaction with regard to their livelihood which has been affected by their water challenges. The water challenge here is more difficult compared to the one in Ile-Oluji, because here they have no option of a stream and the water level is deeper. They survive on buying water, and those who can afford it have something close to a borehole. Almost all the women here are into trading, which is all they can do for a livelihood because they spend most of the early hours of the day looking and waiting for water. They would like to be farmers like the men but cannot be owing to time. Some have inherited farmland but cannot use it and some cannot continue their farming activities because the hired labour on the farm (men) makes little return and can even be seen to be 'stealing' part of the land from the women. One of the female participants had to stop farming when she did not have the time to supervise the activities on her farm and she felt she had been cheated badly. Hence, it seems impossible for the women's livelihoods here to improve, since their livelihoods are based on farming, and it is assumed that this can be done only by the men (see Chikozho and Latham, 2005).

7.4.2 Masculinity in Water Management and Livelihood

NARRATIVE 1

Bamidele inherited a large farm from his father. He has been able to keep up with these farming activities because he has a woman who he says has been faithful to her duties in the house including water provision.

"I took over my father's farming business about twelve years ago, now I am thirty-five, and I think I know better. Most of the things that are planted here are more of the arable and a little of the cash crops. Right out of this house we have a borehole which is the source of our potable water and the one we use for general purposes, but I think it must be affecting others coming to fetch from this water. We are always out very early in the morning to go to the farm, which has

been our habit for ten years, because I have five or sometimes six people working with me on the farm, that you have to supervise and monitor, hence your crops would disappear. My farm is doing very well, except for times when rain becomes an issue that we can do nothing about; such times productivity would drop and less money for us that year. However, generally, we are doing very fine."

NARRATIVE 2

Isaac is close to 60 and has been engaged in farming for over 35 years now.

"My farm is quite big but due to my age, I cannot keep up with so much activities on the farm, so I have to sell off some portion and put some portion on a shared contract. I have two wives, but unfortunately, they cannot be of assistance to me because, they have an issue that they also attend to every day at home. If you have observed, we are so short of water in this village and that is a huge problem, I am talking about both potable and the water that you want to use for daily activity. They wake up very early in the morning in search of water to buy, and before you would get a good one, might take some trekking. Here I have a large family, well it is not good to count your children, but let me just say I have well above four children and one little girl. Since I do not have daughters that can be of help at the farm and at home, the bulk of the burden for the provision of potable water is definitely on the women, so they always have to be in the house. One thing they are trying to do themselves is to sell, each of them have their shops they look after, the senior wife's shop is just outside the house while the junior wife's shop is on the other side of the street, less than 15 minutes trek."

Isaac pointed out that his success is as a result of his large family that makes it easy to be able to concentrate on making sure his economic strength keeps increasing. He added that his wife "was capable of handling most of the issues at home". Livelihood for men in Ose is somewhat more

challenging compared to livelihood for men in Ile-Oluji, because the water situation in Ose is a more difficult one. Some of the men here have more than one wife to make their (the men's!) lives easier. Since they have to buy water both for drinking and domestic use, their lives revolve much more around water than those of the men in Ile-Oluji. Even the participants who have more than two wives would want the women to assist in the farm if possible. However, due to the time and energy involved in collection of water, they are exempt. The participant with the borehole had a different approach to the situation because he hardly had a feel for the water challenges in the village. This male participant is a good example of how water can impact on the livelihood of an individual and consequently of a community. Apart from his farming, his wife managed the sales of the water too, alongside her shop just in front of the house. She was able to enhance her livelihood even though she was in the house (see Pittaluga, Salvati and Seghieri, 2004).

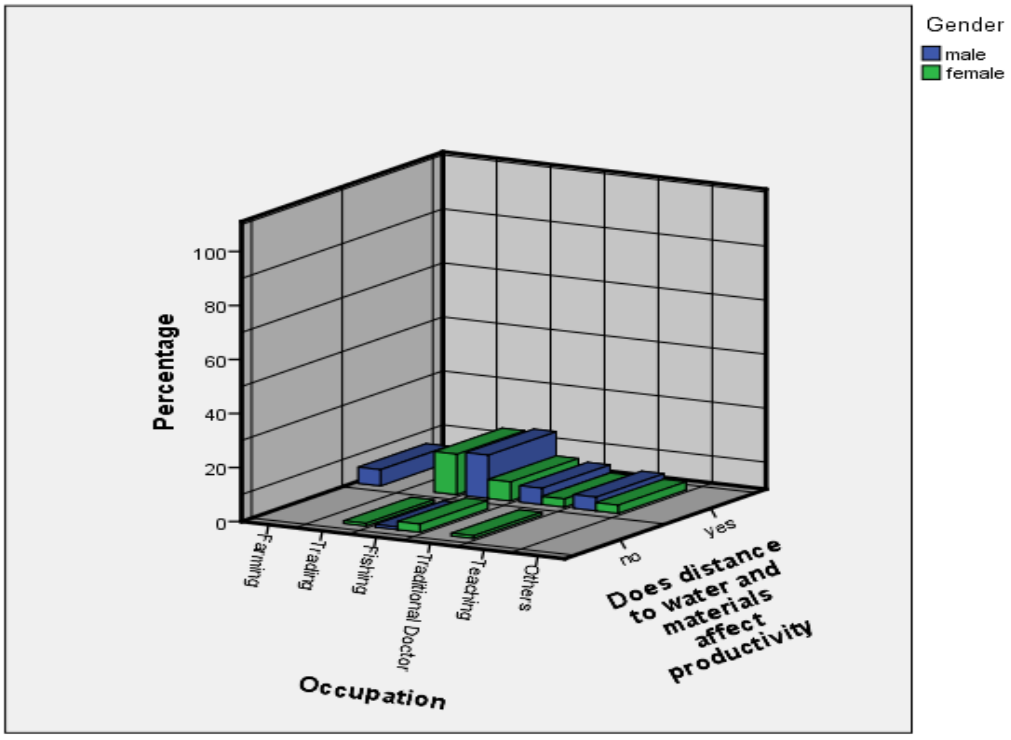
7.5 Livelihood and Impact of *Indigenous Water Management* on Residents of Ese-Odo

Ese-Odo is in the far south of Ondo, which is also populated by farmers, some of whom fish and grow cash crops. The men are generally observed to be actively in production of the cash crop (cocoa), but on a small scale compared to what they do in Ile-Oluji. The men have been observed to be in fishing farming too, which is a source of income for most households in this area. Generally, women here are trade fish. A few men and women too are traditional doctors. The female traditional doctors have clients not restricted to the village, but also people coming from the town because there have been results from their practices.

Ese-Odo is a riverine area of the state and the major source of livelihood is fishing and farming. Due to the depth of the river, very few women are actively involved with fishing. Owing to the water-logged area and high rainfall, only a few land plots are available for farming which are used for cash-crop farming. The little land available is actively dominated by the men. Figure 7.3 shows that 5% of the men are into farming while no significant number of the women is found

linked to this livelihood. Ten per cent of the women were observed to be involved in trading while no significant number of men were found. However, in terms of fishing, 18% of the men as against 4% of the women were involved.

FIGURE 7.3: Gender and Livelihood, 2017 (n=66)



Being a traditional doctor is one of the livelihoods in this area chosen by 4% of the men (n=66), and less than 2% of the women (n=66). The village is a dynamic one, in the sense that both the men and the women are almost always busy with something. Accessibility to water and the materials used for water management is a huge factor limiting the livelihood of most rural dwellers.

7.5.1 Water Management and Livelihood Implications for Women

Water management in Ese-Odo was quite different from that of other communities of study because the women here depend fully on the streams and river for their water sources, which, like with other women, is a major activity that has left them with no time but to be petty traders.

NARRATIVE 1

Bimbo

Bimbo trades with fish.

"I am a trader in selling fish. When they bring the fish from the river, sometimes we have to go and wait for them for hours, because it is first come first serve. I am also a teacher in the primary school there, but I only go when I have a free period, because I have to be available when they are bringing the fish from the river. These two activities have tried to combine so as to meet up with ends meet, although it is very difficult because, one of the problems is we do not have tap water, which could have made life very easy for us. We go to the stream every morning to fetch water and then take care of the water locally so that it can be drinkable. This is our first point of activity as a woman because, if you do not do it, none of the family members can go out, and if you do not do it well people would start getting sick."

NARRATIVE 2

Kehinde

Kehinde's primary source of water is streams and the seasonal rainfall.

"For you to be able to fetch good water you have to set out very early in the morning, which means that other business opportunity must be sacrificed so as to get good water. We had had meeting with the King and met the community leaders on the possible solution, but it is like no cares since it does not really have a direct impact on their source of income. Whether you like it or not, we are behind but not all women would tell you this. This is a community where the men do not care about their wife, in as much as there is food and water, they come eat, drink and go. We are so tied down with the responsibility of having to provide good drinking water for our

household since the community has failed to heed our suggestion that is also working for the neighbouring communities, where presently they hardly go to the stream for water, they have been able to bring the water closer to them. Anybody can go and fetch, or the women can fetch at a more convenient time for them."

NARRATIVE 3

Romoke, shares the sentiments of other women, and said that since their culture does not allow the women to be vocal, this is a reason why women cannot be good farmers like the men.

"Do you know how much we can make from cocoa; there are lands that are not been used, wasting away. Of a truth we do not have plenty land, but the little we have is not even being used adequately. The money we can get from crop farming far outweighs what we get from fishing, fishing too is a lot of money, and we know that it might be difficult for a woman to do this because of the depth of the river, which is not advisable. Even the men that go and fish go in team of at least three because the boat is a big one, when they go they can spend the next two days on the water. The reason the farming which is what we can easily do alongside trading is difficult is because we spend much energy on fetching of water, which is not easy; due to my age I cannot be waking up very early to fetch from the Yemoja source which is very clean, and it is that is close to us here. I use my boat to go a little farther into the water to collect directly from the main source of the Yemoja spring. Here you have to be careful, this is done every day because this particular water is best used fresh. If this stress is taking away, we can then become more useful to ourselves and this community."

Other women identified that their challenges were being caused by the way the men trivialise water issues in all their discussion at the community level. Women showed an interest beyond petty sales in front of the house to the selling of fishes and, more, to the acquisition of lands for

farming which, according to one of the female participants, is even underutilised by the men. But all of these are merely wishful thinking for these women here because their cultural and religious beliefs about the role of women do not enhance their livelihoods.

7.5.2 Masculinity in Water Management and Livelihood

The men in this village were found to be mostly fishermen and farmers that spend most of their time on the water. They have a livelihood that the women look up to and wish they could share/have. But because women have to do the bidding of their husbands, their livelihoods have been compromised for their husbands' livelihood.

NARRATIVE 4

Olubode is a professional fisherman; he learned the fishing techniques from his father.

"I started out as a farmer on arable and cash crop, but latter changed to fishing because this seems to be bringing more money to me than the farming. There are others who are involved in farming that are doing very well, so I think it is a matter of luck. Big fishing is done by setting traps and by experience we almost know the likely path of the fish, because they are also clever, such that if they pass this path today, they would definitely not come by it tomorrow; you have to study their path before you set the trap or else you will catch nothing."

The men leave early in the morning first to study the path of the fish, which can take a few hours, and thereafter they start to prepare the trap. Sometimes their boat can be filled with fish, but since the buyers are always specific on the nature or types of fish, they have to keep searching until they locate a particular kind of fish. While they are busy doing this, the women are at home helping out to take care of the house, because, according to the men, women cannot do this kind of job where you spend hours on the water.

NARRATIVE 5

Chief Alabeni has a big farm of cocoa which should be more than a hectare and has also some boys who are helping him out with fishing; hence he does more of a supervisory job. Also, he is the head of all the traditional doctors in the village, which makes him highly respected in the community.

"The only challenge which is so big, and we are trying to solve is the water issue. Yes, we have rivers and streams, but you cannot just go there and drink you have to fetch preferably from the Yemoja source which is not very big, unless you are able to go a little further into the river to get the real source of the Yemoja spring. Why I said water is a major challenge now is that while I was very young till I was like fifteen years old, I observed that our mothers and everyone had their farms, such that at the end of the year everyone brings something to our father, like rejoicing together using some of the harvest from the farm. But now we do not have things like that again, because there are other things the women need to give attention while we do the farming."

7.6 Conclusion

This chapter has highlighted and discussed issues in gender, indigenous water management and livelihood strategies. It has investigated the impact of indigenous water management practices on both the women and men across each of the study sites. This chapter discussed how the impact of indigenous knowledge system in the provisison of portable water has affected the livelihood of the women who are traditionally expected to bear the burden of water provision at the household level. The next chapter discusses the outcome of gendered participation in water management beyond the household and summarises the other chapters of the thesis.

CHAPTER EIGHT

SEQUEL TO GENDERED PARTICIPATION IN INDIGENOUS WATER MANAGEMENT

8.1 Summary of the Study

This study has probed how local women, who although known within the local communities as primary collectors of water, are seldom involved in the essential water management activities like planning and decision-making beyond the household level. More often than not, their indigenous knowledge and intuition about the seasonal availability of water, traditional ways of improving the quality of water from various sources, and individual and communal rights to use those sources are accurate, but hardly consulted by the (usual normative) male managers of water. This was a similar experience among the women across all three research sites. Similarly, the socially-constructed patterns of differences between men and women in the villages in Ondo, using Ese-Odo, Ile-Oluji and Ose as case studies are also not likely to result in increased women participation in indigenous water management at the community level. Hence, as a result of the construed roles of the women, their livelihoods have been negatively affected compared with men. The study also examined the various indigenous practices in the selected villages of Ondo, and evaluated the gender sensitivity and awareness which affected both the quantity and quality of potable water available for households in the villages with a ripple effect on their livelihoods.

Although there are abundant water bodies in all the villages, in places like Ese-Odo (which is one of the study communities), only 0.96% of the population has access to potable water, with more than 75% still depending on streams for clean water. The documented use of various indigenous knowledge and approaches showed that rural people (through the use of inherited and generational wisdom) are coping with their water challenges. Despite a more discernible female presence across the villages in Ondo, women are barely actively involved in the management of

water in a way that can benefit the entire community and enhance their livelihoods. Men and women in rural communities traditionally play different (constructed) roles in water management, but the male community has traditionally been responsible for making decisions (see Asinyanbola 2005; Balogun 2010) and has dominated the processes.

The different narratives and questionnaires from the study sites show that the under-involvement of women in water management practices has not only affected the management of water, but also the livelihood of those (women) who are the primary collectors and managers of water (IRC 1994; Wallace and Coles 2005). However, it was generally observed that women play a vital and major role in collecting, managing and maintaining communal water availability, and regulating and controlling its domestic and social use and safe maintenance in Ile-Oluji, Ose and Ese-Odo, because they have better information, knowledge and skills on the accessibility, quality, reliability and purity of water sources across the contexts of household, community and subsistence livelihood conditions (Delgado and Zwarteveen 2007).

Important aspects of the study, such as its research questions, objectives and significance, were discussed in the introductory chapter which gave an insight into the study. This was immediately followed by reviewing literature that was appropriate for the study. A literature review helps to contextualise a study by documenting its relevance to a particular field of study (Kaniki 2006). My literature review was able to draw relevant understandings and insights from books, journals and published and unpublished thesis/dissertations. It must be noted that the literature provided some useful insights that led to a good grasp of the study. However, some gaps were evident in this study, in that while indigenous knowledge and practices have been widely studied, their impact on gender and livelihood and a proper location-based documentation is, arguably, sparsely researched.

This study therefore combined quantitative and qualitative methods and used a sequential mixed

explanatory design (Rao and Woolcock 2003; Creswell and Plano 2007), which revealed insights and analysis from lived contexts and experiences. This was useful in the sense that some of the female participants who could not express themselves in the Focus Group Discussions (FGDs) because of the fear of stigma were able to express themselves fully in the questionnaire and in-depth interviews. Quantitative data was collected using a survey questionnaire (Lewandowski, 2000) and an inferential and descriptive analysis was conducted. Qualitative data was also collected using in-depth interviews and FGDs, with key informants providing more detailed views about their practices, perceptions and the impact of the indigenous approach in water management on livelihood; an attribute that using only one methodology would not yield (Madriz 2000). Neither the qualitative nor the quantitative method were entirely suitable for this study; each methodology addressed the limitations of the other methods.

The feminist framework, and specifically the intersectionality approach, was used because it aided in examining the discrimination and marginalisation of women that gave rise to inequalities in gender-related issues around water management in the community. It allowed an examination of the maintenance of gender roles and inequalities (see Blackburn et al. 2000) to shed light on how male dominance is being perpetuated around rural communities in Ondo, where men's contributions are more valuable and recognised than those of women. Men are positioned to represent the water-related interests and needs of the household at the level of the rural community (Boelens and Zwarteveen 2002). These ideas are often implicitly based on a unitary model of the household and a representative division of the world into two clearly "delineated spheres of activity, the public and the private" (Charisma 2010, 11-26). Additionally, women are often 'detached' (Cleaver 2001) between their individual experiences and the experiences endorsed by the culture, placing masculine viewpoints and arrangements high above women's viewpoints in community developments, which is a widespread practice across various villages in Ondo. Thus, women's "viewpoints tend to be silenced or marginalised to the point of being

discredited or considered invalid" (Fonjong 2001, 223-235). However, the Gender-Based Participatory Paradigm in Water Governance, according to Blackburn et al. (2000), emphasises that participation is conceptualised as representative of partnership and ownership which is a 'bottom-up' (see Cornwall 2002) approach involving people at different levels, ensuring that decisions are soundly made and based on shared knowledge. Meanwhile, in the local governance context, this implies interaction among participants and stakeholders in determining their development agenda and in managing resources to implement the delivery of potable water among households which is their development priority. It includes a "bottom-up process built upon a strategy that stresses people's empowerment and participation, gender equality, legitimacy, transparency, accountability and effectiveness" (Mandara et al. 2013). These new institutional structures introduced under gender-equity based participatory models of local governance and the feminist framework therefore sought to balance out the inequalities by presenting a platform where women could be represented alongside men and be allowed to express their opinions as well as contribute effectively in decision-making processes. With respect to the rural water management, women's participation seeks to correct inequities perceived in terms of access to water resources and benefits from rural water development projects as well as the exercising of decision-making powers with respect to the management of these resources (UNDP 2003; GWA 2003b).

8.2 Findings of the Study

The overall objectives of the study were to identify the various indigenous approaches to water management and the impact of water management on the livelihood of the women across the communities of study. It has been identified from this study that indigenous water management begins with the access to and availability of water, fetching of water, access to the indigenous materials, and the use of the indigenous materials to make water potable. Across the study area, access to water is a big issue to the villagers. The villagers whose dependence is on the river or

the stream live kilometres away from these sources of water. It was also observed that women and the young girls were primarily responsible to fectching of water in the homes. This is actually the first phase in the rural water management – RWM. The next phase in RWM is the use of indigenous material which ranges from anointing oil, prayers, kerosene, alum, charcoal, fetching from Yemoja source and others as mentioned in this study. The use of these materials also depends on the exposure and the economic power of the the user. The very poor among the women in these communities use prayer, charcoal, anointing oil and fetching from the Yemoja. These indigenous approaches and difficult access to water has impacted negatively on the livelihood of women. On a daily basis, the women and their girls wake up early in the morning in search of water and thereafter make use of indigenous approaches to keep them clean. All of these procedures take time and energy from the women so they cannot be involved in other social activity that could boost their economy. Almost all the women end up as petty traders just in front of their homes, because they cannot afford to leave their houses.

In light of the findings from this research in addition to the literature, it is argued that gender influences rural responses to the management of water activities, including those of fetching and managing water at the household level, which is not a gendered activity. Fetching of water is claimed as women's cultural duty; however, as documented by Slater (2002) and Sokile et al. (2005), technology, transport and money can alter the social dynamics of access to water, even at the rural level. The indigenous approaches which are similar across the villages and are mostly used by the women, showed that the women are key in the household survival of the community, because since it takes so much time and energy, they have adopted this duty as a form of an unpaid job that must be attended to for the sake of survival (Boelens and Zwarteveen 2002). I clearly observed that having women take part in decision-making in rural water management – RWM/ indigenous water management – IWM, encouraging equal chances for engagement, reducing women's workload in household rural water management and improving services and

transport facilities for easy access to rural water management materials – can impact on gender needs positively. The present water crisis still being faced by the rural areas of Ondo, means that women who are mostly poor like some of the men, are unable to live out their dreams or even support their families due to the daily routine of potable water provision. The importance and specific attention to gender and equality issues is generally low profiled among many rural water decision-makers. Consequently, the different roles of men and women in their households also affect their involvement in 'decision making and management of water facilities' (Bhandari and Grant 2009).

The study also agrees with Delgado and Zwarteveen (2007) who described hegemonic masculinity concept as an analytical tool for classifying those attitudes and practices among men that perpetuate gender inequality which involves men's supremacy over women. Due to no gender awareness or sensitivity, gender needs were hardly met because the positioning of the men was one that was hegemonic and will not allow for the participation of the women beyond the homes either in the issues around water management or community developments (Hirsch et al. 2010). This had led to the women across the communities being sole dependent on their husbands. Most refer to their husband as their "*Lord" or "Master"* implying a master-slave relationship between the women and the men across the communities. Although the men assert that women are central to the management of water at the household level but not so much at the community level, they still find it difficult to allow their full participation in indigenous water management beyond the house. They also confirmed that men have their own designated schedules different from the women, either by culture or through religious rights. Although they claim that the impact of the women could be felt, if allowed, in indigenous water management decisions and planning however, they are not ready to do this since they are not ready to give up either their culture or religious beliefs. This is a reflection of how the men perceive and adjudicate the construed role of women. In all the study sites, women were allocated stereotyped roles, one of which was the

provision of potable water for their households. Culturally, women are to remain behind at home always to look after the house and provide food and potable water which, among other things, are socially constructed as the sole duty of the women. Less than 2% (n=314) of the men across the study sites saw the need for the women to be assisted and be part of the local water management schemes which are gradually crumbling. All of these are an obvious display of the male supremacy among the rural dwellers and in their water management and supply, in which the importance of the role of men was emphasised while the role of the women especially in the community was overlooked or underplayed (see Van Wijk-Sijbesma 1985, 1998; Singh 2008).

The three communities in this study also presented strong religious and cultural beliefs which affected their perceived responsibilities of the women. Ninety-five percent of the men across the study sites are farmers and about 90% of their wives are full-time housewives. Due to the low educational level of the women compared to that of the men as discussed earlier, the women had no choice but to stay at home and not get involvde in any farming activities. making it almost impossible for the women to own lands, those who had lands willed to them had them stolen from them because they do not have the time to cultivate or nor could they even supervise the cultivation of their fathers' lands. Most importantly, Schreiner (2001) argued that the integration of gender in water management analysis among communities can improve the livelihood of the women. However, the stereotypes that exist with respect to roles in water management makes this impossible for the women to improve on their livelihoods instead of being dependent on what their husbands make available for them. Also, this has led to the women having a weak and subjugated voice in the community, because of their weak economic power. The perception that women are solely responsible when it comes to household water and not needed when it comes to management of water at the community level does not only affect the livelihood of the women but that of the community also. Since women are naturally affected by water their invovelment in

the RWM beyond the homes and the various develpmetal activities could improve and alleviate the challenge of potable water.

It was also clearly seen from this study that it is not only the men who are stumbling blocks to the participation of women in the indigenous water management which allows for gender equity and equal access to resources, but also the women themselves: "*I do not see the usefulness of an equal participation, I believe that the issues around water is a woman's issue; and can only be successfully managed by them, because it is a role given to them by God; we must be restricted to the house*." This was strengthened by this participant's strong religious sentiments: "*God already made the man to be above the woman, and that a woman was supposed to learn in submission and serve with submission*." She quoted from the Bible and argued that women who are pushing for equal participation do not understand the order of God in the way things should be done. However, the vast majority of the female participants across the villages, although confidentially through survey questionnaires and in-depth interviews, expressed that gender power relations have to be renegotiated so as to enable the women to manage their own water as an important path to the realisation of both equity and equality. The research also observed that the factor making it impossible for the women to be fully involved in the local management of their water outside the duties they perform at home is that women are overburdened with their house chores. The result of this burden also led to a lag educationally; it was found that the majority of the women did not go to school at all, and a few had only a primary education, unlike their men having both secondary and technical education. Lastly, the perception on whether women are better off being restricted at home to concentrate and manage the household water and not interfere with what the men are doing is not widely accepted by the men, nor by some of the women. Although, while the majority of the men (44.1%) and 26.4% of the women agree to the notion of restricting women, a considerable number of the women (21.3%) also disagree with the perception of restriction of women (see Table 5.1). The implication is that those who agree to restricting the women to the

house are perpetuating women's subservience by making them totally dependent on the men, which has a negative impact on their livelihood and empowerment (see Hemson 2002; Sandys 2005; Sigenu 2006).

Further findings reveal that as much as the role of men is the dominating one when it comes to water management at the community level, it is also vital in ensuring that the provision of potable water is continually been made available and accessible across the community. The role of the men might not be very obvious in the house with respect to indigenous water management activities, they work in the background, which is support necessary for the provision of water. Barrett and Browne (1995), Duncker (2001) and Agarwal et al. (2002) also identify that the role and impact of men would have been widely accepted if there were a bit of gendered decision made with respect to rural water management at the community meetings, and if their perceived positions as heads were used to prioritise on the water needs of women so as to impact on their strategic gender needs. These are the immediate needs of the women to overcome their subordinate position to men, which goes beyond their practical needs. The men were not involved in indigenous water management activities like fetching of water, collection and purchase of indigenous materials; they were observed to have played active roles at the managerial level where planning and decisions which can affect the continuous access to water and indigenous materials are made. Across the three communities of research, supremacy of masculinity was really the order of the day. However, the women did not appear to be trying to usurp their authority; they were simply not satisfied with the men's complacency and priorities with regard to rural water management. Hence it has impacted on the livelihood of the residents, especially that of the women, as a result of the approach to indigenous water management outside the level of the household (see Figure 6.1).

It was observed that 73% of the men (n=314) compared with 22% of the women (n=314) across the three research sites have access to material for daily sustenance and livelihood, showing that this access is unequal. It was also found that the experiences around the research sites are due to the fact that they suffer from common problems of potable water scarcity. These problems, however, have been observed to affect the women and the girl children the most; this is due to the fact that the culture and religious belief systems of the residents from the study sites in Ondo have set the standard of living for them. While some women are dissatisfied and wish that they had opportunities like the men, others are either scared to show their dissatisfaction or are truly satisfied with their lives and cannot really understand why some of the other women are agitated. On the other hand, the men are busy with farming, which is their major source of livelihood, with full support from their wives who are adequately covering for them on the home front, whereas the women do not have this kind of support from the men, more so in the actualisation of their dreams of an enhanced livelihood and economic empowerment.

8.3 Contributions of the Study

This study attempted to contribute to gender and indigenous water management knowledge among rural settlers by specifically drawing on research from the selected sites. A potentially significant contribution is that, while it documented available locations or geographically-based indigenous interventions and practices in the provision of potable water, it also explored and provided knowledge on the specificities of the gendered lives and activities of rural dwellers in Ondo, Nigeria. The study also examined the livelihood of these rural dwellers using a gendered lens, such as gender relations from the household to the community level. The study sheds light on how gender stereotypes, roles and relations among rural dwellers affect their livelihoods, and, by so doing, reinforce gender inequity and inequality. Consequentially, another contribution of this study is that it adds to the existing body of knowledge on the gendered lives of rural dwellers in relation to indigenous water management. The study also exposes how masculine hegemony

under the guise of culture and religion (Christianity) reinforces male dominance and female subordination, which further strengthens the livelihood of the men by weakening that of the women. The interplay between the concepts like indigenous knowledge/wisdom, indigenous management of water, culture, religion, gender, water governance and livelihood serve to enrich gender and indigenous water management discourse. This study provides insight into how rural dwellers are trying to survive, revealing how the women are the most affected by the various approaches of indigenous water management while at the same time they are fully responsible for its household management. By investigating the issues affecting the women and their livelihood, this study contributes to knowledge on the gender and social environment of present day rural dwellers in spaces such as Ondo. The research contributes to academic knowledge on the relationship between gender and indigenous water management and fills in the gaps in studies on using indigenous knowledge for water management among the rural dwellers in Nigeria through a gendered participatory approach.

8.4 Suggestions for Further Research

This study applied a gender lens to explore the lives and experiences of rural dwellers in Ondo, Nigeria, with respect to indigenous water management. The data collected revealed the crucial role that gender plays in the lives of the villagers in the way they interact with water for the provision of potable water. As the study was conducted only among rural dwellers of Ondo State, there is a possibility that gendered experiences may vary in the other six geopolitical regions of Nigeria. Further research that would also document indigenous practices and investigate the implication of gender in rural water management could be conducted among rural dwellers in each of the six geopolitical regions in Nigeria, since the culture and religious practices differ across these geo-cultural spaces. Also, Nigeria represents a major ethnicity different from West African countries some which are Benin, the Ivory Coast, Ghana, Senegal, Guinea, Liberia, Mali, Senegal, Sierra Leone and Nigeria. Similar studies therefore could be conducted with other groups

of West African rural dwellers and their water management in the delivery of potable water so as to further strengthen a gender participatory approach in local water management. The data collected here is largely due to the probe of a gendered approach in the indigenous water management point of view shedding light on the possible impact of gender on local water management. It has also helped in understanding and identifying the impact of stereotypes and gender roles existing in rural water management from the household to the community level among the villagers with respect to the impact of gendered water management on the livelihood of men and women. However, since gender awareness and sensitivity are low in these communities and this has affected the indigenous water management and livelihood of the women specifically, the amplification of the impact of a gendered participation in indigenous water management must be done through more rigorous research. This could enhance the quality of water, improve access to potable water and ensure that the livelihood of the women is improved and sustained.

8.5 Potential Recommendations

Given the fact that women are the ones mostly affected by bearing the burden of water management and involvement in fetching water, there is a need to channel their source of water from the surrounding rivers into every street across the entire village in such a way that the time consumed, and the energy required to get water, would be drastically reduced. This would leave the women with the indigenous management practices to present the water in a potable form. However, in a place where the community is far from the steams and river (Ose), urgent intervention is needed in the installation of boreholes across the community at distances that are easily accessible for the residents. These communities can then maintain the water management using their various indigenous approaches, since the state's water agency might not be able to develop and install suitable technologies to meet the potable water supply of the entire population. However, gender mainstreaming and sensitivity must be considered while this technology is installed, which would affect the maintenance of the equipment and management of the processes.

Like in the neighbouring southern part of Nigeria (Edo and Delta State), rainwater can be stored using appropriate technology to collect, store and preserve it, which presently is not been done across these communities. Hence, during the wet seasons, the rainwater would be available , and in dry seasons they could fall back on the streams and the river that has been channelled already into the community. Most of these rural communities are small. Therefore, these installations, whether from the river or from the rain, can be strategically positioned around the community to ensure easy accessibility to ensure that rainwater is adequately collected, stored and preserved. In all of this, 'these gender lens should be introduced such that the management and maintenance of these facilities are done in a participatory' manner, ensuring gender equality (Rutgerd and Margreet, 2002: 34-36).

While this study has been able to document some geographically-based indigenous knowledge and practices, other empirical studies (Oluwalana et al. 1997; Emery 2000; Ishaku et al. 2011; Ayotunde et al. 2011) have shown that other types of indigenous practices for rural water management still exist across various communities in Nigeria.

There is therefore more work to be done in pulling together available knowledge and expertise in the use of the indigenous approach and practices in such a way that their impact on women's livelihoods is ameliorated. Also, this knowledge can be used to improve the efforts of local practitioners such that multiple available indigenous methods, such as the use of plants, various filtering methods from cloth to sand, solar disinfection, charcoal and harvesting of groundwater among others, in rural water management that is gender based, can be used to solve the problem of the scarcity of potable water among rural dwellers.

Also, in helping to meet practical needs of women across the study sites, the petty trades of the women should be improved by making loans available to them. This was a commen theme all through my interaction with the women who wish they were empowered economically. The provision of social endowments or small loans from the government or relevant agencies can through microcredit plan contribute to the womens' economic empowerment (Bhattacharya, 2008) and improve their inclsion in rural water management. In addition to the above, meeting women's strategic needs is important to improve their literacy. Literacy training can help the women I studied to better understand issues around water management and improve their interaction among the men who are generally more literate.

Literacy can help the women act on relevant information which will help them understand their rights as citizens and to relate with government or relevant agencies that could assist in the solving their water issues. Literacy and related training can improve both business and personal skills. Women also would benefit from business training such as how to keep accounts, records, and orders related to their projects. However, most of these skills providers like schools and adult literacy centres are located in urban areas. Hence, in achieving this, a partnership arrangement must be made between the schools and the adult literacy centres in order to help out women in the rural communities.

Another finding from this study is the issue of perception of the role of women. Apart from the fact the cultural and the religious beliefs have contributed to creating a role for the women, the women themselves are finding it difficult to let go of their culturally perceived roles. Hence, influencing their perception alongside that of the men about a gendered perspective in rural water management can make the women more conscious of their rights. According to Friedan (1963), the most significant part of mobilising women for action is raising their consciousness. This,

according to Paulo Freire (1970), can be achieved through pedagogics of the oppressed designed for poor, oppressed peasants, developed consciousness-raising as a fundamental tool for people's awareness, sensitivity and understanding of how the world functions socially and politically. Freire also argued that consciousness raising is needed for the oppressed to take collective action against oppression. Further, Nancy Hawley claims that consciousness-raising groups for "women prioritize friendship and a common political commitment that are rooted in discussions of shared experiences of sexuality, work, family, and participation in the male-dominated society" (Hawley 2005). This would further assist the participation of women in rural water management beyond the homes, and consequently improve the livelihood of the women, because their participation will make it easy for issues around water to be properly addressed.

Thus, the present challenge of water scarcity and lack of potable water available for rural dwellers is an immense burden on the rural women across all the study sites. This burden extends to the marginalisation of the women in community development meetings. These meetings are where the challenges around water can be addressed. There is therefore a need to raise the gender sensitivity and awareness among the rural dwellers and communicate the impact of a gender equality and inclusion of women in water management among the stakeholders in each of the communities through consultations and negotiations, so that the women can be effectively integrated in the discourse around water management.

Hence, I recommend that more aggressive research be undertaken on the gendered rural water management focusing on rural communities in Nigeria so as to address this present water crisis among rural dwellers. It is also evident from this study that gender inequity, inequality and the culturally construed and constructed roles of women around water management persist not only in the rural settlements of Ondo, but across Nigeria. Adopting Rao and Kelleher's (2005) model, called '*What are We Trying to Change'*, so as to analyse the formal and informal structures

affecting women's participation and performance in local decision-making spaces and rural water management, could potentially shift the rules of the game in the inequitable social systems and institutions (both at the household level and community levels, and in formal and informal relations). This would thus provide opportunities, both to the men and the women for rural water management development, by allowing equal participation in planning and decision-making.

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APPENDIX 1: Focus group discussion question guide

School of Social Sciences

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

1. What are the sources of water in this village?
2. How old are these sources?
3. What level of access do men and women have to these sources of water?
4. What is your view about the present quantity of water compared to how it was in the past?
5. Which of these sources is forbidden for either women or men?
6. What are the practices done to make the water from these sources clean for drinking?
7. How effective and reliable are these practices and procedures?
8. How often do you embark on or are involved in the practices?
9. How much water in quantity can you get from this process per time or per day?
10. What is the level of involvement of women and men in these practices and procedures?
11. How does the cultural practice in this village support a good participation of women and men in local water management (LWM)?
12. Which of these practice(s) is/are most preferred in this village and why?
13. Why do you think women are better off in their homes than taking part in community developments like LWM?
14. In your opinion, who among the men and women would do a better job in LWM?
15. What is/are the impact of women and men in LWM with respect to clean water availability?
16. How do these practices affect or impact on the health of the community?
17. How much effect(s) do you think an equal participation of women and men in LWM will have on the availability of clean drinkable water?
18. How much are women's view needed in community meetings when deciding on developmental projects like potable water provision?
19. What are the other challenges faced by men and women in participating in the local water management?
20. How does men's role and position in the community impact and encourage women's participation in local water management?

APPENDIIX 2: Study Description Letter

School of Social Sciences

Research Participant Informed Consent Form

Prospective Research Participant: Read this consent form carefully and should you have any questions, feel free to ask before you decide whether you want to participate in this research study or not. Feel free to ask questions at any time before, during or after your participation in this research.

Thesis Information

Title: Probing Indigenous Approaches: Gender and Water Management Practices in Selected Rural Settlements of Ondo State, Nigeria

Principal Investigator: Paul Awoniyi

Level of study: Doctor of Philosophy

Contacts: +234 703 235 5026; +27 73 994 6892 Email: awoniyipau@gmail.com

Supervisor: Professor M. Naidu Email: naiduu@ukzn.ac.zw

Contacts: +27 71 681 9496

Institution: University of KwaZulu-Natal, Durban, South Africa

Contact details of Institution: The School Ethics Office,
Phumelele Ximba,
Telephone; +27 (31) 260 3587 +27 31 260 2431

1. Purpose of this Research Study

Your participation in this research is designed to assist in finding out how rural dwellers in Ondo State on their own manage water from the streams, rivers and dams and what they do to improve the benefits of local water management and reduce the negative impacts of the public water management infrastructure. It will also explore the participatory role of men and women in the rural water management practices with the potential of making clean and drinkable water more accessible and sustainable. This study is focusing on the relationship between women and men with the indigenous practices for an efficient delivery of potable water

2. Procedures

You will be asked to take part in an individual in-depth interview (face-to-face), survey questionnaire and a focus group discussion.

3. Possible Risk or Discomfort

Given that this study may moderately question cultural practices and beliefs, you may choose not to answer some questions or choose to terminate your participation entirely.

4. Ownership and documentation of specimens

The information derived from surveys, interviews and focus group discussions will be solely used for this thesis and nothing else. The interview scripts will be safely kept by the researcher for five years after the publication of the thesis. Thereafter, the scripts will be shredded and the cassettes destroyed.

5. Possible Benefits

Participants will benefit from this research as it contributes to exploring and documenting of various indigenous activities. The results might be helpful in repositioning of the water quality processes available for the community.

6. Financial consideration

There is no financial compensation for your participation in this research.

7. Confidentiality

Your identity in this study will be treated as confidential. The results may be published for scientific purposes but will not mention your name or include any identifiable reference to you personally. Each questionnaire will be assigned a number and that number will be used to refer to it. However, any data or records obtained as a result of your participation in this study may be inspected by the thesis supervisor or by research assistants in this study, (provided that such individuals are legally obligated to protect any identifiable information from public disclosure, except where disclosure is otherwise required by law or a court of competent jurisdiction). These records will be kept private in so far as permitted by law. In order to ensure confidentiality, you will not be asked to indicate your names and do not write your name on any of the research material, such as the interview guide and/or the consent form.

8. Termination of the research study

You are free to choose whether you participate or not in this study. There will be no penalty or loss of benefits to which you are entitled to if you choose not to participate. You will be provided with any significant new findings developed during the course of this study that may relate to or influence your willingness to continue your participation. In the event you decide to discontinue your participation in the study, the potential consequence may be a reduction in the sample population. Please notify of your decision so that your participation can be orderly terminated.
In addition, your participation in the study may be terminated by the investigator without your consent under the following circumstances:
Unanticipated withdrawal of consent by the university to do research.

9. Available sources of information

Any further questions you have about this study will be answered by the principal investigator:
Name: Paul Awoniyi
Phone Number: +234 703 235 5026 or +27 73 994 6892
Any questions you may have about your right as a research subject will be answered by:
Professor M. Naidu
Phone Number: +27 71 681 9496

10. Authorisation

I have read and understood this consent form, and I volunteer to participate in this research study. I understand that I will receive a copy of this form. I understand that my consent does not take away any legal rights in the case of negligence or other legal fault of anyone who is involved in this study.

Participant Signature:
Date:
Principal Investigator Signature:
Date:

APPENDIX 3: Informed Consent Form

Ph.D. Research Project
Researcher: Paul Awoniyi (+234 703 235 5026; +27 73 994 6892)
Supervisor: Professor M. Naidu (+27 71 681 9496)

Paul Awoniyi a Ph.D. Student in the School of Social Sciences at the University of KwaZulu- Natal in South Africa is inviting you to participate in a research project titled: '*Probing Indigenous Approaches: Gender and Water Management Practices in selected rural settlements of Ondo State, Nigeria'.* You were selected as a possible participant because you are currently in this village. Please read and understand this form carefully before agreeing to take part in this study.

The aim of the study is to assist in finding out how rural dwellers in Ondo State on their own manage water from the streams, rivers, and dams and what they do to improve the benefits of local water management and reduce the negative impacts of the public water management infrastructure. It will also explore the participatory role of men and women in the rural water management practices with the potential of making clean and drinkable water more accessible and sustainable. This study is focusing on the relationship between women and men with indigenous practices for an efficient delivery of potable water.

The interview would be recorded by tape. Your participation in this project is voluntary. You may refuse to participate or withdraw from the project at any time with no negative consequences. There will be no monetary gain from participating in this research project. Confidentiality and anonymity of records identifying you as a respondent will be maintained by the School of Social Science, UKZN.

If you have any questions or concerns about participating in this study, please contact me or my supervisor at the numbers listed above.

OR
UKZN Ethics Office,
Phumelele Ximba,
Telephone; +27 (31) 260 3587

Your participation is extremely valuable because it will provide insight into an area that has been under documented. It should take you about 50 minutes to complete the interview. I hope you will take time to participate in the interview.

PhD Research Project
Researcher: Paul Awoniyi (+234 703 235 5026; +27 73 994 6892)
Supervisor: Professor M. Naidu (+27 71 681 9496)

I _____ (full names of participant) hereby confirm that I have read and understood the contents of this document and the nature of the research project and I consent to participating in the research project. I understand that I am at liberty to withdraw from the project at any time, should I so desire.

I hereby provide my consent to:

Audio-record my interview / focus group discussion YES / NO

_____ _____

Signature of Participant Date

APPENDIX 4: Interview Questionnaire Guide

School of Social Science

Interview Questionnaire Guide

Profile data of each questionnaire will capture:

- Sex of respondent.
- How long have you been engaged with Local Water Management – LWM – practices.
- Perceptions about collective participation of women and men in LWM.
- Age.

1. What are the water sources in this village?
2. What are the local water management (LWM) practices in this village?
3. How much potable water are LWM practices able to produce?
4. How many men are involved in the LWM practices?
5. How many women are involved in the LWM practices?
6. What is the distance covered to get water?
7. What is the distance covered to get local materials for water management?
8. What average distance do the men cover to get water?
9. What average distance do the women cover to get water?
10. What average distance do the women cover to get the local materials used for water management?
11. What average distance do the men cover to get the same or different materials for LWM?
12. Do you think the LWM approach can solve the problem of potable water in this village?
13. Do you think the presence of women as well as men in LWM practices can improve the quantity of potable water in this village?
14. Do you think women are better off restricted to their homes in the provision of potable water?

15. Do you think women would be asking for too much if asked to be part of LWM procedures?
16. Are the following beliefs helping to make potable water available and accessible?
17. What are other cultural/historical beliefs/understandings affecting women's participation in LWM?
18. What are the roles of men in the provision and the accessibility of villagers to potable water?
19. How do men rate or value the contribution(s) of women to LWM practices?
20. How do men rate or value the role of women in rural development in this village?
21. How do men rate or value the role of women in the household LWM practices?
22. How much equal access do men and women have to materials for LWM practices?
23. How much equal access do women and men have to other materials necessary for daily sustenance?
24. How much access does a male-headed house have to clean drinking water?
25. How much access does a female-headed house have to clean drinking water?
26. Do you think an equal participation of women and men in LWM planning can improve on the quantity of clean water?
27. Do you think women can head the LWM like men if there is a need for it?
28. Whose role is more recognised in household water management between women and men?
29. Whose role is more recognised in village water management between men and women?

Survey Questionnaire

School of Social Sciences

Questionnaire for Individuals About the Implication of Gender on Indigenous Water Management in Villages Inside Ondo State, Nigeria

Questionnaire number: ……
Date: ……...

A. General Information
A1. Individual information:

1. Initials of Individual/Household head: ……..
2. Sex
    1. Male
    2. Female
3. Age bracket:
    1. Below 20 yrs.
    2. 20-40 yrs.
    3. 41-60 yrs.
    4. 61-80 yrs.
    5. Above 80 yrs.
4. Educational level:
    1. Not educated
    2. Primary level education
    3. Secondary level education
    4. Technical level education
    5. Teacher training school
5. Name of Village: ……..
    Council Area……..
    Local Government Area ……

6. What language do you speak?
    1. Akoko
    2. Akure
    3. Apoi
    4. Idanre
    5. Ikale
    6. Ilaje
    7. Ondo
    8. Owo
    9. Ijaw
    10. Yoruba
    11. Other (specify)……
7. What kind of work do you do?
    1. Farming
    2. Trading
    3. Fishing

4. Traditional doctor
5. Teaching
6. Others (Specify) …….

A2. Water Sources and Impact on Gender

1. What is the general rainfall pattern in this village?
    1. Regular (give months) ……...
    2. Irregular
2. Does the rainfall always come at the same time of the year?
    1. Yes
    2. No
3. What are the major sources of house-used water? (Rank with 1, 2…starting with the most available.)
    1. Well
    2. Dam
    3. Taps/Pipe/Boreholes
    4. Rain
    5. Streams
    6. Rivers
4. What are the major sources of drinking water? (Rank with 1, 2…starting with the most available.)
    1. Well
    2. Dam
    3. Taps/Pipe/ Boreholes
    4. Rain
    5. Streams
    6. Rivers
5. How reliable is your source of water in terms of quality?
    1. Excellent
    2. Very good
    3. Good
    4. Bad
    5. I don't know
6. How far do the women go to get clean drinking water?
    1. Less than 1 km
    2. 1-3 km
    3. 4-6km
    4. More than 6km
7. What average distance do the men cover to get clean drinking water?
    1. Less than 1 km
    2. 1-3 km
    3. 4-6km
    4. More than 6km

B. Water Management Practices
B1. Traditional Water Management and Gender Awareness

1. What materials are being used for LWM? (Rank with 1, 2…starting with the most used.)
    1. Plants
        Name (s): ……
        ……
        ……
    2. Alums
    3. Filters

4. Sand
5. Sun
6. Charcoal
7. Others (please specify) …… ……

2. How long does it take to get water from various sources ready for drinking using the LWM practices?

1. Immediately
2. Less than 24 hrs.
3. 2-3 days
4. 4-5 days
5. More than 5 days

3. How much water can be made ready for drinking at once using the above or other practices?

1. Very little
2. Just enough
3. More than enough

4. What is the distance covered to get local materials for LWM?

1. Less than 1 km
2. 1-3 km
3. 4-6 km
4. More than 6 km

5. What average distance do the women cover to get the local materials used for water management?

1. Less than 1 km
2. 1-3 km
3. 4-6 km
4. More than 6 km

6. What average distance do the men cover to get the same or different materials for LWM?

1. Less than 1 km
2. 1-3 km
3. 4-6km
4. More than 6 km

7. Do you think the LWM approach can solve the problem of potable water in this village?

1. Yes
2. No

8. What are the difficulties encountered in getting these materials? (Rank with 1, 2…starting with the most affected.)

1. Source of materials is too far
2. Materials are no longer readily available
3. Materials are too expensive
4. Seasonal changes
5. No support from the women folk
6. No support from the men folk
7. Others (specify)……

9. Are there fears that this material will finish soon?

1. Yes
2. No

10. If yes, what option are you left with? (Please specify)

1……
2…….

3…….
4…….

11. Can you list some other activities or processes that can be used in water management?
    1. ……
    2. ……
    3. ……
    4. ……

12. What is the number of people in the rural water management planning team?
    1. 2
    2. 3
    3. 4
    4. 5
    5. Greater than 5
    6. Others (please specify) ……

13. How many men are involved in the LWM practices in this village?
    1. 2
    2. 3
    3. 4
    4. 5
    5. Greater than 5

14. How many women are involved in the LWM practices in this village?
    1. 2
    2. 3
    3. 4
    4. 5
    5. Greater than 5

15. How old is the 'local' water management technology and/ or practice?
    1. Less than 1 year
    2. 1-20 years
    3. 21-30 years
    4. 31-60 years
    5. Above 60 years

16. When did you start to use this water management practice?
    1. Less than 1 year
    2. 1-20 years
    3. 21-30 years
    4. 31-60 years
    5. Above 60 years
    6. Inherited

17. Does the distance of getting materials and water affect productivity and effectiveness in other areas of life?
    1. Yes
    2. No
    3. Others (specify)……..

18. Are there any situation of illness/death as a result of the water you drink?
    1. Yes
    2. No
    3. Others (specify)……..

C. Gender Impact and Local Water Management

C1. Stereotypes and Perceptions

For each item in this section, circle the answer below the question which indicates how you perceive what is described using the following scale: Strongly agree (SA) (1); Agree (A) (2); Neutral (3) (A); Disagree (D) (4); and Strongly disagree (SD) (5).

1. Do you think the presence of women as well as men in LWM practices can improve the quantity of potable water in this village?

Strongly agree (SA) (1)
Agree (A) (2)
Neutral (N) (3)
Disagree (D) (4)
Strongly disagree (SD) (5)

2. Do you think women are better off when restricted to their homes in the provision of potable water?

Strongly agree (SA) (1)
Agree (A) (2)
Neutral (N) (3)
Disagree (D) (4)
Strongly disagree (SD) (5)

3. Do you think women would be asking for too much if asked to be part of LWM procedures?

Strongly agree (SA) (1)
Agree (A) (2)
Neutral (N) (3)
Disagree (D) (4)
Strongly disagree (SD) (5)

4. Are the cultural stands on women's public participation helping to make potable water available and accessible?

Strongly agree (SA) (1)
Agree (A) (2)
Neutral (N) (3)
Disagree (D) (4)
Strongly disagree (SD) (5)

5. Do you think men are not giving women enough opportunity in LWM practices?

Strongly agree (SA) (1)
Agree (A) (2)
Neutral (N) (3)
Disagree (D) (4)
Strongly disagree (SD) (5)

6. The belief that women are closer to nature and could perform better would stir up envy among the men has impacted negatively on their involvements.

Strongly agree (SA) (1)
Agree (A) (2)
Neutral (N) (3)
Disagree (D) (4)
Strongly disagree (SD) (5)

7. The belief that women could evoke the anger of the water goddess has impacted negatively on their involvements.

Strongly agree (SA) (1)
Agree (A) (2)
Neutral (N) (3)
Disagree (D) (4)
Strongly disagree (SD) (5)

C2 Women's Involvement in Rural Water Management

1. How do men rate or value the contribution(s) of women to LWM practices?
    1. Excellent
    2. Very good
    3. Good
    4. Not necessary
2. How do men rate or value the role of women in rural development in this village?
    1. Excellent
    2. Very good
    3. Good
    4. Not necessary
3. How do men rate or value the role of women in the household water management practices in this village?
    1. Excellent
    2. Very good
    3. Good
    4. Not necessary
4. How much equal access do men and women have to materials for LWM practices?
    1. Excellent
    2. Very good
    3. Good
    4. Poor
5. How much equal access do women and men have to other materials necessary for daily sustenance?
    1. Excellent
    2. Very good
    3. Good
    4. Poor
6. How much access does a male-headed house have to clean drinking water?
    1. Excellent
    2. Very good
    3. Good
    4. Poor
7. How much access does a female-headed house have to clean drinking water?
    1. Excellent
    2. Very good
    3. Good
    4. Poor
8. Do you think the quantity of clean water can be improved on in an equal participation of women and men in LWM planning?
    1. Yes
    2. No
    3. More than 6 km
9. Do men participate in making sure that clean water is accessible and available?
    1. Yes 2. No

APPENDIX 5: ETHICAL CLEARANCE

3 October 2017

Mr Paul Awoniyi 216075838
School of Social Sciences
Howard College Campus

Dear Mr Awoniyi

Protocol reference number: HSS/1309/017D
Project title: Probing Indigenous approaches: Gender and Water Management practices in selected rural settlements of Ondo State, Nigeria

Full Approval – Expedited Application/Amendment

In response to your application received 31 August 2017, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL** with the following amendment.

- ***Change in Methodology: Removable of Observation Tool***

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....

Dr Shenuka Singh (Chair)
Humanities & Social Sciences Research Ethics Committee

/pm

cc Supervisor/Project Leader: Professor Maheshvari Naidu
cc. Academic Leader Research: Professor Maheshvari Naidu
cc. School Administrator: Ms N Radebe & Mr N Memela

Humanities & Social Sciences Research Ethics Committee
Dr Shenuka Singh (Chair)
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Website: www.ukzn.ac.za

APPENDIX 6: PICTURE OF A FOCUS GROUP DISCUSSION

Picture 1: FGD among the men at Ifon

Picture 2: FGD among women at Ese-Odo

APPENDIX 7: IN-DEPTH INTERVIEW

Picture 3: Interviewing a female participant

APPENDIX 8: INDIGENOUS MATERIALS

Picture 4: A clay pot and Alum

Picture 5: Charcoal and Yemoja spring showing the plate-like leaf cleanser