



MONASH South Africa

A campus of Monash University Australia

THE SUSTAINABILITY OF COMMUNITY-MANAGED WATER SUPPLY

**A CASE STUDY OF ILALA COMMUNITY-MANAGED WATER SUPPLY, KWARA
STATE, NIGERIA**

**By
Terfa Percy Gbahabo**

**Supervisor: Associate Professor Bimo Nkhata
Co-supervisor: Dr Richard Meissner**

**Master of Philosophy in Integrated Water Management
School of Social Sciences**

November 2015

COPYRIGHT NOTICES

NOTICE 1

Under the Copyright Act 1968, this thesis must be used only under the normal conditions of scholarly fair dealing. In particular no results or conclusions should be extracted from it, nor should it be copied or closely paraphrased in whole or in part without the written consent of the author. Proper written acknowledgement should be made for any assistance obtained from this thesis.

NOTICE 2

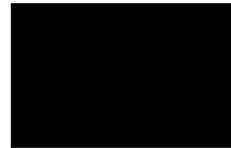
I certify that I have made all reasonable efforts to secure copyright permissions for third-party content included in this thesis and have not knowingly added copyright content to my work without the owner's permission.

DECLARATION

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

Name: Terfa Percy Gbahabo

Signature:



Date: November 2015

ACKNOWLEDGEMENT

My gratitude goes to God who made it possible for me to embark and complete this programme successfully.

My appreciation to those without whom this work would not have been possible:

- International Water Centre, for the scholarship that facilitated this Master of Philosophy degree at Monash South Africa, Monash University.
- My supervisors, Associate Professor Bimo Nkhata, the Director of the Water Research Node and Dr Richard Meissner, Senior Researcher at the Council for Scientific and Industrial Research (CSIR), for their dedication, direction and guidance.
- The staff and students of the Water Research Node, Monash South Africa, for imparting valuable knowledge and experience that greatly contributed to the successful production of this thesis. Particularly, I would like to single out one individual, Linda Downsborough for her assistance, support, encouragement and concern.
- The Ilala community, especially the traditional ruler (the *Oba*), for participating in this study and giving me a warm reception.
- Olumide Sobande and Abdul Oluwole, my tour guides, who, because I was a stranger to Kwara State, made life there, a lot easier.
- The Kwara State Community and Social Development Agency (KCSDA) and the Kwara State Rural and Sanitation Agency (KRUWASSA), for allowing me access to information; and the staff that participated as key informants.
- Layefa Offumbu for editing my thesis
- Family and friends for being there.

Terfa Percy Gbahabo, 2015

DEDICATION

This dissertation is also dedicated to my late parents, Mr. Simon Shikaan Gbahabo and Mrs. Georgina Gbahabo, seen no more but always remembered.

ABSTRACT

Community-managed water supply has, since the 1990s, been widely hailed and promoted as the solution to the challenges of rural community water provision in Africa. However, the sustainability of this approach to water provision is debated because of low rural water supply and frequent system break down in many different context.

The research falls within the area of community water management and sustainability. Particularly, it will investigate the sort of community management that may make rural water supply sustainable. The research uses the case study of Ilala community, Kwara State, and was undertaken through review of relevant documents, of personal observations and of interviews with Ilala community members and government officials. Literature on the sustainability of community-managed water supply is controversial as there seems to be lack of agreement about the sustainability of the model. This thesis contributes to the debate about the sustainability of community-managed water supply. Field data from Ilala reveal that community water management is sustainable in Ilala.

Furthermore, the research findings show that the motivation of beneficiaries to utilize the improved water source was necessary for sustainability. Second, community practice of maintenance in the absence of formal support structure significantly enhanced the sustainability of the water scheme. More so, regular contribution for water tariff enforced by the traditional ruler was also instrumental to the continuous functionality of the water scheme. Lastly, the existence of a strong Community Development Association and the availability strong leadership in the community provided support to the community-managed water scheme and enhanced sustainability. Field data further show that the state created and empowered agencies such as the Kwara State Community and Social Development Agencies and Kwara State Rural Water Supply and Sanitation Agency to provide support to rural communities to manage their water. Ilala community did receive government assistance to construct the community water scheme, but that one-off support is arguably inadequate. Providing on-going support to rural communities is necessary to ensure sustainability in rural water supply. The report concludes with some suggestions for improvement in state policy.

Key words: sustainability; community water management; Institutional Support; Ilala Community; Community Maintenance; Motivation; Cost Recovery.

CONTENTS

COPYRIGHT NOTICES.....	i
DECLARATION	ii
ACKNOWLEDGEMENT	iii
DEDICATION.....	iv
ABSTRACT.....	v
CONTENTS.....	vi
CHAPTER ONE.....	1
BACKGROUND AND INTRODUCTION.....	1
INTRODUCTION	1
SELECTION OF ILALA COMMUNITY.....	2
PROBLEM STATEMENT	4
RESEARCH AIM.....	6
RESEARCH QUESTIONS.....	6
JUSTIFICATION	6
OUTLINE OF DISSERTATION.....	7
CHAPTER TWO	8
LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK	8
INTRODUCTION	8
RURAL COMMUNITY-MANAGED WATER SUPPLY AND ITS HISTORICAL EMERGENCE	8
UNDERSTANDING COMMUNITY-MANAGED WATER SUPPLY.....	10
THE AMBIGUITY OF THE TERM “COMMUNITY” IN COMMUNITY-MANAGED WATER SUPPLY	11
CONCEPTUAL FRAMEWORK: SUSTAINABILITY	11
SUSTAINABILITY FRAMEWORK.....	13
PRINCIPLES THAT ENHANCE THE SUSTAINABILITY OF COMMUNITY- MANAGED WATER SUPPLY	13
THE GOALS OF SUSTAINABLE RURAL COMMUNITY-MANAGED WATER SUPPLY .	19
EMPOWERMENT	19

EFFICIENCY	21
SUSTAINABILITY.....	21
THE SUSTAINABILITY DEBATE IN COMMUNITY-MANAGED WATER SUPPLY	21
CHALLENGES TO SUSTAINABLE COMMUNITY-MANAGED WATER SUPPLY	22
ALTERNATIVES TO THE COMMUNITY-MANAGED WATER SUPPLY MODEL.....	23
CONCLUSION.....	23
CHAPTER THREE	24
METHODOLOGY AND STUDY AREA.....	24
INTRODUCTION	24
RESEARCH PARADIGM	24
QUALITATIVE RESEARCH.....	25
STUDY DESIGN.....	26
CASE STUDY	26
SELECTION OF CASE STUDY	27
SELECION OF PARTICIPANTS	28
DATA COLLECTION	28
DATA ANALYSIS.....	30
KEY ANALYTICAL PRINCIPLES	31
RELIABILITY AND VALIDITY	31
ETHICAL CONSIDERATIONS	32
STUDY AREA	33
NIGERIA	33
KWARA STATE.....	33
ILALA COMMUNITY.....	34
CONCLUSION.....	35
CHAPTER FOUR.....	36
RESEARCH RESULTS AND DISCUSSION	36
INTRODUCTION	36

SOCIAL- ECONOMIC CHARACTERISTICS	37
COMPOSITION OF INFORMANTS	37
AGE DISTRIBUTION OF INFORMANTS	37
SOURCES OF INCOME/LIVELIHOODS OF INFORMANTS	38
EDUCATIONAL STATUS OF INFORMANTS	40
THE SOURCES OF WATER IN ILALA	40
SUSTAINABLE COMMUNITY-MANAGED WATER SUPPLY PRACTICES IN ILALA	41
INTRODUCTION	41
THE SUSTAINABILITY OF COMMUNITY WATER MANAGEMENT IN ILALA	41
MOTIVATION	42
MAINTENANCE	43
COST RECOVERY	45
CONTINUING SUPPORT	47
THE ROLE OF GOVERNMENT AND DONOR ORGANISATIONS IN THE SUSTAINABILITY OF WATER SUPPLY SERVICE	51
CHALLENGES TO SUSTAINABILITY OF COMMUNITY WATER MANAGEMENT IN ILALA	53
CONCLUSION.....	54
CHAPTER FIVE	55
REVISITING SUSTAINABILITY IN COMMUNITY-MANAGED WATER SUPPLY	55
INTRODUCTION	55
REVISITING SUSTAINABILITY IN COMMUNITY-MANAGED WATER SUPPLY	55
THE ROLE OF LEADERSHIP	56
THE PRESENCE OF A STRONG COMMUNITY DEVELOPMENT ASSOCIATION	57
CONTRIBUTION.....	57
CHAPTER SIX.....	58
CONCLUSION AND RECOMMENDATIONS.....	58
INTRODUCTION	58
BIBLIOGRAPHY	60

APPENDICES	65
APPENDIX 1: HUMAN ETHICS CERTIFICATE OF APPROVAL	65
APPENDIX II: CONSENT FORM IN ENGLISH	67
APPENDIX III: CONSENT FORM IN YORUBA	68
APPENDIX IV: EXPLANATORY STATEMENT IN ENGLISH	69
APPENDIX V: EXPLANATORY STATEMENT IN YORUBA	72
APPENDIX VI: INTERVIEW GUIDE.....	75

LIST OF PICTURES

PICTURE 1 & 2: THE PICTURES ABOVE SHOWS THE ODO OSIN RIVER IN ILALA TAKEN DURING THE DRY SEASON IN THE MONTH OF FEBRUARY 4

PICTURE 3 & 4: THE SIGN POST OF THE COMMUNITY WATER SCHEME IN ILALA AND ONE OF THE WATER POINTS IN ILALA, RESPECTIVELY 4

LIST OF FIGURES

FIGURE 1: SUSTAINABILITY FRAMEWORK DEVELOPED BY CARTER ET AL., 1999 13

LIST OF TABLES

TABLE 1: HOUSEHOLD COMPOSITION, GENDER AND MARITAL STATUS OF INFORMANTS..... 37

TABLE 2: AGE DISTRIBUTION OF INFORMANTS 38

TABLE 3: SOURCES OF INCOME OF INFORMANTS..... 39

TABLE 4: EDUCATION STATUS OF INFORMANTS 40

LIST OF ABBRECIATIONS AND ACCRONYMS

CPMC: Community Project Management Committee

FMWR: Federal Ministry of Water Resources

FRN: Federal Republic of Nigeria

ICDA: Ilala Community Development Association Supply and Sanitation Decade

IDWSSD: International Drinking Water

IWRM: Integrated Water Resources Management

KCSDA: Kwara State Community and Social Development Agency

KRUWASSA: Kwara State Rural Water and Sanitation Supply Agency

LGA: Local Government Area

LGRC: Local Government Review Committee

MUHREC: Monash University Human Research Ethics Committee

O&M: Operation and Management

RWSN: Rural water Supply Network

VL0M: Village-Level Operation and Maintenance

UNCED: United Nations Conference on Environment and Development

UNDP: United Nations Development Programmes

UNICEF: United Nations Children's Fund

WCED: World Commission on Environment and Development

WSSCC: Water Supply and Sanitation Collaborative Council

CHAPTER ONE BACKGROUND AND INTRODUCTION

INTRODUCTION

Improved water supply provision for rural population in developing countries, particularly Nigeria, is challenging (Ishaku et al., 2011). This is partly because of the small and scattered nature of rural settlements in Nigeria, the relative neglect of rural water sector, the lack of adequate investment by government in rural water supply, and the problem of sustainability. Community-managed water supply emerged as the panacea to the problems of rural water supply provision. Even though the community-managed model of water supply service has gained prevalence in rural water supply in developing countries, the sustainability of the approach is controversial because experts are in disagreement over the suitability and sustainability of this approach to rural water supply service. This disagreement can be represented simply by two schools of thought¹, namely, “sustainability” and “non-sustainability” schools of community-managed water supply. On the one hand, the “sustainability” school takes the position that community-managed water is sustainable because the constructed water systems continue to function over time (Carter and Rwamwanja, 2006; Schouten and Moriarty, 2008; Lockwood and Smits, 2011; Moriarty et al., 2013). On the other hand, the “unsustainability” school holds that community-managed water supply service is unsustainable because the constructed systems break down soon after they are constructed. These schools, however, suggest that continuing support is necessary to achieve functional sustainability of community-managed water (Lockwood, 2002; Lockwood et al., 2003; Harvey and Reed, 2007; Schouten and Moriarty, 2008; RWSN, 2010; and Improved International, 2012). The factors that contribute to the community-managed water model are contextually different. This research contributes to the debate on the sustainability of community-managed water model.

This research is a study of the sustainability of community-managed water² supply service. It uses a case study of Ilala community-managed water supply service in Irepodun Local Government Area, Nigeria, to investigate the sort of community management that may make rural water supply more or less sustainable. In doing this, this research will also study the

¹ The two schools are named “sustainability” and “non-sustainability” for lack of a better nomenclature.

² In this research, the terms community water management and community-managed water are used interchangeably.

effect of institutional or post construction support to the community water management and the challenges of this model of rural water supply in Ilala. The research contributes to the debate about the sustainability of community-managed water supply.

Community-managed water supply service is a participatory approach to water management, whereby, the beneficiary community takes responsibility for issues such as control, operation, maintenance and management of their water system (Harvey and Reed, 2007). Community water management discourse proposes that when communities manage their water supply systems, they have power and control over the water supply systems. The logic of this approach to rural water management is that when communities are empowered to participate and manage their own water, the sustainability of the water supply is guaranteed. In Nigeria, rural water supply, for the most part, is sponsored by the Federal Government through capital investment. The beneficiary community pays counterpart fund, a token contribution, which is aimed at fostering a sense of ownership of the water supply facilities by the rural community (FRN, 2000). For instance, to instil a sense of ownership of the community water, the case study community, Ilala, was required to contribute 10% of the total cost of the water project by the Kwara State Community and Social Development Agency (KCSDA).

Sustainability, in the context of rural community water management, refers to a situation whereby water facilities are being maintained in a state which ensures a reliable and adequate potable water supply service and the benefits of water supply are sustained over a long time (Davies and Brikke, 1995). Sustainability is achieved if “water continues to be abstracted at the same rate and quality as when the supply system was designed...and whether environmental quality continues to improve” (Carter et al., 1999:7). On the other hand, Moriarty understands, “A water service in terms of the availability of a given quantity of water, of a given quality, at a given reliability and with an acceptable level of accessibility” (Moriarty, IRC Website).

SELECTION OF ILALA COMMUNITY

The aim of this study was to investigate the sort of community management that leads to sustainable rural water supply in Ilala. Ilala is a community in Irepodun Local Government Area, Kwara State, Nigeria. In 2012, the community received support from Kwara State Community and Social Development Agency (KCSDA) to construct five boreholes that

supplies about 20 water points with water. This was a counterpart funded project involving the World Bank and the Federal Government of Nigeria. Before the construction of the improved water in 2012, the community relied on river/stream, well water and rainfall for their water supply. The Odo Osin River flows through Ilala and provides water for agriculture and other livelihoods endeavour. However, during the dry season, the amount of water in the river shrinks. Picture I and II on page 4, taken during the dry season in February 2015, show the Odo Osin River in Ilala. Moreover, irrigation (dry season or fadama) farming in Ilala is predominant among incomers. Conflict between incomers (mostly irrigation farmers) and indigenes used to occur because irrigation farmers used to divert the flow of the stream/river water from the River Odo Osin to their farms, thereby, reducing access to water for the rest of the community. The traditional ruler (*Oba*) played an active role in conflict resolution and ensured peace because he is not only powerful and respected in Ilala, but also he is host to the incomers and played a key role in their farm land allocation. However, the construction of the improved water in Ilala provided an alternative source of drinking water and removed pressure from the stream/river water and so reduced water resource conflict between the indigenes and the incomers.

Importantly, Ilala community was selected for the study because it is one of the communities in Kwara State where the community manages its water supply service. Moreover, the community water scheme presents a good case study for the researcher to study the sustainability of community water management.

Other sources of water in Ilala are discussed next. Individual households have wells and this served as a source of water for drinking and other purposes. A few of the informants interviewed prefer using well water because they grew up drinking water from well. Moreover, rainfall is an important source of water in Ilala because Kwara State, which Ilala is part of, records an average annual rainfall of between 1000mm and 1500mm, and the average maximum temperature ranges from 30 to 35 degrees Celsius. However, today Ilala community depends mostly on the community water scheme for household water needs. Hence, the importance of the community-managed scheme to the people of Ilala.



Picture 1 & 2: The pictures above shows the Odo Osin River in Ilala taken during the dry season in the month of February



Picture 3 & 4: Pictures 3 and 4: the sign post of the community water scheme in Ilala and one of the water points in Ilala, respectively.

PROBLEM STATEMENT

The prevalence of the community-managed rural water service provision is now established. The apparent failure of the community participation scheme of the 1980s, which turned out to be unsustainable, led to the endorsement of the community management model. Conceived to replace the supply-driven model of rural water provision in Africa that was provided and managed by most African government institutions, the efficiency of which was largely poor because of inadequate government capacity and commitment, the community-managed water was put forward as the panacea to the challenges of rural water supply management (Harvey and Reed 2007: 367; Dube, 2012:11).

Having been established as the leading model of rural water supply service, the community-managed water benefits have been extolled. Evans and Appleton (1993: iv) note that community water management is beneficiary to rural communities as it “builds [their] confidence and can stimulate wider development work” and frees the resources of agencies

that would otherwise be engaged in the task of routine management and maintenance, and these can be used to target more communities. Management of rural community water leads to enhanced capabilities of self-esteem, empowerment and gives room agency to pursue livelihoods and other human endeavours and development (Goldin et al., 2008). More so, the model is cost effective, and hence, can enable states and local governments with large rural constituencies achieve a wide coverage of rural water supply (Mvula Trust, 2002).

Nevertheless, the sustainability or otherwise of the community-managed water model of rural water supply has received attention from scholars (Lockwood, 2004; Harvey and Reed, 2007; Schouten and Moriarty, 2008; Whittington et al., 2009; Kleemeier, 2010; Moriarty et al., 2013; Whittington et al., 2009; Bakalian and Wakeman, 2009). Some studies have shown the unsustainability of community water management, except in instances where there are post-construction support from external entities (Lockwood, 2002; Lockwood et al., 2003; Harvey and Reed, 2007; Schouten and Moriarty, 2008; RWSN, 2010; and Improved International, 2012). Carter and Rwamwanja (2006) study of functional sustainability in water and sustainability in South-West Uganda, on the other hand, reveals that community water management is sustainable (Carter and Rwamwanja, 2006). However, the importance of support to community-managed water service for the sustainability of rural water is widely recognized (Harvey and Reed, 2007; Schouten and Moriarty, 2008; Lockwood and Smits, 2011; Moriarty et al., 2013). For example, a study of rural water management and support arrangement in 13 countries revealed that “support should, in fact, be seen as an integral part of community-based management” (Lockwood and Smits, 2011). Yet, there is little evidence linking the sustainability of community water management to post-construction or institutional support.

In view of the foregoing and the importance of achieving wide coverage for rural water supply in Nigeria, it is important to investigate the sort of community management that may lead to sustainable rural water supply in Nigeria. This is important as there are mixed results on the success and the sustainability of rural community-managed water supply. This is because communities are dynamic and the factors that encourage the success or failure of community water differs in different locations. The research will also investigate the condition necessary for the sustainability of community water management and the importance of institutional support to sustainability. Hence, this study will contribute to the debate and the literature on the sustainability of community water management. This study

will inform organisations, policy makers and government departments concerned with rural water supply in Nigeria on the sustainability or otherwise of community water management.

RESEARCH AIM

The research falls within the area of community water management and sustainability. The research asks the question: What sort of community management may make rural water supply sustainable in Ilala?

RESEARCH QUESTIONS

- What sort of community management may make rural water supply sustainable?
- Is community-managed water supply service sustainable in Ilala?
- What factors are necessary for the sustainability of community-managed water supply service in Ilala?
- What are the challenges to the sustainability of community water management in Ilala community?
- What institutional support/enabling environment has been put in place in Ilala community to enable Ilala community manage their water systems?
- What is the role of government and donor organisations on the sustainability of water supply service Ilala?

JUSTIFICATION

Access to water is important for enabling water security, livelihoods and sanitation and, by extension, dignity. More so, access to water is an essential element in the fight against poverty reduction. Nevertheless, the availability of, and access to water is a challenge for many rural households in Nigeria, the majority of whom are smallholder farmers and petty traders. Nwankwoala (2011: 1171) reports that 70 per cent of households in rural communities in Nigeria lack access to improved water supply, and some of these rely on free sources like rivers, perennial streams, water ponds and unprotected wells. The rural population in Nigeria mostly live in small and scattered settlements. This small and scattered nature of rural settlements in Nigeria contributes to making piped water supply provision in Nigeria challenging (Ishaku et al., 2011). Importantly, lack of access to water and sanitation in the rural areas of Nigeria presents health problems such as diarrhoea and Guinea worm (Federal Ministry of Water Resources, 2004); and development challenges such as livelihoods insecurity. Nonetheless, rural water supply programs in developing countries often fail in the long-term to deliver benefits to society. Hence, it is necessary to pay attention

to sustainability issues to prevent new water schemes from breaking down (Garriga, R.G. and Perez-Foguet, A., n.d.) .

This research investigates the sort of community-managed water that may lead to sustainable water supply service in Ilala. This research will contribute to the debate on the sustainability of community-managed water supply service and the importance of institutional support to the sustainability of community-managed water supply service. This research will also create awareness to the challenges to the sustainability of community management of rural water supply systems in Nigeria and the ways in which sustainability can be improved.

OUTLINE OF DISSERTATION

The remainder of this dissertation is structured in the following way.

Chapter 2 discusses relevant literature and offers theoretical discussions on the study of the sustainability of community water management.

Chapter 3 elaborates on the research methodology, and describes the study area. The research methodology and the research methods are discussed.

Chapter 4 discusses the social-economy characteristics of Ilala community. The chapter also discusses the sources of water before and after the water intervention. Lastly, it presents the result of the research on the sustainability of community water management in Ilala community.

Chapter 5 discusses the key findings of the dissertation in line with the research questions.

Chapter 6 presents the conclusion and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

INTRODUCTION

In the foregoing chapter, an introduction and background to the study was given. This chapter reviews relevant literature to the phenomenon under study. This review seeks to highlight the important history, theories, concepts and principles related to community-managed water and its sustainability in order to provide a clear understanding of why the research questions were generated. Literature review is considered as an essential step in most research, because it enables the researcher to appreciate what has previously been learned in that field so far (Babbie, 2011).

In this chapter, a brief historical overview of community-managed water supply is explored to illustrate the evolution of the concept and its development. Then, the ambiguity of the concept of ‘community’ in community-managed water is clarified. Sustainability, the conceptual framework, is discussed. Principles that enhance the sustainability of community-managed water supply is unpacked. Furthermore, the chapter deals with the goal of community water management and the potential solution to the challenges of community water management. Lastly, the remainder of the chapter deals the debate about the sustainability of community-managed water, challenges to sustainability and alternatives to the community-managed water model.

RURAL COMMUNITY-MANAGED WATER SUPPLY AND ITS HISTORICAL EMERGENCE

Community-managed water supply emerged as a reaction against the perception of many African states that water supply was their responsibility. The rural water supply and sanitation sector gradually emerged in the 1960s and 70s, firstly as community involvement, then community participation and later evolved into community management (Schouten and Moriarty, 2008: 1). The 1977 World Water Conference in Mar del Plata, Argentina, officially endorsed the community participation model and this launched the International Drinking Water Decade (IDWSSD) of the 1980s with the slogan, *Water and Sanitation for All*. The conventional water and sewerage systems that were being promoted by multilateral organisations excluded and marginalized the poor because they were technologically complex for the rural population and financially constraining for governments of poor countries.

Moreover, external technical assistance in water and sanitation delivery to poor countries took the form of a blue print adapted from the West to the African context. Hence, Mar del Plata argued against the prevailing logic and investment strategies behind the provision of water supply in the developing world and, instead, proposed community participation, if the goal of the IDWSSD was to be realized (Black, 1998; Schouten and Moriarty, 2008). The community participation model was considered cheaper and based on the concepts of self-reliance and community action. The beneficiary communities were encouraged to participate actively by providing inputs, labour or cash for projects (Schouten and Moriarty, 2008). Thus, community participation was demand-driven, as opposed to the earlier supply-driven model of water supply.

The International Drinking Water Decade failed to achieve its aim. It was later noted that the water participation schemes were unsustainable; and many of the constructed systems broke down soon after they were commissioned because of poor management and maintenance (Carter et al., 1993; Whittington et al., 2009: 697). The management and maintenance problems were attributed to the use of inappropriate technologies that were not suited to rural areas in poor countries; poor communication; the problem of institutional capacity—physical, financial and human resources (Carter et al., 1993:646). In view of the apparent failure of the community participation scheme of the 1980s, the New Delhi Global Consultation on Safe Water and Sanitation of 1990 endorsed the community management model. Furthermore, New Delhi calls for institutional reform arguing for “an integrated approach, including changes in procedures, attitudes and behaviour; and the full participation of women at all levels in sector institutions. It urges too, the adoption of sound financial practice, where community management can also play an important role” (Evans and Appleton, 1993: iv). The work of Robert Chambers (1983) in community development provided the intellectual foundation for the community management model. Chambers argued for communities to be responsible for and take ownership of the complete life cycle of projects.

Further support was given to the community-managed water model in the 1990s. The Nordic Fresh Water Initiative of 1991 called for the devolution of water management responsibility to the lowest appropriate level. The International Conference on Water and the Environment convened in Dublin in 1992 argued for a participatory approach and advocated for: the involvement of users, planners and policy makers at all stages in water development and management; the involvement of women in water management, as they play a major role in

the provision, management and safeguarding of water (Evans and Appleton, 1993: iv; Entsua-Mensah et al., 2007:1); and the recognition of water as an economic good, hence, the need for cost recovery through user fees (Whittington et al., 2009). Agenda 21 of the 1992 Rio conference endorsed the principle of community management of services to guide access to water for people, and advocated for measures to be put in place to strengthen local institutions to enable them implement and sustain water and sanitation programmes (Schouten and Moriarty, 2008; UNCED, 1992). The Water Supply and Sanitation Collaborative Council (WSSCC) convened in Brazil in 2000 and called for institutional reform and strengthening, good governance, the improvement of the capacity of public agencies, the promotion of public-private partnership, the adoption of the code of sector ethics and rights and responsibilities of the consumers, and the commitment to build on people's energy and creativity (Schouten and Moriarty, 2008: 18).

UNDERSTANDING COMMUNITY-MANAGED WATER SUPPLY

Community-managed water supply is an aspect of community participation. It is a participatory approach in which the beneficiary community is responsible for issues such as control, operation, maintenance and management of their water systems (Harvey and Reed 2007; Dube 2012:2). Hence, the responsibility of governments, NGOs or agencies in rural water supply, under this model of water management, are reduced to “providing certain backup services (i.e. legal regulations, hydrological information, capacity building); [but the] direct responsibility for constructing and maintaining water supplies [are left] to the beneficiaries...” (Kleemeier, 2001:245). The role of organisations or agencies, therefore, is to enable the community to ‘have a say in their own development’, and take full responsibility and authority for operation and maintenance of their water systems (Harvey and Reed, 2007). It is proposed that when communities participate, contribute, and manage their water supply systems, they have power and control over their water supply systems (Evans and Appleton, 2003; Harvey and Reed, 2007). To ensure the sustainability of community-managed water scheme, there is need to empower communities with knowledge, skills and tools, and the authority, control and responsibility for the management of their water systems (FMWR, 2004:25). The developed capacities empower members of the community and give confidence and dignity to pursue, secure and enhance their livelihoods.

THE AMBIGUITY OF THE TERM “COMMUNITY” IN COMMUNITY-MANAGED WATER SUPPLY

What constitutes the beneficiary community is more complex than is conceived. In rural water supply, a community may be defined by the area that a given water supply system can reasonably serve (Harvey and Reed, 2007). In this sense, it is obvious that members of a beneficiary community may belong to different families, clans, ethnic, religious and/or socio-economic groups (Harvey and Reed, 2007:368). This definition of community does not only have implication for participation in, and management and sustainability of, community-managed water supply systems, but more importantly, it buttresses some of the reasons for the failure of community-managed systems (ibid.). For example, a community may not have the internal resources, common interest, or sense of solidarity, to initiate collective action or sustain the management of the facility (Harvey and Reed, 2007:368. More so, since members of the community may be from diverse socio-cultural, political and economic background, they may not place the same value on water, and may not have equal power and control over the water system (Schouten and Moriarty 2008:3). In the context of the water and sanitation sector in Nigeria, rural communities have a population of less than 5,000 and are characterized by lack of electricity, pipe water or tarred roads (FMWR, 2004: 4). Despite the complexity of the term, ‘community’ in community-managed water, the study adopts the term as it is understood in rural water supply and by the FMWR (Federal Ministry of Water Resources) (2004), as defined above.

CONCEPTUAL FRAMEWORK: SUSTAINABILITY

The concept of sustainability gained popularity in the 1980s, and it became frequently applied in development policies, programmes and evaluations. Having been contextualized by different disciplines, sustainability now represents different ideas to different fields of studies (Parry-Jones, 2001). But the question of what sustainability actually is and the methods to achieve it have remained elusive to development practitioners and policy makers. However, the most commonly used definition of sustainability was put forward by the United Nation’s World Commission on Environment and Development (WCED) in their 1987 Brundtland’s report³: sustainable development is “development that meets the needs of the present without compromising the ability of the future generations to meet their own needs” (WCED, 1987: 43). This definition brings together the three pillars of sustainable development: “economic

³ The title of the Brundtland report of the World Commission on Environment and Development (WCED) is *Our Common Future*

development, social development, and ecological or environmental development under a societal goal of sustainability” (Harris, 2000; Kelly n.d). The Brundtland report argues further that to achieve sustainable development, the following are required: (1) a political system that enables citizens to effectively participate in governance; (2) an economic system that is capable of generating surpluses and technical knowledge on an independent and continuous basis; (3) a social system that is capable of resolving social tensions that spring from disharmonious development; and (4) a productive systems that recognize our obligation to preserve the ecological basis for development (Krantz, 2001; Solesbury, 2003).

In the context of water sector, sustainability has been defined as “whether or not something continues to work overtime” (Abram, 1998). For Davies and Brikke (1995; see also Harvey and Reed, 2003⁴), sustainability refers to water facilities being maintained in a condition which ensures a reliable and adequate potable water supply; and the benefits of water supply are continued to be realized over a long time. From these definitions, it is seen that sustainability is achieved when, firstly, “water continues to be abstracted at the same rate and quality as when the supply system was designed...and whether environmental quality continues to improve” (Carter et al., 1999:7); secondly, when there need to be (a) available funds for recurring expenditures and repairs, (b) a sense of ownership, or acceptance of the water system by the beneficiary community, (c) adequate source of water supply and, (d) a properly constructed design. Thirdly, it can be deduced from the definitions that sustainability is defined in terms of sustained or continued benefit of service, maintenance of water facilities, such that it provides continuous or sustained service and the resilience of the water source.

More so, sustainability has many dimensions and has been divided into three aspects (Sara and Katz, 1997; Kamruzzaman et al., 2013: 29-30). Whereas system design and construction quality are seen as the important technical factors for sustainability, the institutional factors that are important for sustainability are: water committee, operation and management (O&M) of the system and money collection. Lastly, social-economic factors that promote sustainability are: income level, willingness of the users to assign time, availability of adequate fund and labour.

⁴ Harvey and Reed (2003) understands sustainable rural water supply as when “the water sources are not over exploited but [are] naturally replenished, facilities are maintained in a condition which ensures a reliable and adequate water supply [and] the benefits of the supply continue to be realized”.

SUSTAINABILITY FRAMEWORK

This research adopts the sustainability framework developed by Carter et al. 1999, as the conceptual framework for investigating whether Ilala community water management supply system is sustainable. The representation below shows the interconnected factors of sustainability of community water management. The diagram shows that a weakness in any one of the factors can lead to the failure of the entire scheme.

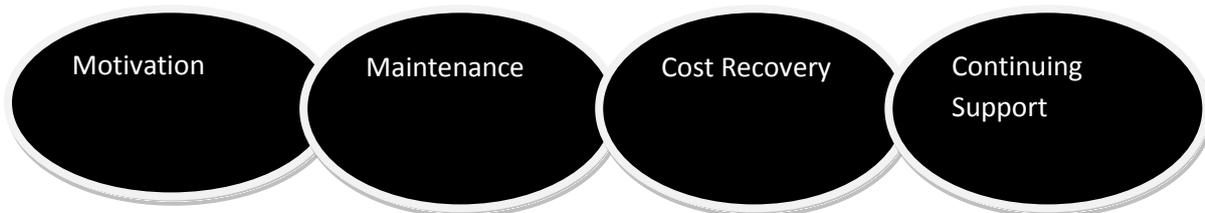


Figure 1: Sustainability Framework developed by Carter et al., 1999

PRINCIPLES THAT ENHANCE THE SUSTAINABILITY OF COMMUNITY-MANAGED WATER SUPPLY

The research will unpack the key principles of the concept and practice of community water management that enhance sustainability of service delivery. These are participation, ownership, motivation, cost recovery or sharing, maintenance and post-construction or continuing support.

PARTICIPATION

The participation of members of the community is necessary for sustainable water management (Lockwood, 2004:8), yet the process of participation is complex. Participation has been legitimized for different reasons (Sansom-Sherwill, 2006: 30); has different dimensions (Willis, 2011:114); and are of different degrees (Arnstein, 1969). The process of participation is not as simple as it seems. As a concept, participation can be differentiated according to: the aim of the process; dimension; degree of participation and intention of the process. The most important question with respect to participation are: who should participate, who decides who should participate, and what level of participation is desirable?

Participation, which is an important principle of community-managed water supply and Integrated Water Resources Management (IWRM), ensures that stakeholders, including the water users, are engaged in the decision making process. The result of participation is equity, financial viability and environmental sustainability (Goldin, 2013b: 2). Participation is important for sustainability or continued functionality of community water management.

More so, participation and management of water by users enable communities to develop new capabilities in the form of new knowledge or skill that gives them confidence, dignity and enhanced agency. Lastly, Goldin (2013b) says that “People value voice, choice and freedom in deciding what constitutes a good life and when they have choices they are likely to have more freedom to be or to do what they would like to be or do”.

However, Cleaver (1999: 597), on the other hand, is critical of the positive claims that are made for participation, arguing that while the efficiency outcome of participation can be supported, there is little evidence to support the relationship between participation and empowerment, and sustainability. She notes further that participation is now an act of faith, and that “the evidence regarding empowerment and sustainability is more partial, tenuous and reliant on assertions of the rightness of the approach and process rather than convincing proof of outcomes”.

OWNERSHIP

Ownership is an important principle of community-managed water supply service because when a community has a sense of ownership of its water system, it develops a sense of responsibility for its management and this leads to sustainability and reliability of the water system. Here, formal legal ownership of a resource is often impossible, hence, focus is placed on the perception of ownership by a community (Lockwood, 2004:8). It is generally assumed that once a community participates, and is willing to pay for its water supply, from the outset, their sense of ownership of the project is enhanced and this leads to the sustainability of the water supply system (Harvey and Reed 2007:368). Nevertheless, the popular notion that ownership is necessary for community management and central to sustainability is problematic and not necessarily true. Furthermore, community participation does not necessarily translate into a strong sense of ownership and, therefore, successful management of water supply, for reasons inherent to the community in question. According to Harvey and Reed (2007), “just because a community owns a facility does not necessarily mean that it will acquire a sense of responsibility for its management, nor does it guarantee a willingness to manage and pay for its O&M”⁵. Evidence from a Mvula Trust supported community-managed water project in Mohlajeng village, Limpopo, South Africa shows that working as a community and developing the spirit of togetherness, respect for traditional authority and

⁵ O&M means Operation and Management

developing a sense of responsible management and maintenance for water schemes were crucial in developing a sense of ownership (Schouten and Moriarty, 2008:89), in that context.

MOTIVATION

The motivation⁶ of beneficiaries to utilize the improved water source is necessary for sustainability to be achieved. The motivation of the community encourages the use of the improved water, that is, water users must believe that the improved water source is preferable to the traditional source (Carter, 1999). Motivation entails also, that the water users need to experience the apparent and direct benefit of an improved water source, namely, access and proximity to water source, among others. For Carter et al. (1999), “Motivation, value, worthwhileness, or self-interest are important characteristics of participation of stakeholders”.

Yet, on-going motivation is needed for enduring participation and to foster a sense of ownership. In some instances, external institutional support may be required to further encourage and motivate communities to sustain their participation, that is, where there is no internal capacity or resources in the community to sustain participation. Also, in cases where it is impossible to instil a sense of ownership, then a sense of responsibility should be fostered. This can be achieved by instilling an understanding of the need to pay for water, as was done in parts of Ghana, Kenya, and Uganda, where “communities pay a caretaker each time they collect water from the system” (Harvey and Reed, 2007).

COST RECOVERY

Cost recovery ensures lasting sustainability of water supply service. Nyarko et al. (2007:92) note that “cost recovery of water services involves regaining or sharing all the costs associated with a water service system for ensuring long-term sustainability”. Cost recovery ensures that “the type or level of water supply provided [is] appropriate to, the demand (in the sense of economic demand or willingness to pay) of, the community...” (Moriarty et al, 2013). Contributions to costs do not necessary have to be financial in nature (Lockwood, 2004:8). For cost recovery to be effective, Schouten and Moriarty (2008: 107) assert that several key critical factors need to be in place, such as financial management capability; trust

⁶ The discussion on motivation is heavily dependent on the work of Carter et al. (1999)

in the community of members responsible for finances; and willingness to pay. However, they explained further that several issues can limit and complicate cost recovery. First is the deeply entrenched notion that water supply is free and therefore, the responsibility of the government. Second is the collection of water tariffs before the system is down. This is often perceived by rural people as an imposition. Schouten and Moriarty (2008:110-111) and Moriarty and Butterworth (2003: 23) , note that, given that many rural communities are poor, cost recovery is often also complicated by the *ability* of the members to actually pay for the cost of water service. In the context of rural water supply in Nigeria, the Federal Ministry of Water Resources (FMWR) (2004:4) notes that residents are willing to contribute for community water management projects, yet this is constrained because they mostly rely on harvests, which are unpredictable, for their cash. The Mvula Trust supported community-managed water project in Nhlungwane, KwaZulu-Natal, South Africa was a case in point where the community kept a relatively good financial record and achieved a ninety per cent cost recovery (Schouten and Moriarty, 2008:108). For example, Sarvodaya, in Sri Lanka, partial cost recovery is negotiated to take the poor and disadvantaged in the community into account (Ademiluyi and Odugbesan, 2008).

MAINTENANCE

Davis and Brikke (1995) understand maintenance as the “activities required to sustain the water in a proper working condition”. Maintenance costs money and requires an effective cost recovery to fund it. The absence of maintenance can lead to system breakdown and lack of sustainability of the water scheme. Davis and Brikker (1995) differentiate three types of maintenance, namely, preventive, corrective and crisis. Preventive maintenance refers to the regular inspection and servicing of the facilities of the water scheme to preserve assets and minimize break downs. Corrective maintenance deals with the minor repair and replacement of broken and worn out parts with the aim of sustaining reliable facilities. Finally, crisis maintenance means the unplanned responses to emergency breakdowns and user complaints to restore a failed supply. Crisis maintenance may seem cheap in the short term, but it leads to recurrent breakdowns, an undependable supply, poor service levels, lack of user confidence, and may finally lead to complete system failure (Davis and Brikke, 1995).

SUPPORT TO SERVICE PROVIDERS

The concept of the provision of support to communities in the operation and management (O&M) and administration of their water supply has been termed differently by different authors. Lockwood (2002) terms the concept as institutional support mechanism, Lockwood et al (2003), Bakalian and Wakeman (2009), Smits et al. (2011) and Smits et al. (2013) refer to the concept as “follow-up support”, “post-construction support”, “direct support” and “support to service providers” respectively. In this research, the term “support to service providers” is preferred to “post-construction support” because of the ambiguous nature of the term, “post-construction support”, which could refer to and be understood as “the support for the few months after project implementation is completed, and not the on-going and continuous support” (Smits et al., 2013) that is referred to here in this research.

Support to service providers is important for the sustainability of community-managed water service (Lockwood, 2002; Lockwood et al., 2003; Harvey and Reed, 2007; Schouten and Moriarty, 2008; RWSN, 2010; Lockwood and Smits, 2011; Improved International, 2012; Moriarty et al., 2013). In fact, support to service providers should be seen as part and parcel of community-based management (Lockwood and Smits, 2011). However, not all community-managed water service providers receive formal support. Some, in fact, receive ad-hoc support. Yet, the majority of community-managed water providers receive some external support. These communities, for the most part, solicit and “receive this in an ad hoc manner, if and when the need arises and in response to specific problems” (Whittington et al. 2009). Such ad-hoc support, Smits et al. (2011) argue, is dissimilar from cases where community-managed service providers “have a structural relationship with support agents, who visit them and provide support on a regular basis, and are thereby able to anticipate problems”.

Here, distinction needs to be made between formal and informal or ad-hoc support that community-managed service providers receive. In a formal support scenario, there exists a structural relationship with support agents, who visit community-based service providers and provide support on a regular basis, and these support agents are able to anticipate problems (Smits et al. 2011). On the other hand, in an informal or ad-hoc support case, this relationship does not exist, therefore, support is provided in a haphazard manner (Smit et al., 2011).

In most developing countries, it is the local governments or municipalities that are responsible for rural water supply service, however, community-based (or municipal or private or mixed) service providers have the charge for “the actual operation and maintenance (O&M) of systems and administration (Smits, et al., 2013: 384).

The following typical support activities have been identified for rural community-based water providers (Smits et al., 2011; Smits et al., 2013), based on the work of Whittington et al. (2009), Lockwood and Smits (2010) and Fonseca et al. (2011):

- Monitoring, including water-quality testing and auditing.
- Technical advice in aspects of O&M, administration, and organisational development.
- Conflict resolution and moderation between different groups in the community.
- Support in identifying capital maintenance needs and resource mobilisation for such works. Monetary or material support is normally not considered as part of the support functions. It may entail identifying possible funding sources and development of funding proposals.
- (Re) training and refresher courses for service providers.
- Provision of information materials such as manuals, guidelines and other informative materials.

Summary of the different types of institutional arrangements for the function of the support agent, taken from Smits et al. (2013).

<ul style="list-style-type: none"> • Lockwood and Smits (2011) note that in many countries, local governments are the responsible authority for water service; they are mandated to provide water services through functions such as: planning, coordinating, regulating and overseeing. Though many service providers provide direct support services, such support functions may not always be an explicit function of service authority.
<ul style="list-style-type: none"> • In some cases, such as South Africa, local government may delegate this function to a specialised entity (Gibson, 2010) or an urban utility, like the cases from Aguas Manantiales de Pacora and Aguas de Manizales.
<ul style="list-style-type: none"> • There are instances, like in the cases of the Programa de Cultura Empresarial (business culture programme) in Colombia (Tamoyo and Garcia, 2006) and various circuit rider programmes in Central America (Lockwood, 2002), where a national government entity performs the function of the support agent. Yet still, whereas in some cases like in Chile (Fuentelba, 2011), National Government have delegated support function to specialised entities, for example, urban utilities. In other cases, such as in Namibia (Gibson and Matengu, 2010), support function was delegated to deconcentrated provincial offices.
<ul style="list-style-type: none"> • Another common institutional arrangement for support is the association of community-based service providers. In these cases, these associations contract technical assistance from a specialised agency or individual on behalf of their members, or provide mutual support among them. The association of community-based service providers sometimes collectively embark on advocacy and policy-influencing activities. An overview of the examples of diverse types of associations is provided by Glas and Lambrecht (2010).

- Other arrangements for support service provision is the mixed models which intermixes elements of two or more of the aforementioned arrangements. It is common to find a combination of an association of community-based providers with (local) government participation. A case in point is the Integrated System for Rural Sanitation in Brazil (SISAR), which is an association started by rural service providers that is supported by local government, drawing on technical expertise of urban utilities for support (Meleg, 2011).

The overriding reasons for providing support service providers are: Support to service providers is expected to overcome the intrinsic weaknesses in community-based management, and result in improved service delivery.

THE GOALS OF SUSTAINABLE RURAL COMMUNITY-MANAGED WATER SUPPLY

Community water management has several goals, and a wide body of literature has discussed the merits of this model of water service delivery (Schouten and Moriarty, 2003; Bakalian and Wakeman, 2009). It does not only ensure sustainability and reliability of water supply service long after they are constructed, it enables community fulfil their tangible and intangible needs⁷. The research now turns to the three broad objectives of community water management, identified by Lockwood (2004: 8), namely: empowerment, sustainability and efficiency.

EMPOWERMENT⁸

Community water management leads to empowerment and self-improvement. This can be achieved through capacity building of members of the community or a water committee. Empowerment is much more than participating in decision making; as Rowland (1997:14) notes, “it must also include processes that lead people to perceive themselves as able and entitled to make decisions”.

However, the term “empowerment” is a contested term with various meanings. Rowland (1997:11-12) notes that underlying the concept of empowerment is the idea of possessing

⁷ See Swanepoel and De Beer (2011: 48) for a distinction between tangible and intangible needs. The distinction between tangible and intangible need is made in order to accentuate that community-managed water ought to fulfil both tangible and intangible human needs to achieve meaningful holistic development.

⁸ Cleaver (1999) notes that radical empowerment discourse is concerned with individual and class action that leads to the transformation of structures that make people poor through changes in law, property rights and institutions

greater power and, hence, control over your own life. Furthermore, Rowland (1997:11-12; see also Willis, 2011:113) emphasizes that this definition of empowerment ignores other dimensions of power, which are “power-over”, “power to”, “power with”, and “power from within”. Whereas “power-over” is the capacity to dominate, marginalize, or exclude; “power to” is the productive power which creates the ability to see possibilities for change. Furthermore, Rowland (1997) understands “power with” as the power that emanates from participating in a group or community project and; “power from within” as the power that comes from a feeling of self-worth and self-esteem, of dignity that emanates from within individuals, either as a result of learning a new skill or a piece of knowledge.

Four points need to be made here with respect to empowerment. First, empowerment implies participation in political, formal decision-making and economic structures (Rowland, 1997). It also means the ability to participate and maximize opportunities in income-generating activities without constraints. Second, if empowerment is something that comes from within, it follows that individuals should empower themselves by seizing the opportunities presented thereof (Willis, 2011:113). Third, empowerment can be experienced at several levels or spheres: the personal sphere: this is when an individual develops self-confidence and the ability to undergo negative constraints imposed on them; the relational sphere: when one is able to influence decisions through participating and negotiating the nature of a relationship and the decisions that are made within the relationship; and the collective sphere: this occurs when people work collectively to achieve a common goal (Rowland, 1997: 15), as in the case of community-managed water. Fourth, empowerment involves increasing the capabilities of rural communities to manage their own water. It involves the newfound capabilities to influence and hold accountable, institutions that provide for them (Livingstone, Unpublished). The goal of empowerment is to give power and knowledge (including skills to rely on) to rural communities so as to enable them manage their water supply and other development projects sustainably and thus create a better quality of life. This can be achieved when some degree of control and ownership of the community management scheme is given to them. Evidence from Gujarat, India, reveals that there is a relationship between community participation and management of water supply, and empowerment. Particularly, it was shown that community members developed the capacity “to negotiate with other stakeholders at higher levels concerning issues that affect their livelihoods and lifestyle” (Dungumaro and Madulu, 2003:1012). The capacity to negotiate enabled the community members to be able to make their views known.

EFFICIENCY

Community water management enhances the efficiency and effectiveness of service delivery (Lockwood, 2004:8) and investment because, community management uses cost effective local resources, like voluntary human labour and local resources (Cleaver, 1999: 597). Moreover, sustainable community management schemes save time, in the sense that, it provides community members with sustainable water supply within proximity, and hence, makes them spend less time collecting water. Sustainable rural community water management tackles some of the challenges of water supply which are: much expenditure of time and energy, especially by women and children; and low levels of water consumption leading to water-washed diseases (Ademiluyi and Odugbesan, 2008: 811).

SUSTAINABILITY

The guarantee of sustainability of rural water supply is one of the most important purposes of community water management. This is so because, as the argument goes, since communities are in control of the water supply, “they have vested interest in seeing the service, and its commensurate benefits, continue” (Lockwood, 2004:8). Sustainability is both a means and an end in itself. See discussion of sustainability above.

THE SUSTAINABILITY DEBATE IN COMMUNITY-MANAGED WATER SUPPLY

In fact, community water management was conceived in the 1990s as the antidote to the problem of the sustainability of rural water supply. The centralized system provided by government, as was mentioned, broke down soon after their installation because there was no sense of ownership and responsibility for the systems, and moreover, each of these schemes were discrete stand-alone facility, installed some distance apart, (Black, 1998:14).

The question of the sustainability of community-managed water supply service remains controversial with research generating divergent views. For example, Whittington et al. (2009) and Bakalian and Wakeman’s (2009) study of rural water supply systems in several communities give evidence of the sustainability and reliability of the community managed model because the water systems were still functioning well. However, they note that the cost recovery mechanism being adopted can only take care of maintenance and operation but not sufficient for future replacement of the infrastructure.

Contrarily, Harvey and Reed (2007); RWSN (2010); Improved International, 2012; Moriarty et al. (2013); represent those who question the sustainability of the community-managed water model because of the low level of sustainability that they found. Harvey and Reed (2007) for example, discovered from their study of over 100 rural water systems in Ghana, Kenya, Uganda, and Zambia that these rural water supply schemes break down soon after construction. Harvey and Reed (2007) believe that community water management is in fact dispensable in some instances, where there exist problems within a community (e.g., lack of trust, cohesion, and cooperation).

CHALLENGES TO SUSTAINABLE COMMUNITY-MANAGED WATER SUPPLY

A number of studies have reported the widespread failures in water supplies. The failure, in terms of functionality, of the water system has been attributed to several factors: the existence of a number of laws in the water sector, the undesirability of the intervention by the community, negligence in maintenance and repairs because of lack of ownership, the non-materialization of the promised benefits of the improved water supply system, inadequate education programmes, and trained members of the community water committee relocate or lose interest (Carter et. al., 1999). Other sources that undermine sustainability include the continuous use of traditional sources of water, poor systems of cost recovery (Parry-Jones et.al 2001), and inadequacy in water supply infrastructure (Ademiluyi and Odugbesan, 2008: 811). To ensure sustainability of water supply system, the use of suitable technologies, technologies that are not costly, easily maintained, simple to use and readily available are encouraged. Finally Harvey and Reed (2007) note some of the factors that challenge the sustainability of rural community-managed water supply: the absence of lasting incentives to maintain the voluntary input upon which community water management relies on; the lack of mechanism to replace well-trained water committee members who may die or relocate; lack of accountability and regulations by supporting institutions; the failure to pay maintenance fees by community members; demotivation by community members because of the feeling of being abandoned by supporting agencies; and the inability of the community to replace broken facilities.

ALTERNATIVES TO THE COMMUNITY-MANAGED WATER SUPPLY MODEL

Three major solutions to the challenges of community water management exist (Harvey and Reeds, 2007; Moriarty et al 2013) where community water management fails to deliver sustainable water supply. These include 1) institutional support to communities in the management of their water supply; 2) the development and protection of households' traditional sources of water (wells, scoop-holes, streams and river), where there exists problems within the community (e.g., lack of trust, cohesion, cooperation), and; 3) private sector management option. The three proposed solutions require some form of institutional support, whether household's alternative sources of water supply such as wells, scoop-holes, streams and river, or private sector management. For example, institutional support may include: encouragement and motivation by local government authority or by an implementing agency, instituting policies regulations, financial support for treatment of traditional water sources, and conflict resolution mechanism. Importantly, participation of members of the community is required whether it is in households' alternative or in private sector management (Harvey and Reed, 2007). Members have to be given comprehensive information in all the practical options so as to come to a decision about the appropriate technology and the options they prefer.

CONCLUSION

This chapter has presented and discussed relevant literature to the study as stated in section 2.1. The literature guided the study and provided some understanding of the subject matter before field visit. In the next chapter, a detailed account of the methodology used for this study is presented.

CHAPTER THREE METHODOLOGY AND STUDY AREA

INTRODUCTION

The previous chapter reviewed relevant literature to the study. Chapter 3 will focus on the methodology and research method employed by the research. This is followed by a description of the study area. Methodology denotes “a theoretical principle or principles governing the application of a set of methods in the study of a phenomenon” (Harrington, 2005). This dissertation understands methodology and methods *à la* Strauss and Corbin (1998:3): whereas methodology is “a way of thinking about and studying social reality,” method is a “set of procedures and techniques for gathering and analysing data”.

This chapter of the dissertation introduces the research design and methodological paradigm that the research followed in executing the research design. It provides a description of the study area, defines the population, the data collection methods and provides the reasons for the selection of the case study and the ethical standards that were observed. This chapter also identifies the data collection limitations that could affect the findings. Finally, validity and reliability issues, and ethical consideration are discussed.

RESEARCH PARADIGM

The research method employed by a researcher has a relationship with his methodological stand and betrays his/her theoretical and epistemological assumptions of social reality. Connectedly, ontology tries to answer the question, ‘what is there to know’? As such, it deals with the claims and assumptions that are made with respect to the nature of social reality, that is, claims about what exists, what it looks like, what units make it up and how these units interact with each other. Put differently, ontological assumptions have to do with what we believe constitutes social reality (Blaikie, 2000:8). Ponterotti (2005) notes that whereas positivism and post-positivism are quantitative methods of research because of their underlying assumption of an objective and singular reality that can be measured empirically (Creswell, 2012), interpretivism and critical-ideological research are qualitative methods which assume, broadly speaking, the social construction of realities by participants (Gray, 2004).

In terms of its methodological paradigm, this research is interpretivist in orientation because the approach is based on the idea that reality is subjective to individuals. Interpretivism research strives to make sense of “culturally derived and historically situated interpretations of the social life-world” (Gray, 2004:20; Moriarty, 2011). Hence, the meanings and actions of individuals, and in this sense, social reality, are dependent on the subjective meaning of individuals. Epistemologically speaking, knowledge of the social world is constructed by individuals and communities; it is what meanings these social actors assign to it (Gray, 2004:17).

This research was focused on understanding the outcome of the actions of agents and structures that enable community water management and the extent to which individuals and institutions are enriched from the interaction.

QUALITATIVE RESEARCH

The research employed the qualitative research method to answer the research question. Qualitative research refers to a set of techniques and processes that is used to collate non-statistical or non-numerical data (McNabb, 2013). Qualitative research captures social reality in their natural states. This method of research is used to gather in-depth understanding of human behaviour and the reasons behind these behaviour.

Qualitative and quantitative data are different because while qualitative data is non-numerical, not reliant on statistical methods and are obtained from either interviews, observations or written documents; quantitative data is numerical and reliant on statistical methods. This research relied on in-depth interview and observation. As was earlier noted, the research method employed by a researcher has a relationship with his methodological stand and betrays his/her theoretical and epistemological assumptions of social reality. Furthermore, the choice of a method, either qualitative or quantitative, is informed by some philosophical assumptions, as explained above. Whereas for the qualitative researcher, reality is multiple and subjective, the qualitative researcher sees reality as objective and out there to be studied (McNabb, 2013).

Since reality is multiple and subjective for the qualitative researcher, in terms of the epistemological assumption of the researcher (that is, how the researcher comes to know what she or he knows) the researcher then intimately interacts with participants in their natural

setting (Creswell, 2012); as opposed to the quantitative researcher who sees their position as independent observers who are distant from the phenomenon under study. Axiologically, the researcher admits the role of values and biases in the research. Put differently, the qualitative researcher takes into consideration his/her value systems and biases that might affect the research, as opposed to the quantitative researcher who aims for a value-neutral, unbiased and, sometimes, controlled study. This knowledge of the influence of value systems of the researcher informs the researcher's personalised rhetoric in his writing style. In qualitative research, data collection, analysis and theory building are interwoven, as opposed to the quantitative research which observes a set of strict rules and formal processes (Babbie, 2013; McNabb, 2013).

STUDY DESIGN

This is an empirical study that mainly uses primary data. It uses a qualitative design to gain in-depth knowledge. It also uses the case study of community-managed water in Ilala community to investigate the sort of community management may make rural water supply sustainable in Nigeria. This study further seeks to investigate the challenges of community water management, the institutional enabling environment for community water management in Ilala and the role of government in ensuring the sustainability of community water supply.

CASE STUDY

This study adopts a case study to address the research questions. De Vaus (2001: 10) notes that case study research is a kind of qualitative research in which participants are studied within their contexts. The research considers the “subjective meanings that people bring to their situation” (De Vaus, 2001). Yin (2009:4) notes that “the case study method allows investigators to retain the holistic and meaningful characteristics of real life event— individual life cycles, small group behavior, organisational and managerial processes, neighborhood change... [and] performance...”. Case study research is aimed at in-depth study of a social phenomenon.

Nevertheless, Lieberson (1991: 311) contends that conclusions made from small N studies are “often wrong because a small number of cases is an inadequate basis for generalising about the process under study”. Despite this popular position of Lieberson (1991), investigating a case study allows for an in-depth examination of the phenomenon under study

within a specific context. This sheds light on a broader understanding of the sustainability of community water management. The aim of this study is to understand, not generalize, the phenomenon under study.

This study used Ilala community as the case study location to examine the sustainability of community water management and the sort of community management that may make rural water supply sustainable. Hence, the case study avails the researcher the opportunity to study the sources of water in Ilala, its operations and management, the organisations that support Ilala community and the nature of the support Ilala community receives in the management of its water. Ilala community was chosen because it is one of the communities that manages its water in Kwara State. This study examined one case study only because of time and travel limitations.

SELECTION OF CASE STUDY

Selection of Ilala as a case study location was done for several reasons. First, water is managed by the community and participants are able to provide data that are detailed and relevant to the research question (Given, 2008). Ordinarily, informants selected for the study were those who participated or benefited from the community managed water scheme. Ilala community water scheme has been functioning optimally three years after the water scheme was constructed, hence, this provided an opportunity to elucidate the community-managed water practices that lead to sustainable water supply service.

Second, Ilala community was selected because the community is large and, until the construction of the community-managed water, was not provided with water by government. The community relied on free sources like rivers, streams and wells in the compounds. In most rural areas in Nigeria, it is the role of the local government to provide and support communities under it with water. By selecting Ilala, the research will understand the role and nature of government support in rural community water management.

Third, Ilala presents a unique case of a strong existence of a Community Development Association. A selection of Ilala thus provided insight into the activities of the Ilala Community Development Association and the ways in which the Association provides support to the community-managed water scheme.

SELECIION OF PARTICIPANTS

The total number of informants for in-depth interviews were 14 in all, though only 12 informants were selected from the community. This included community members and the traditional ruler of Ilala (*the Oba*), a chief of the community, two members of the maintenance committee, and the past and present chairpersons of Ilala Community Development Association (ICDA). More so, two staff of Kwara State Community and Social Development Agency (KWCSDA) (that provide support for the Ilala community water scheme) and Kwara State Rural Water Supply and Sanitation Agency were also interviewed.

The informants from KCSDA and KRUWASSA were identified with the help of the project officer of KCSDA whom the researcher was introduced to by an official of the Federal Ministry of Water Resources. With the help of KCSDA, the researcher was introduced to the traditional ruler and gained access to the community. The informants from Ilala were identified with the assistance of the traditional ruler of Ilala. Initial contact with some of the informants was made by telephone and also in person. These contacts served as an opportunity to brief informants on the research, obtain their consent, and set a date for the interview. These informants were selected because they were better placed to give information on community water management, the institutional support available, the challenges to community water management. Unfortunately, staff of Irepodun Local Government Area, responsible for maintenance of rural community water were not interviewed because of financial and time constraints.

DATA COLLECTION

The researcher observed the community with respect to the way in which the community water scheme functioned, and the use, management and operations of the water scheme in Ilala community. The researcher wrote memos or notes while in the field. These notes consisted of observational, methodological and theoretical notes (Boeije, 2010:70). The observation notes focused on the observation of the researcher while in Ilala with respect to their community managed water systems. Methodological notes focused on the relationship between the data that is emerging and the methodology and research methods that was being used. Theoretical notes concentrated on sustainability and community-managed water supply and the ways in which field observation relates to the theories being investigated.

Semi-structured in-depth interviews were used as one of the data collection techniques for the research. Semi-structured in-depth interviews are suitable for this study because they are vital in understanding and gaining detailed knowledge (Weiss, 1995: 3). Interview happens through interpersonal exchange which can help in drawing out important issues that arise in the course of the interview. The following informants were interviewed for the study: 12 informants from households who benefit from the community-managed water, including the traditional ruler (the *Oba*) of the community and one of his chiefs, two members of the water maintenance committee. Furthermore, two staff of Kwara State Community and Social Development Agency (KCSDA) and Kwara State Rural Water and Sanitation Agency (KRUWASSA) were interviewed, bringing the total number of respondents to 14. The informants provided information on the sort of community management that may make rural water supply sustainable. These informants were selected for interview because they were better placed to give information on community water management, the institutional support available, the challenges to community water management and whether water management is sustainable. Moreover, some of these informants were involved in the day to day decision making process on the management of the water in Ilala community.

Informants were interviewed, with each interview lasting between 30 to 45 minutes. All the interviews were audio-recorded with the aid of a digital recorder. Interviews were conducted at different locations chosen by the informants. The interviews were conducted in the English language. Field notes were also used during and after the interview sessions. Interview guide was prepared by the researcher to cover the substantive aspect of sustainability within the context of community water management. The interview schedule was used to generate data on community water management, sustainability, demographic and socio-economic data. Also, the data revealed the experiences and thoughts of the Ilala people, and these were helpful in understanding the complex nature of sustainability as it relates to community-managed water.

Formal focus group discussion was not done. However, three of the interviewees invited one or two friends or family members during the interviews. Hence, the setting was a semi-focus group discussion. Semi-focus group provided important information about the group dynamics in the village and generated some more data not captured in the individual

interviews. It complemented other data generated from observation, document analysis and in-depth interviews. The researcher moderated the semi-focus group interview.

The study also made use of secondary data such as books, journal articles, published and unpublished dissertations reports, conferences proceedings, government policies, etc.

DATA ANALYSIS

The following steps were followed for data analysis (Blanche, Durrheim and Painter, 2006).

These were:

Step 1: Transcribing the interview

Data was transcribed immediately after each of the interviews.

Step 2: Familiarisation and Immersion

Following the fieldwork, the reality of the fieldwork was converted into text. The researcher became familiar and immersed in the data during the transcription of the data. Projects documents of Kwara State Community and Social Development Agency complemented the interview data that may have been missed.

Step 3: Inducing Themes

Following transcription of the interviews, concepts and typologies like common words and shared experiences that participants used were grouped so as to identify patterns. Themes were then developed or constructed from these patterns.

Step 4: Coding

The researcher used the nominal measurement to code and analyse the data collected. Codes, labels and categories were developed to find patterns in the responses of the respondents. Similar patterns were grouped together under the same theme (Boeije, 2010: 103). This is consistent with the philosophical assumptions of the research: constructivism (i.e. reality is constructed by people) and interpretivism (i.e. by reflecting on human experiences, people construct their own understanding of the world). In qualitative content analysis, data is seen as emergent. Even though the researcher has taken measures to understand the literature relevant to the research through some literature review, the researcher took care not to allow the literature to constrain the process of coding and recording.

Step 5: Elaboration

Themes and codes developed in Steps 3 and 4 were elaborated on based on, their relationships. In some cases, a specific sub-code from a theme could relate to other sub-codes from other themes. The researcher constantly returned to themes and coding to better elaborate on them.

Step 6: Interpretation and Cross-checking.

Analysis and interpretation of the elaborated data were done in line with the theoretical and conceptual framework that this study employs. This study uses the sustainability framework developed by Carter et al. (1999).

The analysis and interpretation were balanced with descriptions that would allow the reader to understand the background adequately. The checking was conducted by revisiting the fieldwork diary as well as returning to prior steps of the data analysis process. Thus, sub-codes that were omitted, were added and additional elaborations were recorded when necessary.

KEY ANALYTICAL PRINCIPLES

Harvey and Reed (2007) is sceptical about the blanket efficacy of community-based approaches. This is because there has been mixed results about the success and sustainability of community-managed water supply. This is partly because communities are dynamic and the factors that encourage the success or failure of community water differs in different locations. For example, in some communities, certain key issues such as lack of trust, community cohesion and cooperation may affect the sustainability of community-managed water. Hence the research asked the question: what sort of community management may lead to sustainable rural water supply service?

RELIABILITY AND VALIDITY

Validity refers to the degree to which the data collected provide relevant information about the research question, and whether findings can be generalized. Reliability deals with the accuracy of the data collected.

The researcher is aware that, by relying partly on oral data from fieldwork, the research is limited because there are methodological challenges and inherent weaknesses with oral testimony. The reasons for the limitations are numerous. One limitation has to do with the challenge of human memory, which involves the problem of the politics of selective memory and whether respondents can remember and report historical data accurately. Also, the tendency of humans to relate events that are not connected is another factor. Informants may have self-serving interest and may report accordingly, and this may affect the data presented. Power relationship between the interviewee and the interviewer may affect the data reported. Further still, there is sometimes a difference between what is spoken and what is written, and this could lead to inaccuracies in meanings when transcribing conversations.

Hence, the researcher constantly assessed the accuracy of the data collected. This was done by constantly comparing the oral data with scientific and policy documents. More so, data from interview were triangulated with those from semi-focus group discussions, observations, and policy and scientific literature.

ETHICAL CONSIDERATIONS

The Monash University Human Research Ethics Committee approved the research with community members in Ilala on the sustainability of community-managed water supply service, as well as, research interviews with government agencies (see Human Ethics Certificate of Approval: CF14/2287 – 2014001234, attached as Appendix I).

In line with the principle of anonymity and confidentiality, care was taken not to use the name of any informant directly, and the data derived from the interview will be confidential. The researcher obtained permission from each of the informants before recoding or videotaping the interview sessions. This was necessary to ensure that participation of informants in the research was voluntary. The researcher provided information to the informants about the study and the nature of their participation. The informants were made to be aware that they could withdraw from the study when they desire without any penalty. Finally, the researcher obtained permission from the traditional ruler before collecting data and communicated respect and gratitude to the informants where necessary. Two documents were used to highlight the above stated information (see Appendices II and III). Furthermore,

both documents were translated into Yoruba, the major vernacular language spoken in the area. A translator was also used for three informants who could not speak English fluently.

STUDY AREA

In order to provide a context for this study, a brief description of the study area is presented. Then, I described Ilala, the case study community.

NIGERIA

Nigeria is located approximately between latitudes 4° and 14° north of the Equator, and between longitudes 2° 2' and 14° 30' east of the Greenwich Meridian. There exist diverse ecology and climates in the country with varied biophysical characteristics, ethnic nationalities, agro-ecological zones and socio-economic conditions (Aregheore, n.d.). In spite of the fact that Nigeria is considered blessed abundantly with water resources, there exists a temporal and spatial variation. The north records a low rainfall of about 500mm in the northern part and over 4,000mm in the south eastern part. There is high rainfall variability in time and space in the sahelian part of the country, which has continuously manifested in persistent drought, with its resultant reduction in the extent of wetlands in the Hadejia-Nguru area and the nearly total loss of the Lake Chad (Federal Republic of Nigeria (FRN), 2004). Nigeria is drained by River Niger, its main tributaries; the River Benue, and many minor tributaries, as well as the Lake Chad. Many perennial rivers exist in Nigeria: Gongola, Hadejia-Jama'are, Kaduna, Cross River, Sokoto, Ogun, Osun, and Imo. The FRN (2004) reports that the aggregate surface runoff is large. For example, the yearly runoff at the Lokoja gauging station on River Niger is recorded as 165.80 billion cubic metres. Finally, the country has a considerable large volume of groundwater in large sedimentary basins.

KWARA STATE

Kwara State is situated in Western Nigeria with its capital in Ilorin, which is one of the largest cities in Nigeria. The State is one of the 36 States of Nigeria and is bordered by Kogi State in the East, Oyo, Ekiti and Osun States in the South, Niger River and Niger State in the North, and an International boundary with the Republic of Benin in the West.

Ilorin is located 306 km from the city of Lagos and 500km from Abuja, the Federal Capital of Nigeria. The population of Kwara State, according to the 2006 census estimate is 2,365,353,

of which the male population is 1,193,783 and the female population is 1,171,570 (National Population Commission, 2010). The land size of the state is 34,467.536 km². The vegetation of the state consists of rainforest and wooded savannah. The landscape is undulating hills, valleys and plains that is traversed by the tributaries of the Niger River (Kwara State Government). Kwara State records an average annual rainfall of between 1000mm and 1500mm, and the average maximum temperature ranges from 30 to 35 degrees Celsius. The mainstay of the economy of Kwara State is Agriculture, of which the major crops of the people are cotton, cocoa, coffee, kolanut, tobacco, beniseed, palm produce, etcetera.

The main ethnic group in Kwara is Yoruba but a significant number of Nupe, Bariba, Hausa and Fulani minorities can also be located in the state. Created in 1967 by the Federal Military Government of Yakubu Gowon⁹, the state originally was called West Central State but later changed to Kwara, which is a local name for the River Niger. Currently, Kwara State has 16 Local Governments Areas, of which Irepodun, the location of the case study, is situated.

ILALA COMMUNITY

The study area for this research is Ilala community in Irepodun Local Government Area of Kwara State. Situated between latitude 8° 20' 0 N and longitude: 4° 59' 0 E, Ilala was established many centuries ago, with an estimated land area of 35 square kilometres. The community became a sub-district administrative headquarters at the beginning of the 19th century (Ilala Community website). Irepodun Local Government Area has a population of 147,594, with the male population being 73,554 and female 74,040 (National Population Commission, 2010), and a land size of 749.338 km².

The Ilala people are part of the Igbomina-Yoruba people of Kwara State. The community is now a mixed community because of the incomers (mostly irrigation farmers) in Ilala. Ilala community is made up of four distinct areas, namely, Oke-Aala (comprising 11 compounds), Oke-Sunna (comprising 14 compounds), Isale-Ta (22 compounds) and Isale-Ilala (2 compounds). The traditional ruler of Ilala (the *Oba*) is called the Aala of Ilala, and there are several chiefs available. The current traditional ruler was installed in March 2012.

⁹ General Gowon divided the four regions that made up Nigeria, that is North, South, East and West into 12 States

CONCLUSION

This chapter presented the methodology and study area of this study. This research was descriptive and it used an interpretive research paradigm. The research was also cross-sectional in nature. The methodology was qualitative and it used in-depth interviews and documentary sources as sources of data collection. Thematic content analysis was used for analysing and coding texts. The research adhered to all ethical considerations as prescribed by the Monash University Human Research Ethics Committee (MUHREC).

CHAPTER FOUR RESEARCH RESULTS AND DISCUSSION

INTRODUCTION

The preceding chapter discusses the research methodology employed in this study. The purpose of this chapter (Chapter 4) is to present the research results of this study. The aim of the study is to assess the sustainability of community-managed water supply with a focus on Ilala community. This research uses sustainability as a conceptual framework for the study. This research understands community-managed water supply service as a participatory approach to water management, whereby, the beneficiary community is enabled to take responsibility for issues such as control, operation, maintenance and management of their water system (Harvey and Reed, 2007). Sustainability, in the context of rural community water management, refers to a situation whereby water facilities are being maintained in a state which ensures a reliable and adequate potable water supply service, and the benefits of water supply are sustained over a long time (Davies and Brikke, 1995).

The findings were derived from interviews conducted in Ilala community, where as noted, 12 community members and two staff of Kwara State Community and Social Agency and Kwara State Rural Water and Sanitation Agency were interviewed. Both agencies are located in Ilorin, Kwara State. The data collected were qualitatively analysed using content analysis. The conceptual framework was used as a guiding framework for identifying and coding themes from the textual data. All the names used are pseudonyms for the sake of anonymity. The results presented are based on in-depth interviews of 12 selected informants from Ilala community and two government officials from the Kwara State Community and Social Development Agency (KCSDA) and the Kwara State Rural Water Supply and Sanitation Agency (KRUWASSA). Results are qualitative and include quotes from respondents. The chapter is divided into two. The first part; social-economic characteristics of the informants, deals with issues such as composition, age, education, sources of income/livelihoods, sources of water in Ilala. The second part; sustainable community water-managed practices in Ilala, discusses community water management practices under the following themes: motivation, maintenance, cost recovery and continuing support. The research now turns to the first part of the result chapter.

SOCIAL- ECONOMIC CHARACTERISTICS

In this section of the research, the social-economic characteristics of the informants are presented.

COMPOSITION OF INFORMANTS

As was mentioned before, 12 informants (four females and eight males) were interviewed in Ilala community. Furthermore, two of the informants were polygamous and two were not married. Also two government officials from Kwara State Community and Social Development Agency (KCSDA) and Kwara State Rural Water Supply and Sanitation Agency (KRUWASSA) were interviewed in Ilorin. Typically, households in Ilala were composed of children, grandchildren, parents, and in some instances, other relatives. The composition of the household is important because of the community policy on cost recovery requiring every male and female adult of the household to contribute N200 (\$1.01 USD; at \$1=N199) and N50 (\$0.25 USD; at \$1=N199) each, respectively, for water tariff. Hence, the higher the number of people in a household, the higher the amount required of the household for water tariff.

Table 1: Household Composition, Gender and Marital Status of Informants

Informant	Gender	No. of Children	Marital Status/No. of Wives/Husbands	Extended family	Household Composition
Kaka	Male	4	1	3	9
Rotimi	Male	3	1	1	6
Mrs Bose Adebayo	Female	5	1		7
National Youth Service Corp member	Female	-	-	-	1
Nupe Woman	Female	4	1	1	7
Trader	Male	2	1		4
Mrs. Bola	Female	6	-		6
Joseph	Male	-	-	-	1
Mr. Agba Kunle	Male	8	2	3	14
Yinka	Male	6	1		8
Ibrahim	Male	4	1		5
Tiv man	Male	7	2		10

Source: interview data.

AGE DISTRIBUTION OF INFORMANTS

The age distribution of the informants in this research is as presented in the table below. Even though all the informants interviewed were adults, children were exempted from paying the monthly water tariff. The age distribution of the participants were between 24-70 years. Two

of the informants (age 69 and 70) had a wealth of memory of the history of the Ilala community and of the history of the Ilala Community Development Association (ICDA). These two informants were the oldest in this study and had served in the leadership of the ICDA.

Table 2: Age Distribution of Informants

Informant	Age
Kaka	55
Rotimi	40
Mrs Bose Adebayo	54
National Youth Service Corp member	24
Nupe Woman	39
Trader	38
Mrs. Bola	62
Joseph	27
Mr. Agba Kunle	69
Yinka	70
Ibrahim	39
Tiv man	40

Source: interview data

SOURCES OF INCOME/LIVELIHOODS OF INFORMANTS

The table below presents the major sources of income and livelihoods for households in the community. The sources of income of the informants can reveal the ability of informants and members of the community to make the monthly payment for the O&M of the community water scheme. Majority of the people of Ilala practice subsistence farming and petty trading as means to earn their living. Other sources of income of the people of Ilala include: small scale industrial activities like blacksmithing, machine repairing, bicycle repairing, photography, block making, bread industries, garri¹⁰ processing, among others.

¹⁰ *Garri* is a creamy-white, granular flour with a slightly fermented flavour and a slightly sour taste made from fermented, gelatinized fresh cassava tubers (Integrated Cassava project, 2015)

Table 3: Sources of Income of Informants

Informant	Sources of Livelihoods and Income for Informants
Kaka	Salaries (traditional council), farming
Rotimi	Salaries (traditional council), farming
Mrs Bose Adebayo	farming (including dry season farming)
National Youth Service Corp member	Salaries (government: National Youth Service Corp)
Nupe Woman	farming (including dry season farming)
Trader	trader
Mrs. Bola	Retired, farming, and an assortment of income generating activities
Joseph	Salaries (teacher)
Mr. Agba Kunle	Retired (pension) and an assortment of income generating activities by household members, including farming
Yinka	Retired (pension), remittance from children working in Kwara and Lagos; other households members engaged in farming, etc.
Ibrahim	farming, including dry season farming), and trading
Tiv man	Farming (including dry season farming); other household members engaged in trading

Source: interview data

In general, Ilala is a low income community. The informants interviewed comprised of: a teacher at the community secondary school (employed by the Ilala Community Development Association), a recent university graduate engaged in the compulsory National Youth Service Corps, three traders (who were shop owners in the Ilala community market), eight farmers, and two employees of the traditional council (including the traditional ruler and a chief). It is important to note that some of the informants were engaged in more than one income generating activity. Of all the informants, three used to live and work in Lagos. Importantly, those engaged in the compulsory National Youth Service Corps and children were exempted from paying the monthly water tariff.

EDUCATIONAL STATUS OF INFORMANTS

The number of literate informants were somewhat high, with only four of the informants interviewed not being able to speak English. Four of the informants have post-secondary education, four have secondary education, two have primary education and two have no formal education.

Table 4: Education status of Informants

Informant	Education Status
Kaka	University
Rotimi	Secondary
Mrs Bose Adebayo	Primary
National Youth Service Corp member	University
Nupe Woman	None
Trader	Secondary
Mrs. (Woman with kabiyesi)	Non
Joseph	University
Mr. Agba Kunle	Secondary
Yinka	Polytechnic
Ibrahim	Primary
Tiv man	Secondary

Source: interview data

THE SOURCES OF WATER IN ILALA

Besides the Odo Osin River which provides water for agriculture and other livelihood endeavours, individual households have wells which they sometimes use for drinking and other household purposes. Rainfall is another source of water; the average annual rainfall of Kwara State is between 1000mm and 1500mm and the average maximum temperature ranges from 30 to 35 degrees Celsius. As one of the participants revealed, “in the past, we relied solely on river and stream water which is in abundance in our town. We have several rivers/streams here. Today, we rely on motorised borehole for household water needs. This source of water is a collaborative effort between the community and the government” (Agba Kunle).

Customarily, rural water supply in Nigeria is sponsored by the Federal Government through capital investment. The beneficiary community pays counterpart funds, a token contribution,

which is aimed at fostering and ensuring that a sense of ownership of the water supply facilities is developed by the rural community (Federal Ministry of Water, 2000). This was the case with the water intervention in Ilala. The community contributed 10% of the total cost of the water project implemented by the Kwara State Community and Social Development Agency (KCSDA).

It is important to note that Ilala community is composed of both indigenes and incomers. The incomers relocated to Ilala because of either arable land or trading, and they were engaged in dry season (irrigation) farming. Data collected revealed that conflict between incomers and indigenes used to occur because irrigation farmers used to divert the flow of the stream/river water to their farms, thereby, reducing access to water by the rest of the community (Agba Kunle). The traditional ruler (*Oba*) played an active role in conflict resolution because he is not only powerful and respected in Ilala, but also he is host to the incomers and played a key role in their farm land allocation. However, the construction of the improved water in Ilala has reduced the pressure on the stream and river and so reduced water resource conflict between the indigenes and incomers.

SUSTAINABLE COMMUNITY-MANAGED WATER SUPPLY PRACTICES IN ILALA

INTRODUCTION

This section presents evidence of sustainable community water management in Ilala. After that, the practices of community-managed water in Ilala that leads to sustainability is examined under the following themes: motivation, maintenance, cost recovery, and continuing support. Finally, the section discusses the role of government in rural community-managed water supply

THE SUSTAINABILITY OF COMMUNITY WATER MANAGEMENT IN ILALA

One of the salient purposes of community-managed water scheme is the guarantee of sustainability of water for rural communities. This is so because, since communities are in control of the water supply, “they have vested interest in seeing the service, and its commensurate benefits, continue” (Lockwood, 2004:8). This research understands sustainability broadly as “whether or not something continues to work overtime” (Abram,

1998). Specifically, sustainability refers to when water facilities are being maintained in a condition which ensures a reliable and adequate potable water supply and the benefits of water supply are continued to be realized over a long time (Davies and Brikke, 1995; Harvey and Reed, 2003). Field data give evidence to the sustainability of community-managed water in Ilala. At the time of field visit, that is, three years after construction, the community water scheme was still functional: all twenty (20) water points and all five (5) constructed boreholes were functioning optimally. It was observed that almost all the water outlets were producing water (that is, not broken down) and households in the community were obtaining their water from the outlets, except for a few who still collect water from the free sources such as well and river. Each household in the community has a key to the lock of the water and can access unlimited supply of water from the improved water scheme at any time of the day. Besides, all households live within a close proximity to the water scheme. The operation and management of the community water, including maintenance is handled by a maintenance committee, comprising five members. The role of the maintenance committee, which in Ilala is dutifully performed, is to oversee the operation and management of the water scheme, including inspection, cost recovery and maintenance of the water scheme. Although, communities are dynamic and the factors that encourage the success or failure of community water differs, the findings, with respect to the question of the sustainability of community-managed water, is consistent with Whittington et al. (2009) and Bakalian and Wakeman's (2009) study of rural water supply systems in terms of sustainability and cost recovery mechanism. In what follows, sustainable water management practices in Ilala is discussed.

MOTIVATION

The motivation¹¹ of beneficiaries to utilize the improved water source is necessary for sustainability to be achieved. The motivation of the community encourages the use of the improved water, that is, water users must believe that the improved water source is preferable to the traditional source (Carter, 1999). Motivation entails also, that the water users need to experience the apparent and direct benefit of an improved water source, namely, access and proximity to water source, among others. For Carter et al. (1999), "Motivation, value, worthwhileness, or self-interest are important characteristics of participation of stakeholders". Field finding revealed that most members of Ilala community appreciate the advantages of

¹¹ The discussion on motivation is heavily dependent on the work of Carter et al. (1999)

the improved community water scheme: “It is a glorious water and [the water] serves us well because we drink, cook, and bath with the water”. In Ilala, most community members interviewed not only participate in the community water through contributions for repairs, they also have an overwhelming sense of ownership of the water. This is expressed by one of the informants: “Yes, we believe we are the owners of the water scheme that is why we clean the environment around the tap and the tank regularly. We are responsible for our water that is why we contribute money monthly to maintain it. There is nobody to rely on, the government will not maintain our water scheme for us” (Bose Adebayo). Importantly, contributions for repairs were sometimes undertaken by water users of a water point without assistance from the maintenance committee. Furthermore,

The level of acceptability and ownership of the improved water by the people cannot be over emphasized, considering where we were coming, that is, from a situation of lack of water as a result of the breakdown of our manual boreholes as well as the period of conflict with the incomers who barricaded the stream water for their own irrigation farming and shut out the community from accessing the water and so on. Therefore, when the idea for this improved water came, we perceived it as ours, right from conception (Traditional Ruler).

However, sensitization of the community and their participation in the communal water scheme creates a sense of ownership which in turn can bring about motivation. Harvey and Reed (2007) make this point: “community participation... from early on in a water supply project enhances the future sense of ownership, but ongoing motivation is required for continuing participation”. For participation of the community members in the improved water scheme to be sustained, there is need to continuously motivate the community. But motivation of the community for the improved water scheme is challenged by a number of factors, one of which is the transition from “free” water to some system of case payment.

MAINTENANCE

Davis and Brikke (1995) understand maintenance as the “activities required to sustain the water in a proper working condition”. Maintenance costs money and requires an effective cost recovery to fund it. The absence of maintenance can lead to system breakdown and lack of sustainability of the water scheme. Davis and Brikke (1995) differentiate three types of maintenance, namely, preventive, corrective and crisis. Preventive maintenance refers to the regular inspection and servicing of the facilities of the water scheme to preserve assets and minimize break down. Corrective maintenance deals with the minor repair and replacement

of broken and worn out parts with the aim of sustaining reliable facilities. Finally, crisis maintenance means the unplanned responses to emergency breakdown and user complaints to restore a failed supply. Crisis maintenance may seem cheap in the short term, but it leads to recurrent breakdown, an undependable supply, poor service levels, lack of user confidence, and may finally lead to complete system failure (Davis and Brikke, 1995).

With respect to government policy on water, local governments have the responsibility to maintain rural water. This, however, is not the case in Ilala, as suggested by field data: “We do not receive any support from government for maintaining our water facilities. We have a committee that is in charge of maintenance and repairs, and I am the chairman of a five-member maintenance committee. We are charged with the overall maintenance of the water scheme. We monitor the performance of the water scheme, and when any facility breaks down, we often invite engineers and experts for the repairs and maintenance” (Yinka). More so, this point is corroborated by another informant: “Members of the maintenance committee often carry out routine inspection. In the event that a water facility breaks down, we inform the committee in charge. If the breakdown is as a result of vandalism, the person responsible is made to pay for the repair. Otherwise, the maintenance committee makes the repair. Significantly, repairs and maintenance are done by experts who are contracted from Ilorin” (Nupe Woman).

From the foregoing paragraph, two crucial points need to be drawn from the evidence presented. Firstly, whereas local government have the responsibility to oversee the operations and maintenance of rural water in Nigeria, this is not the case in Ilala community, where the community has assumed complete responsibility for the O&M of the community-managed water, including contribution of funds for regular maintenance of the community-managed water scheme. Second, a 5-member committee was appointed to take charge of the O&M of the community water, and engage in routine inspection of the water scheme in order to, when necessary, engage in preventive or corrective maintenance and thereby, avoid crisis maintenance. Rotimi notes, “As a chief in Ilala, I am also a member of the maintenance committee, I monitor the performance of five water pumps out of the 17 we have and report cases requiring maintenance to the whole committee for discussion and necessary action”.

The community practices of maintenance in the absence of formal support structure has significantly enhanced the sustainability of the water scheme. Interview data shows that

maintenance of water facilities in Ilala involves both servicing and replacing facilities that break down, such as taps, pipes, pumping machine and generator set. This sometimes involves paying for electricity and gas (fuel) bills to power the generator set when there is no electricity from the state power company. Finally, in instances involving minor repairs, water users of a water point sometimes contribute money for repairs without reimbursement from the maintenance committee: “We that fetch water from a water point know ourselves, and sometimes we contribute for repairs when the pump breaks down without necessarily reporting to the maintenance committee” (Bose Adebayo). Yet, in cases of deliberate vandalism, the repair is handled by the vandal responsible. One informant notes: “There are rules and regulations governing the fetching and maintenance of the water scheme. For instance, any community member caught vandalizing the pump is usually asked to repair it” (Bose Adebayo).

In sum, the maintenance of the Ilala water system is therefore achieved through community effort, which is sometimes augmented by contributions from the traditional ruler (the *Oba*) and the Ilala Community Development Agency (ICDA). These leaders of the community sometimes take extra measure to ensure the sustainability of the water scheme. For example, the traditional ruler and the ICDA periodically hire the services of engineers from Ilorin to service the water facilities, and replace the broken down generator set that came with the project. The traditional ruler pays for the transportation of the generating set to the various boreholes to pump water for the community use, when there is no electricity from the state company.

COST RECOVERY

Cost recovery is a critical factor that ensures lasting sustainability of water supply service. Nyarko et al. (2007:92) note that “cost recovery of water services involves regaining or sharing all the costs associated with a water service system for ensuring long-term sustainability”. As one informant noted, “We do not receive assistance from our Local Government and the Kwara State Community and Social Development Agency when our water system breaks down; therefore, it is necessary that we keep contributing our monthly fee to offset the cost of any repairs that may arise” (Rotimi).

To ensure ownership of the community water scheme, the Kwara State Community and Social Development Agency required beneficiary communities to pay 10% counterpart fund before the implementation of the desired project. Since Ilala community was challenged by water problem, the community chose water as its desired project. The 10% cost of the project was raised by the community and the Ilala Community Development Association: “The Association raised a part of the 10% and each household in Ilala was taxed a token to augment the contribution of the Association” (Yinka). More still, every adult in the community pays a monthly water tariff. Data from fieldwork show that every month each adult female of the community is required to pay N50 (\$0.25 USD; 1 dollar=N199) per month, while each male is required to contribute N200 (\$1.01 USD; 1 dollar= N199). (Nupe Woman). However, children and youths engaged in the compulsory National Youth Service Corps are exempted from paying the user fees.

Cost recovery is complicated. There are divergent views on whether the amount being charged by the maintenance committee is fair. There are those who believe that the water user fee might be too much: “Personally, I think that the amount the maintenance committee is charging is adequate. But not everyone is willing to pay the amount already being charged because, if you have to add the amount every adult individual has to pay in a household, the amount sometimes may be too much. Nevertheless, community members comply with paying the water user fees at the end of the month. The few ones who are unwilling to pay are reported to the traditional ruler (*the Oba*) who encourages or urges them to pay” (Nupe Woman). Importantly, the traditional ruler plays an important role to ensure compliance with payment of the water tariff. This was captured in the quote: “The *Oba* is highly respected and defaulters are reported to him. Once someone is called by the *Oba* to account for non-payment of the service, they respond positively and pay up” (Yinka).

Effective cost recovery requires several key factors: financial management capability; trust in the community of members responsible for finances; and willingness to pay (Schouten and Moriarty, 2008: 107). Cost recovery, however, can be limited and complicated by several issues. First is the deeply entrenched notion that water supply is free and therefore the responsibility of the government. Second, collecting tariffs before the system is down is often perceived by rural people as an imposition. Third, cost recovery is often also complicated by the *ability* of the members to actually pay for the cost of water service especially that rural communities are mostly poor (Schouten and Moriarty, 2008:110-111; Moriarty and

Butterworth, 2003: 23). Ilala is a low income community, and, it is possible that defaulters on the water user fees are not able to pay for water tariff. The traditional ruler reiterated this self-same point well:

“You know that everybody is not the same and that fingers are not equal. Just as we have those who are financially buoyant, we also have those who are not. Also, we have those (particularly most of the incomers who are mostly irrigation farmers) who are unwilling to pay for water tariff, probably because they feel they are not indigenes of Ilala. While I usually encourage and urge defaulters on water user fees to pay up, I still use my money to augment the amount collected for water user fees in order to meet up with the cost of repairs of our water facilities because I cannot afford to watch my people suffer. Sometimes, I pay to transport the generator set to various water pumps whenever we have electricity problem. I do all these things because I know that water is life”.

The Federal Ministry of Water Resources (2004:4) notes that rural residents are willing to contribute for community water management projects, yet this willingness to pay is constrained because they mostly rely on harvests which are unpredictable for their cash,

CONTINUING SUPPORT

Continuing support, sometimes known as institutional support, focuses on the structural support which aid the management and sustainability of community water project. Continuing support is the institutional arrangement mechanisms, formal or informal, that is put in place to assist communities deal with the challenges confronting a rural community “and is not limited to traditional notions of (technical) operation and maintenance” (Lockword, 2002). Continuing support can include activities such as monitoring water scheme, technical advice, conflict resolution, training, provision of information materials, and support in identifying possible funding sources (Smits et al., 2011; Smits et al., 2013), and so on.

Three broad institutional arrangements that can provide support to community water management in Ilala are: Irepodium Local Government Area (LGA), Ilala Community Development Association and delegated government agencies. First, local governments are the responsible authority for water services in rural areas. The local government responsible for overseeing the operation and maintenance of Ilala community water is Irepodun Local Government Area. However, field evidence suggest otherwise: that despite the availability of the department of Water and Environmental Sanitation in the LGAs, Ilala community does

not receive direct support from the local government for their community-managed water scheme. One informant reported: “I have never seen any local government official come to discuss about how we get water; the local government does not assist us with repairs or anything” (Ibrahim). Another informant stated that “Our local government and the Kwara State Community and Social Development Agency do not assist us when our water system breaks down (Rotimi). These suggest that the local government has not been engaged in any of the identified typical support services for rural community water supply. Second, Community Development Associations are groups of people who come together to establish associations that will be responsible for some of the social and economic needs of their community. This is necessary because government is unable to provide for all the development needs of communities in many African societies. Community Development Associations therefore take centre stage of the development of rural communities, where they exist; they participate in their community development project activities by contributing labour and money. In Ilala, the Community Development Association plays a significant role in the Ilala community water service scheme through financial contributions. Field evidence supports this claim. However, the role of the association in Ilala is limited to financial contributions for project sustainability. For example: as has been stated, the Ilala Community Development Association contributed part of the 10% counterpart fund at the beginning of the project and is still involved in the maintenance of the water scheme. Third, delegated Government Agencies, for instance, the Kwara State Community and Social Development Agency (KCSDA) and the Kwara State Rural Water Supply and Sanitation Agency (KRUWASSA)¹² play a significant role in the area of rural water supply. However, because

¹² Yet another agency tasked with rural water supply in the Kwara State is the Kwara State Rural Water Supply and Sanitation Agency (KRUWASSA). The challenge of providing water for rural communities leads to the establishment of the Kwara State Rural Water Supply and Sanitation Agency (KRUWASSA) programme in 1984. KRUWASSA was established by an act of Kwara State House of Assembly (KRUWASSA Website). The role of KRUWASSA is to facilitate: rural community development through provision of potable water, reduced incidence of disease and mortality through provision of improved sanitation, and tackle Hygiene in rural communities through education.

According to the website of KRUWASSA, Some of the activities of KRUWASSA in Local Government Areas include: Water inventory in every part of Local Government Areas (LGAs), Vulnerability assessment of villages and settlements within to diseases as water borne and basic facilities, Water and Environmental Sanitation Department formation in the LGAs, Water Supply, Health Education/ Health Hygiene, Project Monitoring and Evaluation, Setting up of community management committees in the rural communities to manage water and sanitary infrastructures, Training on plan of community action plan – what can the community do, Artisan training on hand pump maintenance, Artisan training on Supply Chain Initiative, and Involvement of traditional rulers in different communities managing hand pumps, boreholes and sanitary facilities.

More recently, the Kwara State established the village-level operation and maintenance (VLOM) training programmes to equip villagers on the technical know-how of hand-pumps boreholes repairing. The VLOM programme, being implemented by KRUWASSA, was funded by the UNICEF and planned principally to

Ilala does not fall under the targeted communities of KRUWASSA, the research will not discuss KRUWASSA.

The Kwara State Community and Social Development Agency is the implementing agency for a World Bank assisted programme aimed at assisting communities to provide social safety net and protection. The KCSDA was established in 2009, and Kwara State is one of the 26 states that indicated interest in the World Bank Community and Social Development Project. KCSDA is under the State Ministry of Planning. The key informant of KCSDA interviewed noted that KCSDA projects are usually designed to be a counterpart fund project in which 10% and 90% are contributed by the community and KCSDA respectively. According to the Official of KCSDA interviewed, the 10% contributed by the community is to ensure ownership of the project. The highest fund that communities can access for its projects is N10, 000,000 (ten million naira; \$50, 251.3 USD). The community identifies its interest to participate in the KCSDA project through a letter of expression of interest, and when the community contributes its 10% of the 10,000,000 million naira, a bank account is opened for the community with some appointed members of the water management committee designated as signatories to the account. Moreover, key informant from KCSDA noted that KCSDA uses Participatory Rural Appraisal (PRA): “We help communities prioritize their needs, conduct a need assessment and field appraisal with our technical team”. Furthermore, KCSDA staff work with local government officers and proffer advice to communities on the project. KCSDA’s projects are community based: “we train and sensitize communities on book-keeping and accounting procedures and techniques in the process of providing services to communities. After the training and sensitizing communities on various aspects of community-managed water and sustainability, the first tranche of the three tranches is paid. This is followed by field visit and supervision of the ongoing work by the technical team. The community engages a contractor because of the technicalities involved. We attach a 10 KVA or a 15 KVA generator to every water project we provide” (KCSDA official). Furthermore, as captured in the fieldwork, KCSDA trains beneficiary communities on project sustainability. This is because the community is expected to take over the project after its construction. This point is substantiated by the KCSDA staff interviewed: “In fact, we set-up monetary and maintenance committees for sustainability purpose”.

safeguard continuity in hand-pumps maintenance in many beneficiary communities in the state (Babatunde, 2012)

Ilala community has full responsibility for the O&M of the community water scheme in accordance with the project approach of KCSDA projects. This implies that all repairs, major or minor, are funded by the community however it generates fund. The KCSDA staff interviewed states: “As for major repairs, I am not sure how communities fund them. But I am sure that at the local government level, there is a department in charge of maintenance/repairs of rural water for communities. I believe that the community, together with the local government, can generate revenue to support the maintenance needs of the water scheme. Moreover, we encourage communities to use their internal arrangement to solve their maintenance problems and to go to the local government only when the problem is major”. Furthermore,

“We perceive this arrangement as a collaboration and our role is to supervise the project and ensure that communities carry out the project themselves, and that’s why we encourage the strengthening of the Community Development Association which often makes it easy to constitute the Community Projects Management Committee (CPMC) because they are responsible for the facilitation, formulation, implementation and management of the project” (KSCDA official).

KCSDA staff reports that supporting agencies for rural community water management in Ilala are sometimes challenged by a host of factors. The delay of the Kwara State Government to release funds ear-marked for projects challenges the work of KCSDA and impacts negatively on the kind of support that communities can receive from KCSDA. Also, low income communities intending to benefit from the programmes implemented by KCSDA are often challenged because they are unable to produce the mandatory 10% counterpart fund required by KCSDA. The level of literacy, especially on accounting records and procurement process, challenges the sustainability of community-managed water project. Infighting among community members because of lack of transparency is sometimes a challenge to projects. According to the KCSDA staff interviewed, “we tackle these challenges by taking extra measure to ensure that leaders of the water project disclose completely their activities to the whole community. We also give constant advice to communities to tackle this problem”

However, not all community- managed water service providers receive formal support. Some, in fact, receive ad-hoc support. Yet, institutional support is important for the sustainability of community-managed water service (Lockwood, 2002; Lockwood et al., 2003; Harvey and Reed, 2007; Schouten and Moriarty, 2008; RWSN, 2010; Lockwood and Smits, 2011; Improved International, 2012; Moriarty et al., 2013). The implication of this is that Ilala community received a mixture of both formal and informal (ad-hoc) support for the management of the community water scheme. The formal support was for the construction of the water and for training. Informal or ad-hoc support is received from the Ilala community Development Association and from the traditional ruler. As was noted, support to service providers should be seen as part and parcel of community-based management (Lockwood and Smits, 2011).

In these ways, the Ilala community has been able to maintain its water scheme and keep it functional and thus, ensure sustainable service delivery.

THE ROLE OF GOVERNMENT AND DONOR ORGANISATIONS IN THE SUSTAINABILITY OF WATER SUPPLY SERVICE

In Nigeria, water resources development and management is a shared responsibility between the three levels of Government: Federal, State and Local Government. This has led to fragmentation, duplication and lack of inter-sectoral coordination of the resources with the result that each tier pursues its own independent water agenda (Goldface-Irokalibe, n.d.). The Nigerian National Water and Sanitation Policy of 2000 states that the Federal Government became involved in water supply in 1976 when the Federal Ministry of Water Resources and the eleven River Basin Development Authorities were established. The Federal Ministry of Water Resources has responsibility to proffer policy advice and formulation, data collection, monitoring and co-ordination of water resources development and supply at the National level. The River Basin Development Authorities are responsible for the development, operation and management of reservoirs for the supply of bulk water for water supply, etc. in areas under their charge. The State Water Agencies are majorly charged with urban, semi-urban and rural water supplies. Some states have distinct agencies for rural water supplies and urban and semi-urban water supplies. The Local Government Authorities are in-charge of providing rural communities with potable water in their areas of charge. Lack of funds and insufficient supply of manpower has impacted on the effective performance of this responsibility by local government areas in Nigeria (Federal Ministry of Water, 2000). Other

agencies involved in public water supply as aid and loan programmes are the United Nations Children's Fund (UNICEF), United Nation Development Programme (UNDP), and a number of other bilateral, multilateral, External Support Agencies and NGOs (Federal Ministry of Water, 2000).

Interview data reveal that, statutorily, “the government or donor agency makes provision for water in rural communities, the local government in which the community falls manages it”. Again another key informant reveals that, “It is also contained in the KCSDP policy brochure that the local government is responsible for the maintenance of water projects and that’s why there is a department for supervision and support in the local government secretariat. To respond to the question of the role of government and donor organisations on the sustainability of water supply service is to summarise the role and responsibility of government and donor organisations on the sustainability of water resources as stipulated in the policy document establishing the KCSDP and RUWASSA” (KCSDA official). The establishment of the Local Government Review Committee (LGRC) is supposed to be responsible for support to rural communities in the management of their water. This however is not the case in Ilala. Ilala community, it seems, does not receive on-going support to manage its water scheme.

There is, however, a notable disconnection on the nature of the support that the local government provides to the community-managed water in Ilala. Whereas the KCSDA staff consulted and policy documents¹³ say that local governments have a department responsible for providing maintenance support to rural water for communities, Ilala community members interviewed were in agreement that they do not receive support from government, including Irepodium Local Government. It is possible that Ilala community members’ assertion that they do not receive “post-construction” support from the state and local government in the management and operation of their community-managed water may be shaped by their interest in lessening tax claims, and in increasing state assistance. Government officials interviewed may have just stated to the researcher the statutory responsibilities of the local government without actually verifying the reality in Ilala. Furthermore, government officials may want government to appear to be fulfilling its responsibilities. In conclusion, field data further show that the state created and empowered agencies such as the Kwara State

¹³ Policy documents of KRUWASSA and KSCDA

Community and Social Development Agencies and Kwara State Rural Water Supply and Sanitation Agency to provide support to rural communities to manage their water. Ilala community did receive government assistance to construct the community water scheme, but that one-off support is arguably inadequate. The lack of ongoing support to Ilala community-managed water raises serious concerns, especially from a public health perspective (i.e. the question of who certifies that the water supplied is wholesome and fit for its purpose). On this concern, the researcher personally observed that the Ilala community improved water had a taste, and water users from the community reported that the water was hard. Hence, providing on-going support to rural communities is necessary to ensure sustainability in rural water supply.

CHALLENGES TO SUSTAINABILITY OF COMMUNITY WATER MANAGEMENT IN ILALA

The challenges of sustainable water management in Ilala community includes the followings:

The project approach of the KCSDA means that after the commissioning of the community water project, the community takes full responsibility for the operation and management of the water scheme. While as regards government policy, the local government monitors and assists communities with maintenance, advice and conflict resolution, this is not the case in Ilala. As one of the key informants mentioned, “It is a policy in Kwara State that while the government or donor agency provides the water, it is the responsibility of the local government to provide maintenance service (RUWASSA official). Field work evidence shows that the community is on its own with regard to the functionality of the community-managed scheme.

The cost recovery policy is inadequate to cover the cost of operation and maintenance. The amount being collected, that is the monthly fee of N200 for each adult male and N50 for each adult female, is considered high and unaffordable for some members of the community. Yet, this amount cannot take care of major repairs that may arise. Another challenge is that Ilala is a low income community and the availability of cash in the community is a challenge.

Lack of a clear government policy on rural water management, especially on community-managed water supply is another factor that challenges the sustainability of community managed water.

CONCLUSION

This chapter deals with the research results and findings based on interview with informants in Ilala community in Kwara State, Nigeria. In this chapter, it is shown that community-managed water is functional. The factors that lead to sustainability of community water management are discussed. The roles of government and donor agencies in rural water provision are discussed.

CHAPTER FIVE

REVISITING SUSTAINABILITY IN COMMUNITY-MANAGED WATER SUPPLY

INTRODUCTION

This research has discussed the relevant literature and the conceptual framework of sustainability that underpins the research. Chapter four of the research presents the reality of community water management and its sustainability in Ilala community. In chapter four, community water management practices that lead to sustainability is discussed in Ilala. The sustainability of the community water is also discussed. In this fifth chapter, the research will discuss the implication of the study for sustainability. After that, the contribution of this dissertation to the debate on the sustainability of community water management is discussed. Finally, the policy implication of the study is presented. This is followed by some recommendations for policy and future research.

REVISITING SUSTAINABILITY IN COMMUNITY-MANAGED WATER SUPPLY

As has been shown in the literature review, the question of what sustainability actually is and the methods to achieve it have remained elusive to development practitioners and policy makers. This is because the definition of sustainability allows it to be applied to different disciplines: “development that meets the needs of the present without compromising the ability of the future generations to meet their own needs” (WCED, 1987: 43). A more practical definition that is discipline specific is needed, as it is defined in context of the water sector. In the context of the rural water sector, sustainability has been defined as “whether or not something continues to work overtime” (Abram, 1998). Or sustainability refers to water facilities being maintained in a condition which ensures a reliable and adequate potable water supply; and the benefits of water supply are continued to be realized over a long time (Davies and Brikke, 1995; Harvey and Reed, 2003). This definition stressed the continued functionality of the water system over time and implies that cost is being recovered, maintenance is being done and that the water continues to serve the people over time. This is the case with Ilala community-managed water, as field data has shown.

The study reveals that the people of Ilala are actively involved in the management of their water. The study also reveals that community-managed water is sustainable, as can be seen from the case study where the water scheme was still functional three (3) years after the construction. Yet certain factors come to play to ensure its sustainability. One of such factors

is the willingness of members of the community to work together to ensure the water works maximally. The members of the community developed a sense of ownership of the water scheme; they were also motivated to see that the water continues to work. Furthermore, the community practice of maintenance, in the absence of formal support structure, significantly enhanced the sustainability of the water scheme. More so, regular contribution for water tariff enforced by the traditional ruler was also instrumental to the continuous functionality of the water scheme. Lastly, the existence of a strong Community Development Association and the availability of strong leadership in the community provided support to the community-managed water scheme and enhanced sustainability. It is true that these factors are specific to Ilala community and may not necessarily be applicable to other locations. The study thus suggests that community-managed water is sustainable: where the community is motivated to see that the community-managed water works; where certain mechanisms are put in place to ensure that water tariffs are paid; where the water committee is engaged in routine monitoring of the water scheme to enable them anticipate problem and engage in preventive maintenance; and where there is continuous support from an indigenous association and from a strong leader that is backing the project in the community, in the absence of formal support.

Finally, sustainability is desirable and essential for continuous access to water in rural community. The need for sustainability is one of the consideration of the implementation agency before the improved water was constructed in Ilala. This is one reason why Ilala community was required to contribute 10% counterpart fund before the construction of the water scheme. In what follows, the thesis revisits some of these discussion and fleshes them out.

THE ROLE OF LEADERSHIP

Leadership is dynamic. Therefore, the role and attitude of a leader towards the water system management can either make or mar the entire system of community-managed water. The traditional ruler in Ilala is notable here. The traditional ruler (*Oba*) plays an active role in conflict resolution and ensures peace in the community because he is not only powerful and respected in Ilala. He is host to the incomers and plays a key role in their farm land allocation. He is actively involved in the management of the water system. He approves development projects and contributes his personal funds, sometimes, for the maintenance or

repair of the water systems, as was shown in Chapter 4. The role of leadership cannot be overemphasized in community-managed water system.

THE PRESENCE OF A STRONG COMMUNITY DEVELOPMENT ASSOCIATION

Institutional support to community-managed water is important. Where this is lacking, Community Development Associations support such communities for their self-help development projects. Community Development Association also fosters a sense of togetherness and ownership of the water project. In essence, Community Development Association are founded to deal with issues of community development or self-help projects where government is not felt. This is necessary in the absence of government's presence in the fringes of society, that is, in remote rural areas where the presence of government is not felt.

CONTRIBUTION

This thesis contributes to the debate of community-managed water. It identifies sustainable community-managed water supply practices and the factors that encourage sustainability of the Ilala community-managed water supply scheme.

CHAPTER SIX CONCLUSION AND RECOMMENDATIONS

INTRODUCTION

The aim of was to investigate the sort of community management that may make rural water supply sustainable. In doing this, it also investigated whether community-managed water supply is sustainable in Ilala. The research uses the case study of Ilala community, Kwara State, and was undertaken through review of relevant documents, of personal observations and of interviews with Ilala community members and government officials.

In this concluding chapter, the principal findings of the thesis are laid out. Literature on the sustainability of community-managed water supply is controversial as there seems to be a lack of agreement about the sustainability of the model. This thesis contributes to the debate about the sustainability of community-managed water supply. The first, perhaps most important, finding of the thesis is that community-managed water supply scheme is functional, at least at the time of field visit. Not only were the rural water systems in Ilala community producing water (i.e., not broken down), but almost all household water needs were being met by the community water system. More so, Water Maintenance Committee was functioning optimally. Water tariffs, however small, were being collected to pay maintenance of the water.

Furthermore, the research findings show that the motivation of beneficiaries to utilize the improved water source was necessary for sustainability. Second, the community practice of maintenance in the absence of formal support structure significantly enhanced the sustainability of the water scheme. More so, regular contribution for water tariff enforced by the traditional ruler was also instrumental to the continuous functionality of the water scheme. Lastly, the presence of a strong Community Development Association and the availability of strong leadership in the community provided support to the community-managed water scheme and enhanced sustainability. Field data further show that the state created and empowered agencies such as the Kwara State Community and Social Development Agencies and Kwara State Rural Water Supply and Sanitation Agency to provide support to rural communities to manage their water. Ilala community did receive government assistance to construct the community water scheme, but that on-off support is arguably inadequate. The lack of ongoing support to Ilala community-managed water raises

serious concerns, especially from a public health perspective (i.e. the question of who certifies that the water supplied is wholesome and fit for its purpose). On this concern, the researcher personally observed that the Ilala community improved water had a taste, and water users from the community reported that the water was hard. Hence, providing on-going support to rural communities is necessary to ensure sustainability in rural water supply. Providing on-going support to rural communities is necessary to ensure sustainability in rural water supply.

Regular sensitization programmes should be organized by government and donor agencies of the benefit of rural communities who manage their water. This will create more awareness as to the benefits of community participation in community water management. Government, agencies and organisations involved in rural water supply should also create structures that support rural communities to manage their water supplies. Support could be financial or linking rural communities with financial service providers. Government needs to put in place a clear policy on rural water, particularly on community-managed water supply, as it is the case in Ghana.

This thesis contributes to the discussion on the sustainability of community-managed water. It identifies sustainable community-managed water supply practices and the factors that encourage sustainability of the Ilala community-managed water supply scheme.

BIBLIOGRAPHY

- Abrams, L. (1998). Understanding sustainability of local water services. Available at: <http://www.irc.nl/page/67592>. [5 February 2015].
- Ademiluyi, I.A. and Odugbesan, J.A. (2008) 'Sustainability and Impact of Community Water Supply and Sanitation Programmes in Nigeria: An Overview'. *African Journal of Agricultural Research*, Vol. 3 (12), pp. 811-817.
- Aregheore, E. M. (2009). Nigeria. Available at: <http://www.fao.org/ag/AGP/agpc/doc/Counprof/nigeria/nigeria.htm> [3 October 2013]
- Arnstein, S.A. (1969). 'A Ladder of Citizen Participation', *Journal of the American Institute of Planners*, 35:4, 216-224.
- Babatunde, I. (2012). 'UNICEF, Kwara Train Communities on Boreholes Repair'. *The Herald. Newspaper*, November 2. Available at: <http://www.theheraldnews.info/unicef-kwara-train-communities-on-boreholes-repair> [10 June, 2015].
- Babbie, E. (2011). *The basics of social research*. Canada: Wadsworth Cengage Learning.
- Bakalian, A. and Wakeman, W. 2009. 'Post-construction support and sustainability in Community-managed rural water supply: Case studies in Peru, Bolivia and Ghana'. *Working Paper Report*, No. 48731, 1 (1), Water Sector Board discussion paper series, No. 14. Washington, DC, US: Bank-Netherlands Water Partnership (BNWP) and World Bank.
- Black, M. (1998). *Lessoning What Works: Twenty Year Retrospective View on International Water and Sanitation Cooperation*. UNDP-World Bank.
- Blaikie, N.W.H. (2000). *Designing Social Research: The Logic of Anticipation*. Cambridge: Polity Press.
- Blanche, M. T., Durrheim, K., & Painter, D. (2006). *Research in practice: Applied methods for the social sciences*: jutaonline. co. za.
- Boeije, H. (2010). *Analysis in Qualitative Research*. London: Sage.
- Carter, R. and Rwamwanja, R. (2006). 'Functional Sustainability in Community Water and Sanitation: A case study from South-West Uganda'.
- Carter, R., Tyrrel, S.F. and Howsam, P. (1999). 'Impact and Sustainability of Community Water Supply and Sanitation Programmes in Developing Countries'. *Journal of the Chartered Institution of Water and Environment*. Vol. 13, pp292-296.
- Chambers, R. (1983). *Rural Development: Putting the Last First*. New York: Longman.
- Cleaver, F. (1999). 'Paradoxes of Participation: Questioning Participatory Approaches to Development'. *Journal of International Development*, Vol. 11, 597-612.
- Creswell, J. W. (2012). *Qualitative inquiry and research design: Choosing among five*

approaches: Sage.

- Davis, J. and F. Brikké (1995), *Making your water supply work: Operation and Maintenance of small water supply systems*, IRC International Water and Sanitation Centre, The Hague, The Netherlands
- De Vaus, D. (2001). *Research design in social research*. California: Sage
- Dube, T. (2012). 'Emerging Issues on the Sustainability of the Community based Rural Resources Management Approach in Zimbabwe: A Case Study of Gwanda District'. *International Journal of Development and Sustainability*, Vol. 1 No 3.
- Dungumaro, E.W., and Madulu, N.F (2003). 'Public Participation in Integrated Water Resources Management: The Case of Tanzania'. *Physics and Chemistry of the Earth*, Vol. 28 no. 1009-1014.
- Entsua-Mensah, R. M., Essegbey, G., Frempong, G. and Engmann, C. (2007). 'Assessment of Community Water and Sanitation in Ghana'. *African Technology Policy Studies Working Paper Series*, No 45.
- Evans, P. and Appleton, B. (1993). 'Community management today: the Role of Communities in the Management of Improved Water Supply Systems'. *Occasional Paper 20*. The Hague, The Netherlands, IRC International Water and Sanitation Centre.
- Federal Republic of Nigeria (FRN) (2000). National water supply and sanitation policy
- Federal Republic of Nigeria (FRN) (2004). National Water Policy.
- FMWR (Federal Ministry of Water Resources) (2004). 'National Rural Water Supply and Sanitation Programme: A Strategic Framework'. Final Draft
- Fonseca, C.; Franceys, R.; Batchelor, C.; McIntyre, P.; Klutse, A.; Komives, K.; Moriarty, P.; Naafs, A. ; Nyarko, K.; Pezon, C.; Potter, A. ; Reddy, R. and Snehalatha, M. 2011. *Life cycle costs approach: Costing sustainable services*. Briefing Note 1a (second edition). The Hague, the Netherlands: IRC International Water and Sanitation Centre
- Garriga, R.G. and Perez-Foguet, A. (n.d.). 'The Sustainability of MDG-Focussed Programmes in Rural Water Sector'.
- Given, L.M. (2008). *The Sage Encyclopaedia of Qualitative Research Methods*. Sage: Thousand Oaks, CA, Vol. 2, pp. 697-698.
- Goldin, "Rutherford and Schoch (2008). The Place Where the Sun Rises: An Application of IWRM at the Village Level". *Water Resources Development*. Vol. 24, no. 3. 345-356
- Goldin, J. (2013b). 'Introduction from the Guest Editor in Water and Capabilities'. *E-Bulletin of the Human Development & Capability Association*. No. 23, December 2013. Pp.2-5.

- Gray, D.E. (2004). *Doing Research in the Real World*. London: Sage Publications.
- Harvey, P, and Reed, R. (2007). ‘Community-managed Water Supplies in Africa: Sustainable or Dispensable?’ *Community Development Journal*, vol. 42 no 3.Pp 365-378.
- Ilala Community Website. Available at: <http://ilalacommunity.webs.com/> [3 July 2015].
- Improved International (2012). Statistics on water & sanitation system failures. Available at: <http://improveinternational.wordpress.com/handy-resources/sad-stats/>. [10 February 2014].
- Integrated Cassava Project (2015). Available at: <http://www.cassavabiz.org/postharvest/gari01.htm> [5 July 2015]
- Ishaku, H.T., Majid, M.R., Ajayi, A.P. and Haruna, A. (2011). ‘Water Supply Dilemma in Nigerian Rural Communities: Looking towards the Sky for an Answer’. *Journal of Water Resource and Protection*, Vol. 3, pp. 598-606.
- Kamruzzaman, A.K.M., Said, I and Osman, O. (2013). ‘Overview of Management Patterns in Community, Private and Hybrid Management in Rural Water Supply’. *Journal of Sustainable Development*. Vol. 6, No. 5, 2013.
- Kleemeier, E. (2010). ‘Private Operators and Rural Water Supplies: A Desk Review of Experience’, Washington, D.C., World Bank
- KRUWASSA (2006). Kwara State Rural Water Supply and Sanitation Agency. Available at: <http://www.kruwassa.org/solutions.htm> [10 May 2015]
- Kwara State Government. (n.d.). Available at: <http://www.kwarastate.gov.ng/main/article/Agriculture#sthash.f5IwxarS.dpuf> [20 February 2015].
- Krantz, L. (2001). ‘The Sustainable Livelihood Approach to Poverty Reduction: An Introduction’. *Swedish International Development Agency*.
- Lieberson, S. (1991). ‘Small N’s and big conclusions: An examination of the reasoning in comparative studies based on a small number of cases’. *Social Forces*, 70, 307-320.
- Livingstone, D. (n.d.). Community Development through Empowerment of the Rural Poor. Available at: http://www.be.unsw.edu.au/sites/default/files/upload/pdf/schools_and_engagement/resources/notes/5A4_7.pdf [20 August 2013]
- Lockwood, H. (2002). ‘Institutional support mechanisms for community-managed rural water supply & sanitation systems in Latin America’. *Strategic Report No. 6*. Environmental Health Project (EHP). Washington, DC, US: USAID.

- Lockwood H.; Bakalian, A. and Wakeman, W. 2003. 'Assessing sustainability in rural water supply: The role of follow-up support to communities; Literature review and desk review of rural water supply and sanitation project documents'. Washington, DC: World Bank.
- Lockwood (2004). 'Scaling Up Community Management of Rural Water Supply'. *Thematic Overview Paper*. IRC International Water and Sanitation Centre
- Lockwood, H. and Smits, S. (2011). *Supporting rural water supply: Moving towards a service delivery approach*. Rugby, UK: Practical Action Publishing.
- Map of Nigeria (2015). Available at: <http://en.wikipedia.org/wiki/Nigeria> [20 February 2015].
- McNabb, D. E. (2013). *Research methods in public administration and nonprofit management: Quantitative and qualitative approaches*: ME Sharpe
- Moriarty, IRC (International Water Centre) Website.
How Water Supply can Play a Wider Role in Livelihood Improvement and Poverty Reduction'. *Thematic Overview Paper*, IRC International Water and Sanitation Centre.
- Moriarty P.; Smits, S.; Butterworth, J. and Franceys, R. (2013). 'Trends in rural water supply: Towards a service delivery approach'. *Water Alternatives* 6(3): 329-349.
- Mvula Trust. Rural Water Supply. Available at:
http://www.mvula.co.za/focus_areas/rural_water_supply/ [10 October 2013].
- Mvula Trust (2002). 'Community Management of Water Supply and Sanitation Services'
- National Population Commission, Nigeria (2010). 'Population Distribution by Sex, State, LGAs: 2006 Census'. Available at: <http://www.population.gov.ng/index.php/censuses> [20 February 2015].
- Nwankwoala, H. O. (2011a). 'The Role of Communities in Improved Rural Water Supply Systems in Nigeria: Management Model and its Implication for Vision 2020'. *Journal of Applied Technology in Environmental Sanitation*, vol. 1. No 3, pp.295-302.
- Nwankwoala, H.O. (2011b). 'Localizing the Strategy for Achieving Rural Water Supply and Sanitation in Nigeria'. *African Journal of Environmental Science and Technology*, Vol. 5(13), pp. 1170-1176.
- Nyarko, K.B., Oduro-Kwarteng, S. and Adama, I. (2007). 'Cost Recovery of Community-Managed Piped Water Systems in Ashanti Region, Ghana'. *Water and Environment Journal*.21, pp92-99.
- Parry- Jones, S., Reed, R. and Skinner, B. H. (2001). 'Sustainable hand pump projects in Africa: A literature review'. WEDC. Loughborough University, UK.
- Rowland, J. (1997). *Questioning Empowerment: Working with Women in Honduras*. UK:

Oxfam.

- RWSN (Rural Water Supply Network). (2010). 'Myths of the rural water supply sector'. *Perspectives Paper No. 4*. RWSN Executive Steering Committee. St Gallen: RWSN.
- Sansom-Sherwill (2006). 'Public Participation in Integrated Water Resources Management in South Africa: Current, Potential and Suggested Future Approaches'. A Dissertation Submitted to University of the Witwatersrand, Johannesburg.
- Sara, J., & Katz, T. (1997). Making the rural water supply sustainable: Report on the impact of project rules. UNDP-World Bank Water and Sanitation Program.
- Schouten, T. and Moriarty, P. (2008). *Community Water, Community Management*. London: Practical Action Publishing.
- Sheila M. Fram. The Constant Comparative Analysis Method Outside of Grounded Theory. *The Qualitative Report* 2013 Volume 18, Article 1, 1-25.
- Smits, S., et al (2012). "A Principle-based Approach to Sustainable Rural Water Services at Scale: Moving from Vision to Action". *Triple-s Working Paper 1*. IRC International Water and Sanitation Centre.
- Smits, S.; Rojas, J. and Tamayo, P. (2013). 'The impact of support to community-based rural water service providers: Evidence from Colombia'. *Water Alternatives* 6(3): 384-404.
- Solesbury, W. (2003). "Sustainable Livelihoods: A Case Study of the Evolution of DFID Policy". *Working Paper 217*. London: Overseas Development Institute
- Swanepoel, H. and De Beer, F. (2011). *Community Development: Breaking the Cycle of Poverty*. Lansdowne: Juta and Co Ltd.
- UNCED (1992). *Earth Summit '92*. London: The Regency Press
- Yin, R.K. (2009). *Case Study Research: Design and Methods*. London: Sage.
- WCED (1987) *Our Common Future: Report of the World Commission on Environment and Development*. Oxford: Oxford University Press.
- Weiss, R. (1995). *Learning from Strangers: The Art and Method of Qualitative Interview Studies*. New York: Free Press.
- Whittington, D., Davis, J., Prokopy, L., Komives, K., Thorsten, R., Lukacs, H., Bakalian, A. And Wakeman, W. (2009). 'How Well is the Demand-Driven, Community Management Model for Rural Water Supply Systems Doing? Evidence from Bolivia, Peru and Ghana'. *Water Policy*, 11, pp. 696-718.
- Willis, K. (2011). *Theories and Practices of Development*. New York: Routledge.

APPENDICES

APPENDIX 1: HUMAN ETHICS CERTIFICATE OF APPROVAL



Monash University Human Research Ethics Committee (MUHREC) Research Office

Human Ethics Certificate of Approval

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

Project Number: CF14/2287 - 2014001234

Project Title: Community Water Management: The Capability Approach. The Case of Fanari Birni Village, Sokoto State, Nigeria

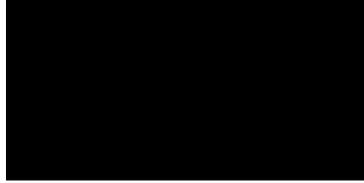
Chief Investigator: Dr Bimo Nkhata

Approved: **From:** 18 August 2014 **To:** 18 August 2019

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

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

10. **Monitoring:** Projects may be subject to an audit or any other form of monitoring by MUHREC at any time.
11. **Retention and storage of data:** The Chief Investigator is responsible for the storage and retention of original data pertaining to a project for a minimum period of five years.



Professor Nip Thomson
Chair, MUHREC

cc: Mr Terfa Percy Gbahabo

Postal – Monash University, Vic 3800, Australia
Building 3E, Room 111, Clayton Campus, Wellington Road, Clayton


 <http://www.monash.edu.au/researchoffice/human/>
ABN 12 377 614 012 CRICOS Provider #00008C

APPENDIX II: CONSENT FORM IN ENGLISH



MONASH South Africa

A campus of Monash University Australia

NOTE: This consent form will remain with Monash University researcher for their records

Project Title: The Sustainability of Community-managed Water Supply. A Case Study of Ilala Community-managed Water Supply, Kwara State, Nigeria.

Chief Investigator: Professor Bimo Nkhata

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

I consent to the following:	Yes	No
I agree to be interviewed by the researcher	<input type="checkbox"/>	<input type="checkbox"/>
I agree to allow the interview to be audio-taped	<input type="checkbox"/>	<input type="checkbox"/>
I agree that the data that I provide during this research may be used by the researcher for his study	<input type="checkbox"/>	<input type="checkbox"/>

Name of Participant:

Participant Signature :

Date :

APPENDIX III: CONSENT FORM IN YORUBA



MONASH South Africa

A campus of Monash University Australia

Akole ise agbese: Imuduro omi ipese ti awujo nse alakoso re. Ikeko ti omi ipese ti awujo nse akoso re ti awujo ilaala ni ipinle kwara orilede Nigeria.

Oloye olusewadi: Ojogbon Bimo Nkhata

Ati pemi lati kopa ninu iwadi ijinle ise agbese ti ile eko giga Monash tia fihan loke yi. Moti ka gbolohun alaye osi ti yemi beni motigba lati kopa ninu ise agbese yi.

mo fi ero mi kun awon wonyi:	Beni	beko
mogba ki oluwadi ijinle yi kio fi oro wamileluwo	<input type="checkbox"/>	<input type="checkbox"/>
mogba lati jeki iforowanilenuwo yi kiowa ninu agbohun sile	<input type="checkbox"/>	<input type="checkbox"/>
mogba ki awadi ijinle yi kio se imulo ipese alaye inu isewadi yi fun ise agbese re	<input type="checkbox"/>	<input type="checkbox"/>

Oruko olukopa:

Ibuwolu olukopa:

Deeti:

APPENDIX IV: EXPLANATORY STATEMENT IN ENGLISH



MONASH University

NOTE: This sheet is for your personal records.

...../...../2015

Project: The Sustainability of Community-Managed Water Supply: A Case of Study of Ilala Community-Managed Water Supply, Kwara State, Nigeria

Dr. Bimo Nkhata

Water Research Node, Monash SA

████████████████████

████████████████████

Student's name: Terfa Percy Gbahabo

Water Research Node, Monash SA

████████████████████

████████████████████

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

Why were you chosen for this research?

I am seeking information on the sustainability of community-managed water in Ilala. I would also like to know the followings: the factors that lead to the sustainability of community-managed, the challenges to the sustainability of community-managed water, the institutional support structure for community-managed water in Ilala community.

The aim/purpose of the research

The aim of the study is to assess the sustainability of community-managed water supply in Ilala community. The research asks the question: is community-managed water supply sustainable?

Possible Risk and benefits

There are no foreseeable risks associated with the study. However, benefits that will accrue from this research will be indirectly, i.e., to inform policy and legislations.

What does the research involve?

The study involves you participating in interviews that focus on community water management and the extent to which community water management improves dignity and livelihood.

It will last approximately 30 to 45 minutes. While the interviews will be audio recorded, your identity will remain anonymous. If you wish, you may request a copy of the transcribed interview script to be provided to you for confirmation before being included in the research findings. Interviews will be conducted in open space at a specific location convenient to you.

Can I decline or withdraw from the research?

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

Confidentiality

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

Storage of Data

Data collected will be stored in accordance with Monash University regulations, kept on University premises, in a locked filing cabinet for 5 years. Within this period, you may request a copy of the collected data. A report of the study will be submitted for publication, but individual participants will not be identifiable in such a report.

Results

If you would like to be informed of the aggregate research finding, please contact Terfa Percy Gbahabo [REDACTED] The findings are accessible for 5 years.

Complaints

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

Hester Stols

Monash South Africa

144 Peter Road,

Ruimsig, Johannesburg

[REDACTED]

Thank you,

[REDACTED]

Terfa Percy Gbahabo

APPENDIX V: EXPLANATORY STATEMENT IN YORUBA



Akole ise agbese: Imuduro omi ipese ti awujo nse alakosore. Ikeko ti omi ipese ti awujo nse akoso re ti awujo ilaala ni ipinle kwara orilede Nigeria.

Dr. Bimo Nkhata

Water Research Node, Monash SA

Ero ibanisoro: +27119504455

Emeili: bimo.nkhata@monash.edu

Oruko akeko: Terfa Percy Gbahabo

Water Research Node, Monash SA

Ero: +27840698994 ; +2348075008314

Emeili: ptgba1@student.monash.edu

Mofe lati dupe fun gbigba lati pade pelu mi loni. Apeyin lati kopa ninu ise iwadi yi. Ejo wo eka gbolohun alaye ni ekun rere kie to mo boya ema kopa abi eoni kopa ninu iwadi yi. Olusewadi yi je akeko ti onsise lati gba oye olori ninu imo ogbon ninu akojopo isakoso omi, labe ojule iwadi ijinle lori omi tii ile iwe giga Monash ni orilede gusu alawo dudu. Ti e ba fe alaye siwaju si lori eyikeyi abala ise agbese yi, aroyin ki e kan si awon olusewadi nipase nomba foonu tabi imeeli iyun ifi iwe ranse lori ero ayelujara ti akojo soke wonyi.

Kini idi tiafi yan yi fun iwadi yi?

Mo nwa alaye lori imuduro omi ti awujo nse alakoso re ti ilu Ilaala. Beeni mofe lati mo awon won yi; awon okunfa ti omu imuduro ba omi ti awujo nse alakoso re, awon ipenija ti owa ninu omi ti awujo nse alakoso re, awon ilaana ajo ikunpa fun omi ti awujo nse alakoso re ni awujo Ilaala.

Ero ati koko iwadi na

Ero iwadi yi ni lati se ayewo imuduro omi ti awujo nse alakoso re ni awujo ilaala. Iwadi na nbere wipe nje omi ti awujo nse alakoso re ni imuduro bi?

Awon ewu ati anfani tole jeyo

Kosi ewu Kankan tia foju sun pe o romo iwadi yi. Sibe sibe anfani toro mo iwadi yi ma jeyo ninu fifi se itoka si fun eto imulo ati isofin.

Kini iwadi ijinle yi mudani tabi kilo romo

Iwadi yi romo pe kie kopa ninu iforowanilenuwo tabi iforojomitoro oro to dalori omi ipese ti awujo nse alakoso re ati lati mo ipa ti omi ti awujo nse alakoso re fi nbu iyi kun idarasi ati ona atiri onje ojo.

Akoko na koni jubi iseju ogban si adoota din marun lo. Nigbati ao gba ohun iforowanilenuwo yin sile pelu foran, aoni se afihan eni tioje tabi oruko yin. Tio ba si wuyin elebere fun akosile iforowanilenu na ti aosi funyin lati fise ifesemule kiato fikun isewadi ti anse. Aosi se iforowanilenuwo na ni gbagede ni ibiyiowu tioba teyin lorun.

Nje mole faseyin tabi yo owo kuro lori ise iwadi ijinle yi?

Kiko ipa ninu iwadi yi je atinuwa. Kosi oroyan tabi gbese latigba fun kiko pa, tie ba si gba lati ko pa, eoni anfaani lati faseyin ni oritakorita toba wuyin tabi kie ko lati daun si ibere kibere tio ba bayinlaramu beesi ni wipe kosi aidara kankan ti yio bayin laikopa.

Afibo tabi asiri

Gbogbo abala ise iwadi yi ati pelu abajade re maje ikan abo fun lilo atiwipe apejuwe awon oludaun tia kosile maje alailoruko. Kosini si iwadi Kankan ti aomo mo enikeni.

Ibi ipamo iwadi

Awon iwadi tia bagba mawa ni ipamo pelu ibamu ilana ile eko giga Monash tiowa ni inu ile eko giga na tio si ma wa ni titi pa ninu kabinetu fun odun marun. Larin asiko yi ele bere fun adaako iwadi tia gba. Iroyin iwadi naa ma wani gbigbe sile fun atejade, amo aoni se afihan onikuluku tiokopa ninu re.

Abajade

Tio bawu yin lati gbo apade alude esi iwadi, ejowo elekan si ogbeni Terfa Percy Gbahabo lori ero ibanisoro: +27840698994 ; +2348075008314 tabi emelii re: ptgba1@student.monash.edu.

Awawi

Nje eni edun tabi awawi kan nipa ilaana ise agbese yi, akiyin kabo si ofisi ajo ise agbese ti ile eko giga Monash ti orilede gusu ile alawodudu ni ipase:

Hester Stols

Monash South Africa

144 Peter Road,

Ruimsig, Johannesburg

Ero ibanisoro: +27 11 950 4143, Emeili: hester.stols@monash.edu

Faksi: +27 11 950 4133.

APPENDIX VI: INTERVIEW GUIDE



MONASH University

Monash South Africa

A Campus of Monash University, Australia

Water Research Node

Project Title: The Sustainability of Community-Managed Water Supply. A Case Study of Ilala Community-Managed Water Supply, Kwara State, Nigeria.

Research Aim: The aim of this thesis is to assess the sustainability of community-managed water supply. The research uses the case study of Ilala community, Kwara State

Research Questions:

- Is community-managed water supply service sustainable?
- What factors are necessary for the sustainability of community-managed water supply service?
- What are the challenges to the sustainability of community water management in Ilala community?
- What institutional support/enabling environment has been put in place in Ilala community to enable Ilala community manage their water systems?
- What is the role of government and donor organisations on the sustainability of water supply service?

Section A: Biographical Data & General Demography

Age:	Total number of people in your household:
Gender:	Number of wives/husbands:
Marital Status:	Educational Level:
Number of children:	Sources of Income/Livelihoods:

Section B:

How long have you lived in Ilala?

Do community member still use the stream/ river and well water? Why do they still use these sources of water?

What are the sources of water in the village?

What are the different ways you use water from the communal source?

How do you use the water from the community water system?

Before the communal water system was constructed, where did you get water from?

What were the source of water in Ilala before the construction of the water scheme?

When was the improved water scheme in Ilala constructed?

How was the community able to pay for the improved water?

Is the improved water scheme sustainability? Why do you say so?

What are the factors that lead to sustainable water management in Ilala?

Do you feel a sense of ownership of the improved water?

How much do you pay for using the improved water?

Are you able to pay for the monthly water tariff?

Do you think the amount is enough to meet the O&M?

Are you willing to pay for the water tariff?

What happens to people who are unable or unwilling to pay for the water tariff?

How does the community manage its water?

Does the community have a body responsible for the day to day management of the water?

What is the composition of the committee?

What is the task of the water management committee?

Where does the community save the amount collect from water tariff?

How does Ilala organise for repairs of the water system when it breaks down.

What institution provide support to the community to manage your water?

Do you receive support to manage your water from the local government? What is the nature of the support that the local government render to your community?

What NGOs/agencies assist your community in the management?

What are the challenges that your community faces in managing the community water?