CRANFIELD UNIVERSITY

BRIGHTON AUSTIN CHUNGA

WATER RESOURCES MANAGEMENT: RURAL COMMUNITY PARTICIPATION AT CATCHMENT LEVEL IN MALAWI

SCHOOL OF WATER, ENERGY AND ENVIRONMENT
Environmental and Agricultural Informatics

PhD
Academic Year: 2018 – 2019

Supervisors: Dr Anil Graves and Professor Jerry Knox

January 2019

CRANFIELD UNIVERSITY

SCHOOL OF WATER, ENERGY AND ENVIRONMENT
Environmental and Agricultural Informatics

PhD

Academic Year 2018 - 2019

BRIGHTON AUSTIN CHUNGA

Water resources management: rural community participation at catchment level in Malawi

Supervisor: Dr Anil Graves and Professor Jerry Knox
January 2019

This thesis is submitted in partial fulfilment of the requirements for the degree of PhD

ABSTRACT

Water resources in sub-Saharan Africa region, like other regions in the world, are heavily affected by the impacts of climate change, pollution and population growth. Water management practices recognise the need for 'stakeholder' participation. Participation forms part of principles of water management concepts such as Integrated Water Resources Management and Water Governance. Most governments have reformed its policies and legislation to include the participatory principle. The rationale for the principle of participation is the apparent evidence that water has a broad spectrum of users and uses which are mostly competing. Research has however shown that stakeholders, especially rural communities, are not adequately engaged. Current community engagement has mainly targeted water point's maintenance and sanitation. Little is known on the failure of engaging rural communities in managing water resources in the catchments. This research used a qualitative case study to explore rural community engagement in water resources management at the catchment level. Fieldwork was conducted in three catchments: Linthipe, South Rukuru and South West Lakeshore in Malawi. It confirmed the reports that rural communities are not engaged as expected. It found out that one of the main reasons for non-participation is the poor engagement mechanism. It identified several factors (24 barriers) which limit the participation of rural communities. It also found that a cause-effect relationship exists between the factors. The research argues that such detailed analysis of cause-effect of the factors provides several options to policymakers and practitioners in addressing challenges affecting engagement in water resources management. Further, the research proposed the framework which would improve existing engagement mechanisms for rural communities in Malawi. The framework will also help implement catchment management activities for the newly established National Water Resources Authority.

Keywords: Catchment management, IWRM, policy, stakeholder engagement, water governance

ACKNOWLEDGEMENTS

I wish to thank God for allowing me to undertake and successfully finish my PhD. I am sincerely thankful for the many relatives and friends who have supported me in various ways to come this far.

I am very grateful to my supervisors, Dr Anil Graves and Professor Jerry Knox for their guidance and constant support throughout the research, and the thesis committee, Dr Paul Burgess and Dr Kumar Patchigolla.

Special gratitude to the Commonwealth Scholarship Commission for awarding me the scholarship to study for my PhD. I wish further to thank the Douglas Bomford Trust who supported me with travel grants which allowed me to carry out fieldwork in Malawi. I am also grateful to all those (community members, government officers, and NGO representatives in Linthipe, South Rukuru and South West Lakeshore catchments) who provided valuable information during interviews.

I also wish to acknowledge my family. Special mention to my wife, Mphatso, our children, Methuselah, Michon and Mehitahelle, you had believed that I can do it and have always supported me, thank you.

Moral and spiritual support was also provided to my family and me by the members of the Forward In Faith Ministry – Milton Keynes Assembly throughout our long stay in the United Kingdom. I say thank you, people of God. Pray for us as we continue to pray for you.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

BWB	Blantyre Water Board
CBA	Cost-Benefit Analysis
CMC	Catchment Management Committee
CRWB	Central Region Water Board
DADO	District Agricultural Development Officer
DC	District Commissioner
DoI	Department of Irrigation
DWO	District Water Officer
DWR	Department of Water Resources
DWSS	Department of Water Supply and Sanitation
EU	European Union
ICM	Integrated Catchment Management
IWRM	Integrated Water Resources Management
IWRM/WE	Integrated Water Resources Management and Water Efficiency Plan
LWB	Lilongwe Water Board
MDG	Millennium Development Goals
MENA	Middle East and North Africa
NGO	Non-Governmental Organisation
NWRA	National Water Resources Authority
NRWB	Northern Region Water Board
WHO	World Health Organisation
UNICEF	United Nation Children's Fund
RBM	River Basin Management
SDG	Sustainable Development Goals
SA	Stakeholder Analysis
SRWB	Southern Region Water Board
SSA	Sub-Saharan Africa
ToC	Theory of Change
WDM	Water Demand Management
WUA	Water Users Association

1 INTRODUCTION

The chapter introduces the context and rationale for the research including the justification for choosing to study issues relating to stakeholder engagement and integrated water resources management (IWRM) in Malawi. The aim and objectives of the research are presented, and the structure of the thesis described. The challenges of conducting this research are described and the research contributions to knowledge are outlined.

1.1 Research context and rationale

Water resources in the sub-Saharan Africa (SSA) region are heavily affected by climate change, pollution, and increased population growth. Beck and Bernauer (2011), using a hydrological model to make predictions until 2050, found that population and economic growth in the Zambezi River Basin would significantly reduce dry season runoff, reducing overall future water availability in the associated riparian countries (Angola, Malawi, Mozambique, Zambia, and Zimbabwe). Spalding-Fecher *et al*., (2017) reported a reduction in the capacity of hydropower generation in the basin due to climate change.

In Malawi, several studies conducted have shown how population growth, climate change and pollution have resulted in catchment degradation which has consequently affected water quality and quantity. For instance, studies in Lake Chilwa, Linthipe, South Rukuru and Lufilwa, catchments show high rates of deforestation, polluted water resources, and lack of proper sanitation due to unsustainable land use practices (Malawi Government, 2015c, 2015b, 2015a). According to Wanda *et al.,* (2014) the population-poverty-environment nexus forces rural communities to engage in charcoal businesses leading to deforestation in the Lunyangwa catchment. Deforestation, in turn, has increased silt loads affecting the quality of water abstracted by the Northern Region Water Board (NRWB), which supplies Mzuzu and its surrounding settlements. In Likangala catchment, three studies (Chidya *et al*., 2011; Pullanikkatil *et al*., 2015, 2016) have shown poor water quality due to degrading land use practices by rural communities. Chimtengo *et al.,* (2014) while analysing the environmental flows

of Rivirivi River catchment reported that human activities were causing low environmental flows of water.

Lack of water has limited the ability of people to access sufficient quantities of safe, clean, affordable water. The World Health Organisation (WHO) and the United Nations Children's Fund (UNICEF) (2015) reported that two out of five people without access to safe drinking water sources lived in SSA. For example, in Blantyre City in Malawi, Kamanula *et al*., (2014) reported that people are forced to use unsafe water due to water scarcity and therefore risk catching water-borne diseases. This finding resonated with an earlier study on global disease burden by Lim *et al.*, (2012), which reported that unimproved water and sanitation were among the top 12 risk factors in most of SSA, causing diseases.

The vulnerability of SSA to water resource pressures is due to high levels of poverty and poor governance. Olinto and Uemastu (2013) reported that about 48% of the population of SSA lives on less than $1.25 per day, approximately twice that of any other region. Lack of financial resources has caused many African countries to reduce investment in water infrastructure development. Comparing the effects of water infrastructure investment levels between developed regions, such as the United States and Europe and Africa, Vörösmarty *et al.*, (2010) found that the significant investments undertaken in developed regions of the world had reduced water security threats in comparison with impoverished regions such as Africa. Here, reductions in investments in water infrastructure had led to “economic water scarcity” (Seckler *et al.*, 1999, p.37), caused by a lack of water distribution infrastructure. People also faced other types of water scarcity, such as physical water scarcity (Vörösmarty *et al.*, 2000; Alcamo *et al.*, 2003; Oki and Kanae, 2006; Kummu *et al.*, 2010) and social water scarcity (Ohlsson, 2000; Ohlsson and Turton, 2000).

Given this context, a major concern lies in how water managers will meet current and future water resource challenges (Milly *et al.*, 2008). It is becoming increasingly evident that solutions for reducing water resource pressures need to

be found at a global level (Gleick, 1998; Jury and Vaux, 2005), and discussions addressing water resources date back more than four decades to the United Nations Conference on the Human Environment in Stockholm in 1992. Similar high-level conferences followed between 1992 and 2002 including those held in Rio in Brazil, Dublin in Ireland, Johannesburg in South Africa, and The Hague in the Netherlands. Whilst most of these conferences focused on the protection of the environment, they also generated global awareness of the need to address water resource challenges.

The protection and development of water resources thus became part of the Millennium Development Goals (MDG) (*Goal 7: Ensure environmental sustainability*) (UN, 2015). More recently, the objectives for water resources were introduced into new global goals, the Sustainable Development Goals (SDG) which address water explicitly through Goal 6 (*Clean water and sanitation*) (United Nations, 2016; UN-Water, 2018).

The key output of the international dialogues that have taken place in global policy fora has been the Integrated Water Resources Management (IWRM) concept, which is being implemented to achieve global goals for water. Global Water Partnership (2017) defines IWRM as a "process which promotes the coordinated development and management of water, land and related resources in order to maximise economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems".

The IWRM concept, which is integrative and participatory, was developed with the recognition that water has multiple uses and users and that addressing water resource challenges should consider socio-economic and environmental factors. It encourages the government, users or practitioners to contribute resources (including finances), labour, and expertise in addressing water resource challenges. Hassing *et al.*, (2009) reported that 42 countries had adopted IWRM programs at national level. Despite the concept's popularity, there has been varied progress regarding implementation from region to region. Durant *et al*,

(2004) as cited in De Stefano *et al.*, (2014, p. 1122) observed that while "international bodies can help by providing advice and support, ultimately decisions about policies, laws, institutional structures, incentives and capacity development must be made by individual governments or local authorities".

The Malawi Government has reformed several environmental policies, laws, and guidelines in response to international agreements and agendas associated with IWRM. For example, the government developed an Integrated Water Resources Management and Water Efficiency Plan (IWRM/WE) 2008-2012 to ensure the coordinated development and management of water, land and related resources (Malawi Government, 2008b). Chiluwe and Nkhata (2014) have documented the country's progress in developing the National Water Policy of 2005, which incorporates international water governance principles of participation, accountability, and transparency. In 2013, the government repealed the Water Resources Act of 1969 which it noted lacked good water governance principles. The new legislation, the Water Resources Act 2013, responded to the concept of IWRM by creating a number of institutional structures including the National Water Resources Authority (NWRA), Catchment Management Committees (CMCs), and Water User Associations (WUAs) to manage and develop water resources in an integrative manner (Malawi Government, 2013b).

While reforming policies, legislation and regulations is critical, it is also crucial to actually implement the reforms. Many policy reforms in Malawi have aimed to enhance stakeholder participation in water resources management. Effective stakeholder participation brings several benefits to natural resources management. It helps to establish trust, enhance legitimacy and acceptance of management policies and decisions, resolve conflicts, and increase the likelihood of compliance with rules and regulations among community members, reducing the costs of enforcement (Arnstein, 1969; Jeffrey and Vira, 2001; Ong'or, 2005; Reed *et al*., 2008; Nikkhah and Redzuan, 2009; Nare *et al.*, 2011; Chidammodzi and Muhandiki, 2015).

However, stakeholder engagement, despite the reforms made so far in Malawi, is still not adequate. Research has shown that stakeholder engagement in water and forestry management is limited (Ferguson and Mulwafu, 2001; Laisi, 2009; Kamoto *et al.*, 2013). Ferguson and Mulwafu (2001) referred to stakeholder engagement in water resources management as “restricted engagement”. They noted that engagement of stakeholders in the sector only aimed to train rural people to maintain their boreholes, shallow wells, and piped water supplies. Almost two decades later, Adams and Zulu (2015) and Adams (2018) found that participation of poor urban communities through WUAs was still ineffective in peri-urban water supplies.

Against this backdrop, in which policies, laws and regulations have been reformed using IWRM and governance principles, and yet, the evidence shows that stakeholder engagement is still ineffective, this research explores rural stakeholder and community participation using the research objectives defined in Section 1.2.

In the literature, stakeholder ‘engagement’, ‘involvement’ and ‘participation’ can often be used interchangeably (Arnstein, 1969; Bingham *et al.,* 2004; Bovaird, 2007; Greenwood, 2007; Head, 2008; Reed, 2008; Reed *et al.*, 2009; Deverka *et al.*, 2012; Cundy *et al.*, 2013; Sayce *et al.*, 2013). These commonly refer to the definition of participation outlined by Reed (2008, p. 2418) as a “process where individuals, groups and organisations choose to take an active role in making decisions that affect them”.

In this research, ‘stakeholder engagement’ follows the definition by Wehn *et al.*, (2018, p.36) to mean “a wide-ranging, but active, dynamic process where stakeholders are ‘allowed in’ to participate in decision-making processes”. In this case, the government and other water practitioners initiate the process so that rural stakeholders can ‘participate in’ and ‘be involved in’ water resources management.

1.2 Research aims and objectives

The overall aim of this research was to explore rural stakeholder and community involvement in water resources management at the catchment level and to develop appropriate mechanisms to enhance their engagement.

The following objectives were defined to achieve the research aim:

1) To critically review the formulation process of water policy and legislation with respect to stakeholder engagement
2) To identify the stakeholders in rural water supply and management and determine their roles in water policy formulation, development, and implementation
3) To assess factors influencing rural stakeholders' participation in water policy formulation and implementation
4) To evaluate the link between policy formulation and implementation
5) To develop a framework that ensures the appropriate participation of rural stakeholders in water policy formulation and implementation

1.3 Thesis structure

This thesis is divided into eight chapters (Figure 1.1).

Chapter 1 introduces the research context and rationale including aim and objectives. The gap in knowledge, concerning rural community participation in water governance is identified and the research aim and objectives are defined.

Chapter 2 reviews the underpinning theories of stakeholder engagement and governance which informs this research. It reviews literature on the current state of water governance in Malawi, and the findings associated with lack of stakeholder engagement and participation in water resources management and planning.

Chapter 3 outlines the methodology used to gather and analyse field data. The study area is introduced and criteria for selecting the three case study catchments for data collection are described.

Chapters 4 aims to address Objectives 2 and 3: “To identify the stakeholders’ roles in water resources management (Objective 2)” and “To assess factors influencing their participation (Objective 3)”. It explores how stakeholders are identified and involved in the policy process. It also presents the factors that limit the participation of different stakeholders in water resources management.

Chapter 5 presents findings relating to Objective 4: “To evaluate the link between policy formulation and implementation”. It establishes the link between policy goals and outcome by evaluating the processes of policy formulation where policy goals are set and the policy implementation which is envisaged to culminate into outcomes. It thus explores the gap in practice between water policy formulation and implementation regarding stakeholder participation.

Chapter 6 addresses Objective 5: “To develop a framework which ensures the appropriate participation of rural stakeholders in water policy formulation and implementation” which is informed by findings presented in Chapters 4 and 5. It proposes an engagement framework which will enhance the engagement of rural communities in water resources management.

Chapter 7 discusses the research findings presented in Chapters 4, 5 and 6 and its implications for policy in Malawi and Sub-Saharan Africa.

Chapter 8 provides the conclusions arising from the research about the aim and objectives. It highlights the original contribution to knowledge and identifies areas for further research.

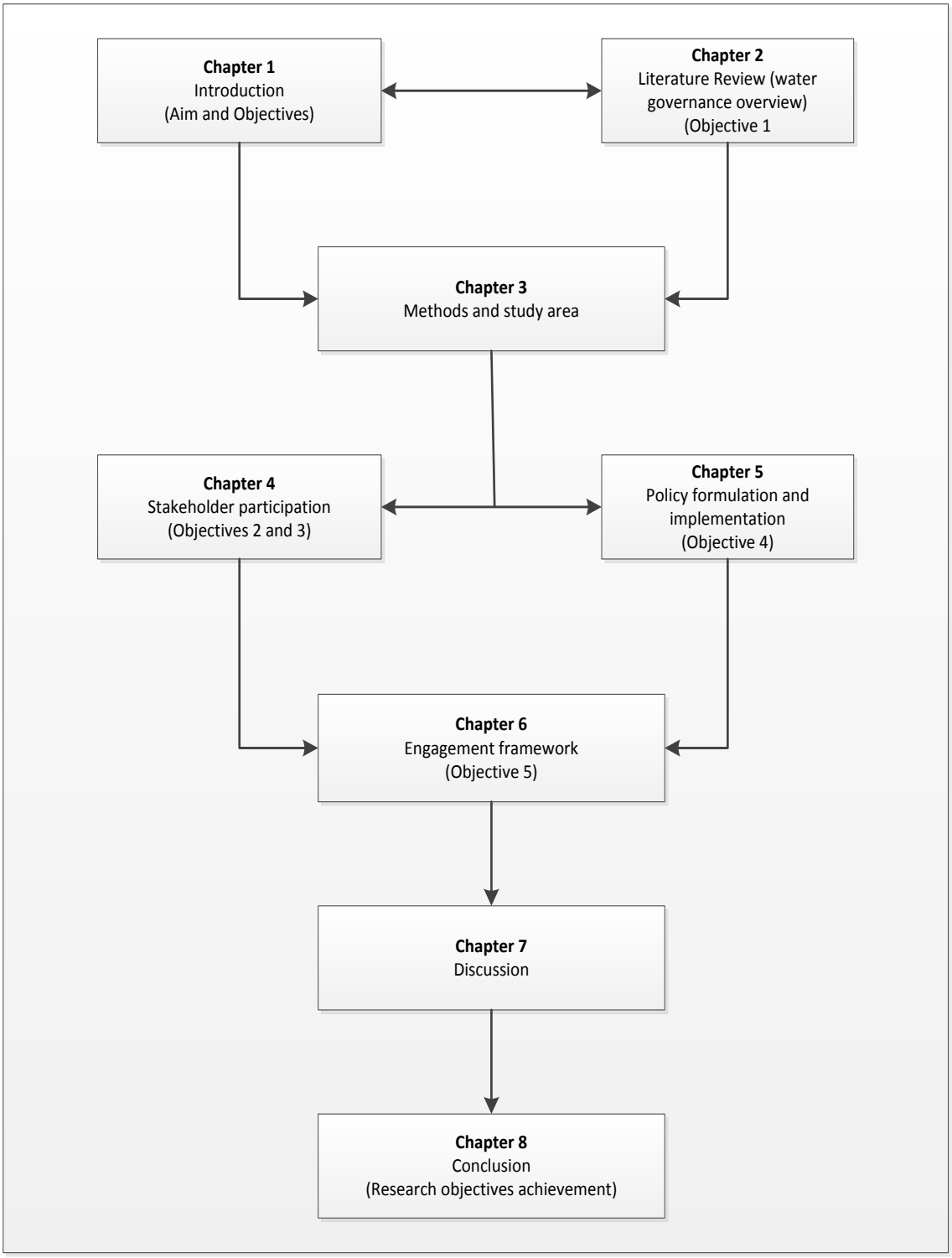

Figure 1.1: Schematic diagram showing the structure of the thesis chapters

1.4 Challenges encountered in the research project

Conducting empirical social science research in a country such as Malawi presents both unexpected challenges as well as unexpected opportunities. While most risks were considered during the study design and a system was put in place to overcome them, a few are worth mentioning. As with most qualitative research, challenges were met in obtaining and scheduling interviews with participants. Even when prior arrangements were made, participants frequently excused themselves at the last minute. This resulted in rescheduling of the interview, which meant more time was needed for fieldwork than previously anticipated. In extreme cases interviews were cancelled altogether, and new interviewees, as much as was possible, had to be recruited for the study.

The rescheduling of interviews due to cancellation caused more difficulties in planning for travels between catchments. The case study catchments are situated far apart; one in the north, one in the central and the third is located central/south of Malawi (Figure 3.1). A cancellation of interview meant either to wait for few days in one catchment for the next interview or to travel to another catchment which not only created logistics problems but also meant consuming a lot of time.

1.5 The contribution of this research to knowledge

There is much literature on stakeholder participation in water resources management more especially in line with IWRM and water governance. However, inadequate attention has been given to the participation of rural stakeholder and community and systematic approaches to ensuring that stakeholders are engaged. Existing research tends to generalise groups of stakeholders. The emphasis is often on the government, the general public, academics, private companies and NGOs. Moreover, stakeholder participation in water resources management has mainly focussed on domestic water supply and sanitation. The key contribution of the study is to address these research gaps.

This research is an empirical enquiry exploring the engagement of rural stakeholder and communities in catchment water resources management in the specific case of Malawi. The thesis provides a much deeper assessment of the experiences of rural communities and other stakeholders in the challenge of catchment-scale water management than has previously been the case in Malawi. Through this, it contributes to governance and engagement theories as well as practical guidance by providing new insights on the participation processes and experiences of different stakeholders. The research highlights not only complex factors influencing the participation of rural communities but also provides multiple lenses in dealing with them. The study by building on existing literature also introduces a new engagement framework that could be applied in many developing countries to enhance the participation of rural stakeholders.

1.6 Disclosure statement

I hereby certify that I have conducted and prepared this thesis independently and that only those sources, aids, and advisors that are noted herein have been used or consulted.

2 LITERATURE REVIEW

This chapter explores the existing literature on catchment water resources management in Malawi. First, the current water management concepts including IWRM as the main focus of the study are introduced. As this study focusses predominantly on stakeholder participation, a review follows on water governance in Malawi including particular attention to the key players or stakeholders and the legal framework guiding water management. Finally, governance and stakeholder engagement theories are presented and examined.

2.1 Water resources management

Water sustains life, and influences and shapes the landscape (Jain and Singh, 2003). The critical role of water to people and the environment puts it at the centre of discussions in many international fora (Aylward *et al.*, 2005; Grizzetti *et al.*, 2016). The United Nations has held several international and regional fora since the Conference on the Human Environment in Stockholm in 1972. The central theme in these discussions has been to manage and conserve water so that it is available in sufficient quantities and is of sufficient quality for human and environmental use.

New agreements and concepts have been developed from these discussions, and include the European Water Framework Directive (Hering *et al.*, 2010), the Integrated Water Resources Management (IWRM) (UN-Water and Global Water Partnership, 2007), Water Demand Management (WDM) (Brooks, 2006), Integrated Catchment Management (ICM) (Falkenmark, 2004; Lerner and Zheng, 2011), and River Basin Management (RBM) (Jaspers, 2003). Most of these concepts advocate integrated and coordinated management of water resources, which are critical characteristics of IWRM. For example, ICM and RBM emphasise the basin or catchment as a unit of management (Fenemor *et al.*, 2011) and encourage the involvement of all key sectors and stakeholders (Allen *et al.*, 2011).

Integrated Water Resources Management as a multi-disciplinary and participatory approach (Jaspers, 2003) is a departure from sectoral and isolated

management concepts. Allan (2003, pp.11-12) in a historical perspective of water management since the 1850s described two main approaches. In the first approach, influenced by industrialisation, management was based on the notion that nature and water resources should be “controlled". The approach focussed on technical and isolated solutions, which resulted in the modification of rivers at the expense of connectivity to the river basin environment and its people. Revenga *et al.*, (1998) reported that 60% of the world’s rivers have been hydrologically modified in this way. As a result, this led to negative pressure on environmental resources during the 1950s that have grown since then (Allan 2003).

The second approach, IWRM, takes a holistic approach and recognises that politics and socio-economics play a vital role in water resources management. IWRM’s key attributes such as participation, inclusiveness, and integration address the criticisms of the earlier concept. Its growing popularity hinges on its emphasis on the environment, sustainability, and the inclusion of stakeholders in water policy development (Allan, 2003). A key aspect of IWRM is that decision-making should involve all stakeholders. Decisions need to be made as to who gets water, how much, when, and which uses should have priority. These decisions are complex and need to be made continuously in water resources planning, either at national or catchment level, with an understanding of stakeholder needs. However, to achieve inclusive decision-making, IWRM principles need to be enshrined in policy, law, and regulation of the country. As this entails shifts in power and influence, IWRM is regarded as inherently political (Mollinga, 2008; De Stefano *et al.*, 2014). Despite support for IWRM, it has been criticised for lack of practicality at both the macro- and meso-scales (Biswas, 2008). Van der Zaag (2005) also noted that the concept had not been properly clarified, especially in terms of how it should be implemented to achieve its intended goals.

Others have criticised the ‘good governance agenda’, commonly supported by the international aid agencies, claiming it de-politicises issues that are viewed as fundamentally political (Mollinga, 2008; Kelsall, 2011; Rusca and Schwartz,

2014a). However, Mollinga (2008) noted that IWRM takes a less exclusively sector-based management approach and promotes inclusiveness in recognition of the human and ecological dimensions of water resources management. Despite criticism of some aspects of IWRM, most of the water policies, legislation and guidelines in place in many countries are framed and reviewed drawing on its principles, particularly the participatory principle. For example, in Malawi almost all water-related policies and legislation (National Water Policy 2005, Water Resources Act 2013, and Catchment Management Guidelines 2016) are informed by IWRM principles (Malawi Government, 2005a).

2.2 Overview of water governance in Malawi

Rogers and Hall (2003, p.16) defined "water governance" as "the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society". Water resources development and management, therefore, needs to take place within the political, social and economic spheres, which themselves are shaped by specific legal and organisational structures within the nation. There are several key players in the water sector in Malawi, guided by these policies and legislation.

2.2.1 Key players in the water sector

The Ministry of Agriculture, Irrigation and Water Development is responsible for the management of water resources in Malawi. It has two sub-sectors: agriculture and water (Figure 2.1). The agriculture sub-sector is primarily responsible for improving agricultural (crops and animals) productivity and sustainable management of land resources. The water sub-sector manages and develops water resources for sustainable, effective and efficient provision of potable water, sanitation and irrigation services. The water sub-sector has three technical departments: water resources; water supply and sanitation; and irrigation. The Department of Water Resources (DWR), which mainly deals with water resources development and management. The Department of Water Supply and Sanitation (DWSS), which oversees water supply and sanitation services and is supported

by water supply boards which are statutory corporations. The Department of Irrigation (DoI), which is responsible for the development of irrigated agriculture.

The two sub-sectors have different management hierarchies below its headquarters despite belonging to the same ministry. The agriculture sub-sector is represented at four levels (agricultural development division, district office, extension planning area and sections levels) below the headquarters (Kamwamba-Mtethiwa, 2016). The water sector is only represented at regional and district office levels (Figure 2.1) and there is no significant representation at local or catchment level despite some few districts having water-monitoring assistants. Such limited representation creates many problems for service delivery and stakeholder participation. However, to increase stakeholder participation especially at catchment level, one of the key principles of IWRM, Jonsson (2005) proposed the formation of catchment committees. This institutional arrangement was supported by Mitchell (2005) as it would give IWRM credibility and ease some of the operational problems observed by Biswas (2004, p. 250).

The Ministry of Agriculture, Irrigation and Water Development has been restructured and renamed, according to the needs and policies of the ruling government (Chinsinga, 2009). Such restructuring has often occurred after a change in the ruling party, resulting in severe operational challenges due to alterations in funding and decision-making. For example, Gutierrez (2007) reported that the Malawian water budget had not received full funding since 2000.

Upon restructuring, the water ministry has often been reduced to a department within another ministry, mostly agriculture, and had its budgetary allocation reduced. As a department, the significance of water has been overshadowed by agriculture, reducing public awareness of water-related issues. Restructuring has also impeded decision-making. For example, when water exists within its ministry, the District Water Officer (DWO) reports to the regional office or the District Commissioner (DC). However, when water is placed within the ministry for agriculture, the DWO then reports to the District Agriculture Development Officer (DADO) or District Irrigation and Water Development Officer. This

lengthens the decision-making process but also creates confusion among the district officers. The DADO's primary focus is on the agriculture sub-sector and he/she is often overwhelmed by the added responsibility of the water sub-sector.

Having embraced IWRM principles in managing water resources, other government ministries and departments, NGOs, academics, private sector organisations, as well as the public then form part of the stakeholder landscape. Key government ministries and departments include those for local government, natural resources, health, gender, youth, community services, education, land, physical planning, and human settlements. The three water sub-sector departments should be supported by the National Water Resources Authority (NWRA) established by the Water Resources Act 2013. However, the NWRA is not yet fully operational, and some of its fundamental structures such as Catchment Management Committees (CMCs) are not yet in place.

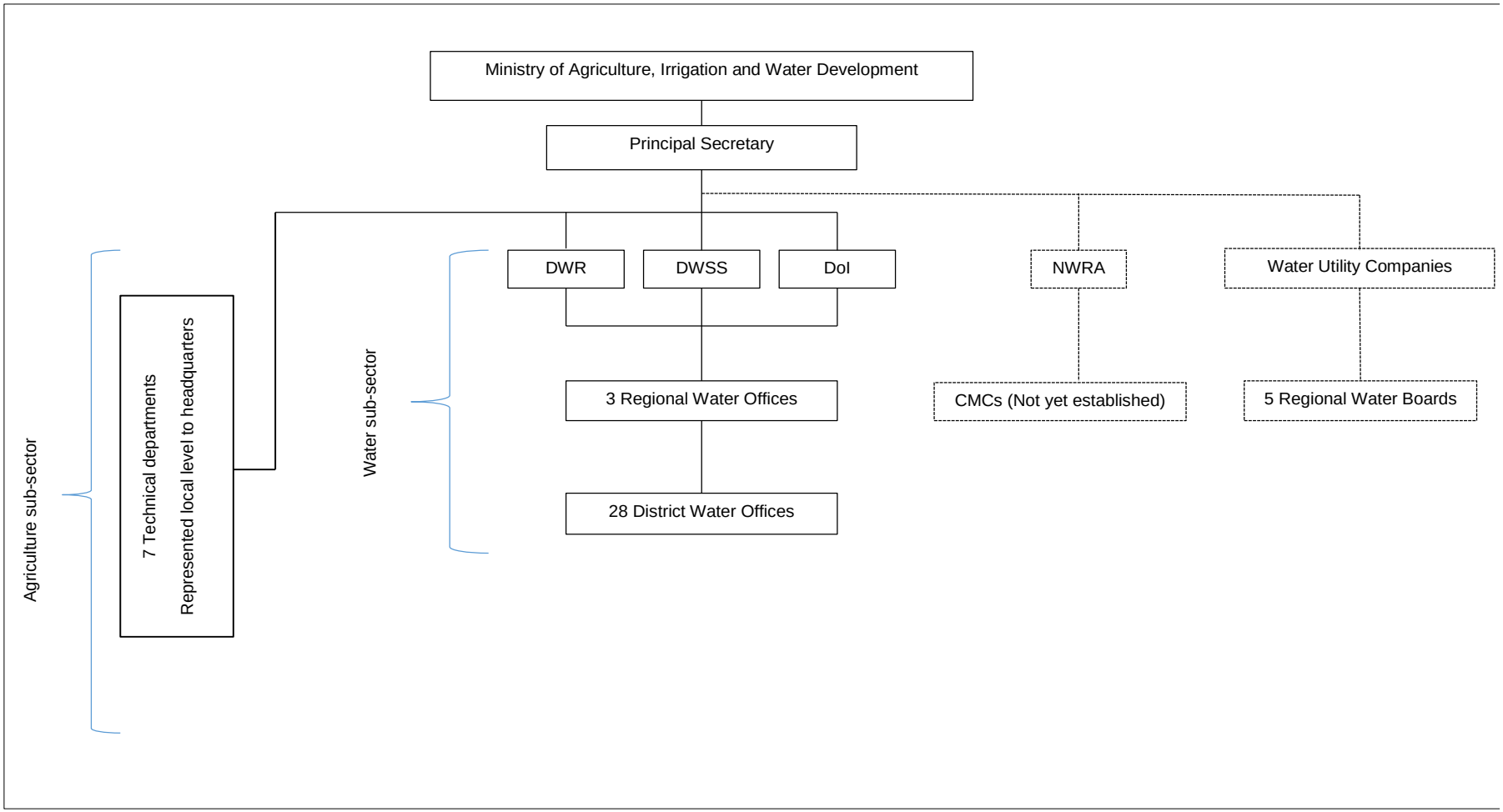

Figure 2.1: An organogram for the Ministry of Agriculture Irrigation and Water Development showing key players for the water sub-sector

2.2.2 Legal framework

The Water Resources Act (2013), Water Works Act (1995), and the National Water Policy (2005) are the main pieces of legislation guiding water resources management in Malawi. The legal framework provided in the legislation controls the operationalisation of the institutions, organisations and other key players as explained in section 2.2.1 above.

The Water Resources Act (2013) guides the Ministry of Agriculture Irrigation and Water Development in the control, conservation, allocation and use of water resources. It established the NWRA, which assists the ministry in the implementation of the Act and administration of water resources. The rationale for its establishment comes from the recommendation to repeal the Water Resources Act (1969). The Government of Malawi commissioned studies on water policy and legislation between 1996 and 2003. These studies (Mott MacDonald and Malawi Government, 2003) criticised the Water Resources Management Policy and Strategies (2000) and the Water Resources Act (1969) for several deficiencies, particularly for its weak regulations on penalties, poor allocation of water, and lack of stakeholder participation.

It was also noted that policy and legislation do not recognise recent regional and international treaties and agreements to which Malawi is signatory (Mulwafu *et al.*, 2003; Malawi Government, 2005b). The Water Resources Act (2013) addressed critical gaps found in the old Act. For example, three parts (Parts II, III, and XIII) of the Act have established institutions (NWRA, CMCs, WUAs) to increase stakeholder engagement. There has been a comprehensive reassessment of the penalties for violating water regulations although these have yet to be finalised and approved.

The establishment of the NWRA has, however, caused mixed reactions amongst water practitioners. Based on its mandate as stipulated under Part II of the Water Resources Act (2013), the NWRA will take over most of the functions previously undertaken by the Department of Water Resources (DWR). The rearrangement of the functions of the DWR within the NWRA requires the DWR to be restructured

imposing additional demands on staffing. It is no surprise therefore, that five years after the NWRA was established, it has yet to be fully operationalised. During data collection for this study (2016-2017), the NWRA did not have a Chief Executive Officer and had not yet established a single catchment management committee. It had only a limited number of staff working under secondment from the DWR.

NWRA was created so that the government would not have both regulatory and developmental roles. It is an independent regulating authority. However, of the 13 members of the governing board of the NWRA, nine are senior government officers as stipulated under Part II of the Water Resources Act of 2013 (Malawi Government, 2013b). Given this context, increasing the participation of other stakeholders in decision-making, beyond the government will be difficult.

The Waterworks Act (1995) provides for the establishment of water boards to supply water to different parts of the country (Malawi Government, 1995). There are five water boards in Malawi: Blantyre Water Board (BWB), Central Region Water Board (CRWB), Lilongwe Water Board (LWB), Northern Region Water Board (NRWB), and Southern Region Water Board (SRWB).

Each of the water board serves a designated area referred to as a 'water area' complimenting the functions of the Department of Water Supply and Sanitation. Water boards are essential stakeholders in water management and more specifically in catchment protection and conservation, as catchments act as their source of water. In carrying out their functions, water boards are often in contact with rural communities who live near and around water sources. In some instances, they have initiated the establishment of community-based natural resources management organisations (CBNRM).

For example, the LWB helped to form the Malingunde Environmental Conservation and Development Organisation in the Traditional Authority area of Masumbankhunda in Lilongwe to support its conservation activities around its water reservoirs. Adams and Zulu (2015) also reported on partnerships between the LWB and WUAs in the Lilongwe peri-urban area. However, Adams and Zulu (2015) and Adams (2018) highlighted the lack of participation in such

arrangements. Similarly, Wanda *et al*., (2014) while assessing the co-management between rural communities in the Lunyangwa catchment, which is a source of water for the Northern Region Water Board, found that rural communities were not active in protection and conservation of the catchment. While water boards are important stakeholders in water resources management with the government, as stipulated by the Waterworks Act (1995), their engagement mechanisms with the rural communities that live near water sources are not effective.

The National Water Policy (2005) with its vision, "*Water and Sanitation for All, Always*" sets out a national agenda on how water resources will contribute to economic development. The current policy is the product of reviews of previous policy documents of 1994 and 2000. Like the Water Resources Act (2013), it replaced the policy of 2000 which was found to be "too verbose, in some parts vague and that did not clearly articulate the issues which it was trying to advocate" (Malawi Government, 2005b, p. 1).

Among the failures of the 2000 policy was the lack of a collective and participatory water resources management approach. The 2005 policy called for the establishment of the NWRA. The NWRA was eventually established through the Water Resources Act (2013). The role of the NWRA in water policy, however, will need to be updated, to match the role recommended by the Water Resources Act (2013).

The current policy (National Water Policy 2005) despite addressing gaps in the previous policy (Chiluwe and Nkhata, 2014), has not been implemented as envisaged. For instance, the NWRA's establishment has been delayed. Recommendations to establish NWRA were made in 2003 (Mott MacDonald and Malawi Government, 2003) but the actual establishment only took place in 2013. In addition, as already outlined under section 2.2.1, despite being established, the NWRA has yet to become fully operational. In the absence of CMCs, which are meant to enhance the participation of rural communities in water resources management, achieving 'stakeholder engagement' as a principle of water governance may be difficult.

2.3 Theoretical concepts of governance

Governance, according to Stoker, (1998, p.18) has several theoretical roots including “institutional economics, international relations, organisational studies, development studies, political science, and public administration”. Aguilera and Cuervo-Cazurra (2004) noted that the corporate sector was amongst the first to apply the governance concept in the 1970s. The sector was faced with liberalisation and internationalisation of economies, and the governance concept was introduced to close the gaps in existing legal systems.

Eventually, the term ‘governance’ emerged in the literature, to describe new ways for society to order itself and manage its affairs. It is now used in many sectors and by many different players including governments, academics, private sectors, NGOs, and international aid organisations. In international development, ‘good governance’ depicts satisfactory conditions for developmental aid where particular conditions, mostly concerning sustainable development, have been met (Kooiman, 1999; Doornbos, 2003). Whilst governance does have different meanings in different sectors (Doornbos, 2003; Rogers and Hall, 2003; Lautze *et al.*, 2011; Wasambo, 2011; De Stefano *et al.*, 2014), Stoker (1998, p.18) has observed that there is a common baseline in these definitions, in that governance “refers to the development of governing styles in which boundaries between and within public and private sectors have become blurred”.

In the context of development, the United Nations Development Programme (UNDP) (1997, p.5) described governance as “the exercise of political, economic and administrative authority in the management of a country’s affairs at all levels comprising the complex mechanisms, processes and institutions through which citizens and groups articulate their interests, mediate their differences and exercise their legal rights and obligations”.

These definitions imply scenarios where institutions and actors are continuously interacting, exemplifying the complex and non-linear nature of governance (Kooiman, 1999; Duit and Galaz, 2008; Capano *et al.*, 2015). Indeed, Franks and Cleaver (2007) summarised governance to mean decision-making processes undertaken by society at all levels through its members. As the debate on the

concept continues, particularly on the government-governance dichotomy, there has been a growing need to support use of the concept (Capano *et al*., 2015).

2.3.1 Principles of governance

In order to provide a common understanding and support application of governance, its characteristic features have been identified. These features are often referred to as "codes of governance" or "principles of governance" (Constanza *et al.*, 1999; Aguilera and Cuervo-Cazurra, 2004; Davidson *et al.*, 2006). Davidson *et al.*, (2006, p.6) described governance principles as "normative statements that make claims about how steering should happen and in what direction – that is, how governance actors should exercise their powers in meeting their objectives". With its roots in the development sector, most of the common principles of governance have been developed by aid organisations such as the World Bank, UNDP and international governments such as the EU (UNDP, 1997; European Commission, 2001; Kaufmann *et al.,* 2003). The common principles of governance as described by the main development and aid organisations are shown in Table 2.1.

Table 2.1: Principles of good governance developed by the World Bank, UNDP, and European Commission

World Bank	United Nations Development Programme	European Community
• Voice • Accountability • Political stability and absence of violence • Government effectiveness • Regulatory quality • Rule of law • Control of corruption	• Participation • Accountability • Effectiveness and efficiency • Rule of law • Equity • Transparency • Responsiveness • Consensus orientation • Strategic vision	• Inclusive approach to participation • Accountability based on clarity of roles and responsibilities • Policy effectiveness through timely and proportionate implementation • Coherence of policy and action • Openness of institutions

Source: (Davidson *et al.*, 2006)

While different organisations have proposed different sets of principles of governance, some attributes are common to all: accountability, efficiency, equity, participation and transparency (Table 2.1). Accountability requires decision-makers in government, the private sector, as well as in civil society organisations to be accountable to both the public and other institutional stakeholders. Transparency requires the effective flow of information between actors. Efficiency or effectiveness requires institutions to produce results that meet the needs of stakeholders. Equity supports equal opportunities between women and men. Finally, the participation principle requires that all the relevant stakeholders are engaged in the decision-making processes (Davidson *et al.*, 2006).

One plausible reason for differences in the characterisation of governance is that societies are different. The UNDP (1997) noted that as each society is different and faces different challenges, the features of good governance may not co-exist at once in any given society. It, therefore, proposed that each country should strive to define which features are of importance for it to achieve its overall development goals. Plummer and Slaymaker (2007) however criticised the selective implementation of governance principles, citing the possible loss of the wider benefits. As such, they proposed combination of the principles of governance more systematically during implementation. However, given that this leads to added complexity and finance demands, Franks and Cleaver (2007) stressed the need to contextualise and localise the application of governance.

2.3.2 Water management in the context of governance

The concept of governance is increasingly important in water resources management where many users have interests that need to be accounted for. It is evident that problems faced in the water sector cannot always be managed effectively by one nation, sector, community, group of users (upstream vs downstream users), or stakeholder (government, private or civil society). Furthermore, whilst the central government may provide capital for a water supply system, the conservation and protection of catchments requires the involvement of other actors, particularly local communities. Forest conservation for example,

has been most effective when communities near forests partner with government agencies and departments to implement programmes to prevent deforestation.

Various authors have defined governance in relation to water resources. Rogers and Hall (2003, p. 16) defined water governance as “the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society”. De Stefano *et al.*, (2014, p.1123) defined water governance more specifically as “the manner in which authority is acquired and exercised on behalf of the public in developing, utilising and protecting a nation’s water resources”. They claimed that the definition can be operationalised at different levels. Lautze *et al.*, (2011, p.7) by differentiating between decision-making processes and outcomes defined water governance as “processes and institutions by which decisions that affect water are made”. McGarry *et al.*, (2010) and Lockwood *et al.*, (2010) noted that water governance implies interdependencies amongst stakeholders (governments, private practitioners, civil society, and members of the public), and institutions at all levels of authority in society. How this can happen, in particular at community or catchment level, has not been clearly articulated in the literature as evidence show that communities are mostly underrepresented in decision-making processes (Wehn *et al.*, 2018).

In water management, the governance concept has been strongly embraced to the extent that it is currently believed that many problems experienced in the sector are as the result of “bad” governance (UNDP, 2004; UN, 2005, 2006; Hawkins and Jill, 2006). However, Lautze *et al.*, (2011) contend that such a blanket conclusion may not always be true, by comparing India with China, and Saudi Arabia with Jordan. Whilst water governance in India and Jordan is considered to be more developed than in China and Saudi Arabia, the former suffer many more water crises than the latter. Thus, Lautze *et al.*, (2011) proposed that outcomes should not be confused with governance as a process.

As in the case of principles of good governance (see section 2.3.1), the principles of water governance serve as monitoring tools to ensure the quality of the water management system. These include transparency, inclusiveness, coherence and

integration, equity, accountability, efficiency, responsiveness, and sustainability (Rogers and Hall, 2003). In fact, the principles of water governance are little different in scope and meaning to governance principles. The common principles of governance irrespective of the sector (water or development sector) include equity, efficiency, participation, decentralisation, integration, transparency, and accountability.

2.3.3 Assessment of water governance

As outlined above, a range of principles have been proposed as guidelines to achieve a desired goal or outcome for water resources development and management. Subsequently, frameworks have been developed to guide and measure operationalisation of the principles of governance and monitor performances of different management systems.

De Stefano *et al.*, (2014) while benchmarking water governance in the Middle East and North African countries, proposed an assessment framework (Figure 2.2) with three distinct components: (i) institutional structure, (ii) process features, and (iii) functions. Institutional structures comprised policies, laws, and organisations. Process features represented the principles of water governance and included responsiveness, rule of law, accountability, participation and transparency. Functions included organising and building capacity, planning, allocating water, developing and managing water resources, and regulating water resources and services.

De Stefano *et al.*, (2014) proposed that the framework could be used to assess water governance system, provide comparison basis for water governance capacity between countries and most importantly provide evidence for national dialogue in case of deficiencies. As such it could help improve water governance. The rationale for the framework was that water governance should affect core functions through national or sectoral legislation, policy, and organisation. Thus to achieve the desired water resources management outcomes or goals, specific functions need to be fulfilled by particular organisations through processes which are transparent, involve all the relevant stakeholders (participation), and are guided by existing laws and policies.

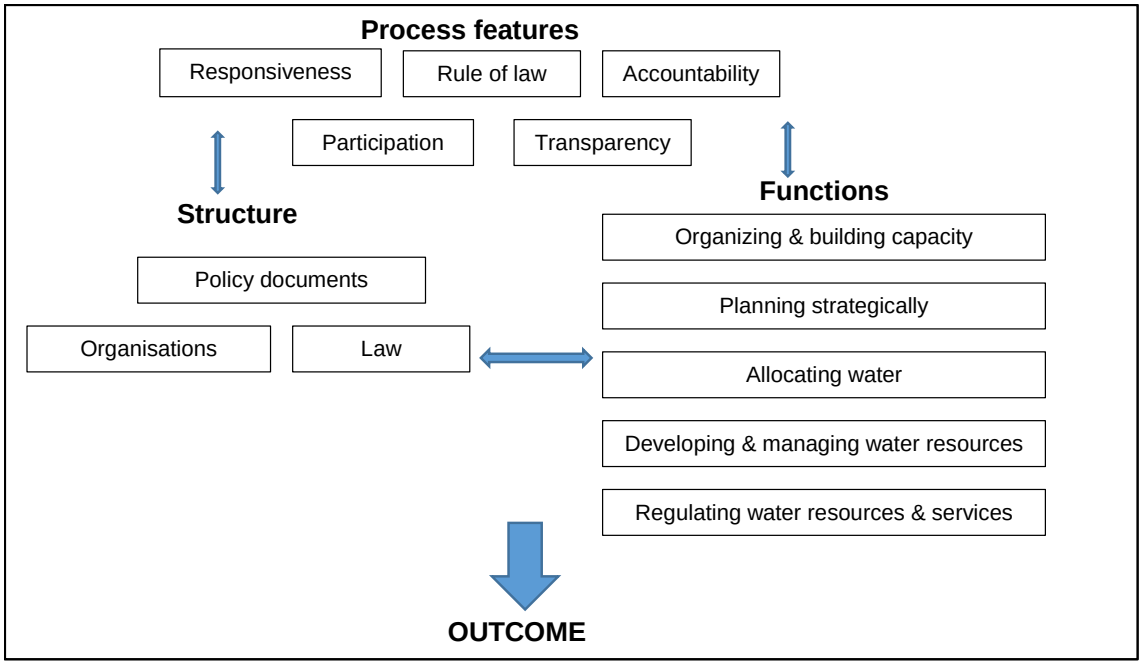

Figure 2.2: Proposed water governance assessment framework as applied in the Middle East and North African countries (MENA) regions

Source: De Stefano *et al.*, (2014, p.1129)

Guided by desired international developmental outcomes, the Millennium Development Goals (MDGs), and more recently, the Sustainable Development Goals (SDGs), Franks and Cleaver (2007) developed a water governance framework (Figure 2.3) which they claimed to be less abstract and more practical. The framework outlined how resources (material and non-material), actors (individuals, groups, and state) and mechanisms (institutions, physical structures, and technology) needed to be linked to achieve ecosystem and water services outcomes.

Whilst both frameworks shown in Figure 2.2 and Figure 2.3 may be different in their structure and interpretation of the components that they identify as important for good governance, both strive to achieve particular governance objectives. Both frameworks show that the process is interdependent and that specific institutions and structures affecting a range of stakeholders need to be engaged to achieve the desired outcomes in water governance.

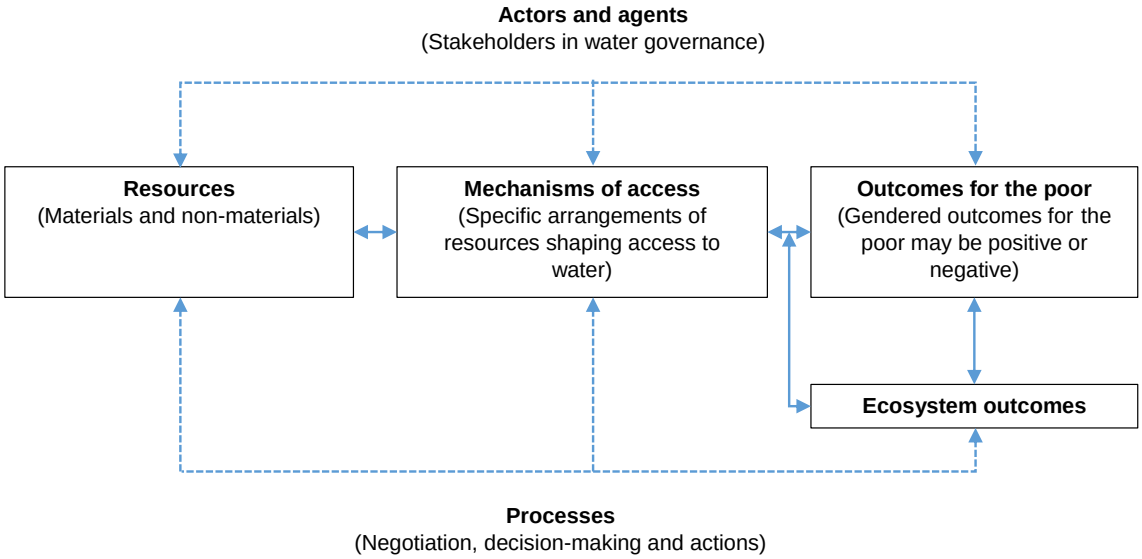

Figure 2.3: An analytical framework for understanding water governance arrangements in achieving society specified outcomes

Source: Franks and Cleaver (2007)

De Stefano *et al.*, (2014) successfully applied their framework (Figure 2.2) to assess governance in the MENA countries. They found that there are variations in the implementation of water governance systems. Whilst the development of legal and policy documents was often achieved, this was not translated into operational and practical action. Although little is known about water governance in Malawi, the findings in the MENA region are useful where policies and guidelines have not been fully implemented. In addition to being useful tools for the assessment of the governance systems, the frameworks illustrate the importance of stakeholder participation as a governance principle.

2.4 Stakeholder participation

The fundamental processes of a governance system suggest that effective inclusion and interactions of stakeholders is needed for success to be achieved. This means that the involvement and cooperation of people and organisations at every stage and level of governance is needed. Because of this, stakeholder "participation" is one of the key principles of governance, as is made clear by the framework developed by De Stefano *et al.*, (2014) and Franks and Cleaver

(2007). Participation is also one of the proposed eight principles of natural resources governance suggested by Davidson *et al.*, (2006) who refer to it as "inclusiveness".

A considerable amount of research has been published on the involvement of relevant stakeholders or actors in natural (water) resources management (Jaglin, 2002; Brody, 2003; Irvin and Stansbury, 2004; Jonsson, 2005; Reed, 2008; Reed *et al*., 2008; JICA, 2011; Escott *et al*., 2015; Reilly *et al*., 2016; Karar and Jacobs-Mata, 2016; Prutsch *et al*., 2017) and the concept of participatory approach has been internationally well established since the Dublin-Rio principles (McGarry *et al.*, 2010).

In natural resources management, interest in public participation commenced in the 1960s (Lawrence and Deagen, 2001). As a governance principle, participation mandates the engagement of all relevant actors (stakeholders) in the formulation and implementation of environmental policy decisions to ensure their legitimacy and appropriate assignment of responsibilities (Constanza *et al.*, 1999; Davidson *et al.*, 2006; Plummer and Slaymaker, 2007; Lockwood *et al.*, 2010).

Stakeholder participation is a requirement in many government natural resources management policies or legislation and is in particular an essential principle in natural resources management (Saito-Jensen and Nathan, 2011). The Council of the European Communities (2000) notes that the European Council guiding documents on the Water Framework Directive has an exclusive article that encourages active public stakeholder involvement in water resources management (Article 14).

In Malawi, natural resource policies and legislation support stakeholder engagement in carrying out environmental activities. The National Water Policy of 2005 makes special provisions for the involvement of rural communities to "empower communities to effectively and efficiently manage water resources" (Malawi Government, 2005b).

Stakeholder engagement is also a requirement in Environmental Impact Assessments (EIA). However, the accompanying policy-related instruments such as guidelines or regulations do not articulate how this empowerment and participation can be achieved. While there may be considerable participation of other groups of stakeholders, Kamoto *et al.*, (2013) found out that there is little involvement of local communities, particularly those living near water sources. Thus, despite international recognition of the necessity of stakeholder participation in development and governance, this has been neglected when it comes to practical implementation.

2.4.1 Participation and water governance framework

Participation is defined as a process in which stakeholders' influence and share control over management initiatives and decisions concerning the resources they exploit (World Bank, 1996; Leite and Pita, 2016). In the literature, participation is frequently used with two other words: "public" or "stakeholder" which are often used interchangeably sometimes creating confusion in understanding (Luyet *et al.*, 2012).

A distinction between the two terms is necessary. "Public" refers to an unstructured and unorganised group of individuals whilst "stakeholder" according to Grimble and Wellard (1997) is an organised group of people sharing a common interest or stake. In this research "stakeholder" participation is used rather than "public" participation as the "public" can be considered to be a specific stakeholder (Luyet *et al.*, 2012).

As a principle within water governance, stakeholder participation seeks redistribution of power between government agencies, the private sector, and the public (rural and urban stakeholders). Arnstein (1969) noted that stakeholder participation is one way in which the "have-nots" of a particular society can exert pressure on those traditionally making decisions so that a plurality of views can be used to improve the distribution of benefits. Previous studies (Arnstein, 1969; Innes, 1996; Beierle, 2002; Brody, 2003; Irvin and Stansbury, 2004; Reed *et al.*, 2008) have reported several advantages resulting from effective participation. For example, if all relevant stakeholders are part of the initiative, this helps to

establish trust, enhances legitimacy and acceptance of management policies and decisions, help resolve conflicts, and regarding water resources management at a catchment level, increases the likelihood of compliance with rules and regulations among community members.

Beierle (2002) in his analysis of 239 case studies in the United States found that environmental decisions which involved stakeholders were of high quality. Irvin and Stansbury (2004) found that in watershed management, citizen participation benefits included improvements to the decision process itself, or the outcome and involved both the government and citizens as beneficiaries. The advantages and disadvantages (Table 2.2) were similar to the proposed potential benefits and challenges of citizen participation outlined by Mostert (2003).

The opportunities and risks associated with citizen participation as presented in Table 2.2 show that while the process is beneficial, the actual process of citizen engagement needs to be carefully planned.

Table 2.2: Advantages and disadvantages of (rural) community participation in watershed management

	Advantages	Disadvantages (Risks)
Related to the decision process	• Fosters learning among different groups • Build trust and allay anxiety or hostility • Build strategic alliances • Gain legitimacy of decisions	• Time-consuming or even dull • Costly or expensive process • Pointless if the decision is ignored • Involvement of stakeholders who are not representative • May backfire and create more hostility towards government
Related to outcome	• Break gridlocks and achieve outcomes • Redistribution of power in the policy process • Better policy and implementation decisions • Avoid litigation costs	• Worse policy decision if heavily influenced by opposing interest groups • Loss of decision control by government • Less budget for implementation of actual projects • Empowerment of an already important stakeholder

Source: (Irvin and Stansbury, 2004; Luyet *et al.*, 2012)

Participation, however, has not always been positively viewed. In environmental management, participation may increase the burden of decision-making mechanisms and stakeholder fatigue as a result of frequent meetings may affect the quality of decision-making. Pretty (1995) observed that authorities faced a dilemma in that they both needed and feared people's participation. Thus, authorities needed people's agreements and support but feared that this broader involvement was less subject to rigorous control and precision. Participation in this context was seen to slow down planning processes (Reilly *et al*., 2016) especially when dealing with rural stakeholders who were not literate or informed enough to grasp what was being discussed.

2.4.2 Practicalities of participation

With the risks associated with (community) participation outlined above (section 2.4.1), it is essential that the right kind of engagement is pursued. Several typologies for participation have previously been developed to guide implementation. For example, Pretty (1995) developed seven levels of participation including manipulative, passive, participation by consultation, participation in material incentives, functional participation, interactive participation, and self-mobilisation. Another comprehensive typology of participation was developed by Arnstein (1969) consisting of manipulation, therapy, informing, consultation, placation, partnership, delegated control, and citizen control. Luyet *et al.*, (2012) in their framework for implementation of stakeholder participation used five degrees of participation including information, consultation, collaboration, co-decision and empowerment.

Reilly *et al.*, (2016) categorised the types of participation developed by Arnstein (1969) and Pretty (1995) into only three types. This is the categorisation adopted in this research because it is practical and straightforward to use. The three levels of participation are to be informed, consulted, or involved. Informed participation refers to the kind of participation whereby those making decisions only share project or programme information with other stakeholders. It is a passive and one-way dissemination of information (Pretty, 1995). Arnstein (1969) referred to it as non-participation in that there is no input expected from the engaged

stakeholders. Consulted participation is one level higher because decision-makers seek the views of stakeholders. This kind of participation is criticised for its lack of assurance of whether the views sought from stakeholders will be put into use by decision-makers (Arnstein, 1969; Pretty, 1995). Involved participation is the highest level of participation and entails stakeholders being part of the decision-making process, implying that the views of stakeholders will influence planning processes (Reilly *et al.*, 2016).

The three-level categorisation of participation (Reilly *et al*., 2016) corresponds to the general categorisations by Arnstein (1969) of: (i) Non-participation (manipulation, therapy); (ii) Degree of tokenism (informing, consultation, placation); and (iii) Degrees of control (partnership, delegated power, citizen control). It further resonates with the "Spectrum of Participation" developed by the International Association of Public Participation (IAP) which considers that public participation includes "collaborate" and "self-determination" as higher levels of participation (IAP2, 2017). The IAP has developed the impact ladder indicating the impact on the decision that can be expected with different levels of participation (Figure 2.4).

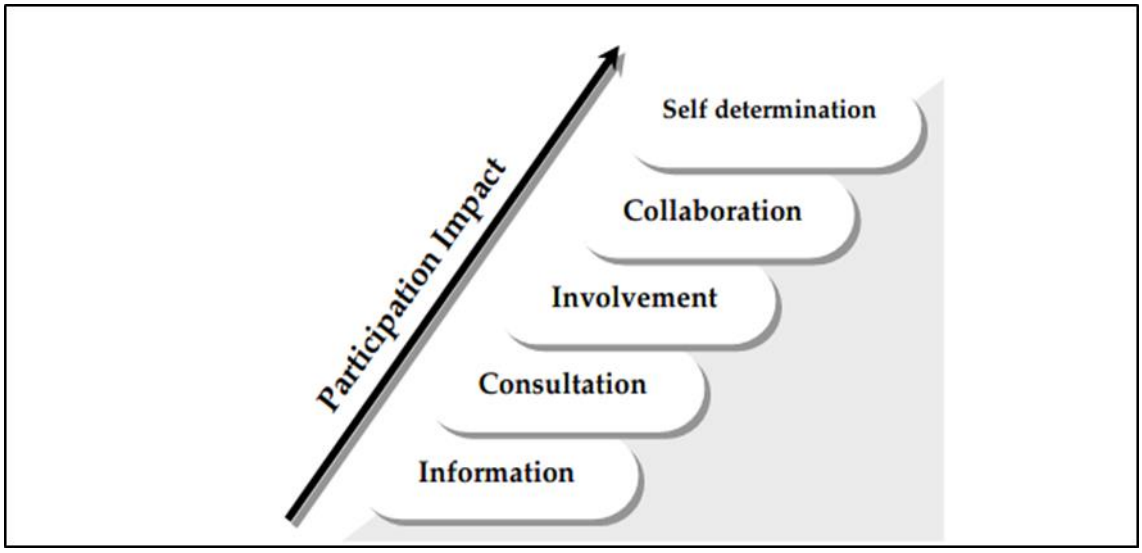

Figure 2.4: Stakeholder engagement typology levels in the order of their impact
Source: IAP2, 2017

The IAP2 typology also describes methods of participation ranging from public meetings to more individual negotiations, which it says, increase the impact of participation on decision-making.

In addition to these typologies of participation, Irvin and Stansbury (2004) proposed conditions (ideal and non-ideal) which must be assessed before deciding whether citizens should participate or not. They proposed that if the participation process was low-cost and resulted in high benefits, this was ideal for the participation process. The opposite was also true.

However, whilst agreeing with this proposition for ideal conditions, the participation of rural communities in natural resources management in developing countries like Malawi is not a matter of choice. This is because the communities' livelihoods are entirely dependent on natural resources and their everyday activities affect catchment management. For example, Pullanikkatil *et al.*, (2015, 2016) found that land use activities within the Likangala catchment in southern Malawi led to low water quality, unsuitable for human consumption. Hence, it was crucial in this context to treat participation as a normative process.

The circumstances preventing effective participation, creating "non-ideal" participatory conditions, can be managed by following good stakeholder engagement procedures and informed stakeholder theory. For example, a few key representatives may be selected from the community to engage with, to make the process cost-effective. In this context, effective participation also requires careful identification of who is a stakeholder and who is not.

2.5 Overview of the stakeholder theory

Stakeholder participation has been shown to be important although its actual implementation has sometimes been problematic. One of the main challenges in the practice of participation is in choosing the relevant stakeholders. Often, natural resources, including water, have numerous stakeholders. Choosing whom to engage in resources management can be a difficult task.

Stakeholder engagement theory guides the practice of participation. It originated in business management, where it proposed that management decisions

increasingly needed to include the interests of a much wider groups of stakeholders than was previously thought necessary. Stakeholders in this context referred to all individuals or groups who could substantially affect, or be affected by, an organisation's objectives and the success of the firm and included shareholders, employees, suppliers, customers, communities, and government officials (Freeman, 1984; Jensen, 2001; Friedman and Miles, 2006).

Three types of stakeholder theory exist: "normative stakeholder theory", "descriptive stakeholder theory", and "instrumental stakeholder theory" (Reed *et al.*, 2009). The first explains how managers and stakeholders act and view the purpose of the organisation based on ethical principles. The second is concerned with stakeholder behaviour and how they view their roles and actions, and the third aims to explain how managers should act if they are to further the interests of the organisation.

Within business management, instrumental stakeholder theory has mainly been used to improve the financial performance of firms (Jensen, 2001; Ruf *et al.*, 2001). In this respect, stakeholder theory has been criticised for its consideration of the numerous objectives of different stakeholders which then defeats the profit maximisation agenda of a business (Jensen, 2001). Nevertheless, it has been used to help develop solutions that are acceptable to stakeholders on concerns that might otherwise have prevented the firm from operating altogether (Reed *et al.*, 2009).

2.5.1 Stakeholder engagement in natural resources management

Despite stakeholder theory originating from business management, it has been extensively applied in natural resources management. As natural resources management does not concern itself with profit maximisation, the stakeholder approach is well suited to the identification of relevant stakeholders. The purpose is to ensure greater participation or involvement of all identified stakeholders in environmental decision-making. It seeks empowerment, equity, trust and learning amongst stakeholders. For this research, a stakeholder is defined as "any person who has an interest in the outcome of the policy or planning decision. The 'stake'

may be direct or indirect financial interest, or it may involve a policy or value interest such as protecting an environmental resource" (Loux, 2011, p.251).

Decisions over natural resources and the environment affect and may be affected by many different people. This has made stakeholder engagement an essential part of most national policies relating to natural resources and the environment (Reed *et al.*, 2009). Water resources, in particular, are characterised by multiple uses and users, as they are associated with open access property rights (Hardin, 1968), temporal trade-offs, and externalities.

Whilst it is recognised that the inclusion of relevant stakeholders is of great importance in natural resources management, Reed *et al.*, (2009) argue that the actual process of identifying stakeholders has been mostly on an ad hoc basis, resulting in the omission of less visible and marginalised stakeholders. Thus, although stakeholder engagement is embedded in national environmental policies, it is not systematically applied in practice. Videira *et al.*, (2006) in their study of five water-related projects across Europe (Portugal, Greece, The Netherlands, the United Kingdom and Spain) found that the participation of stakeholders was largely a paper exercise conforming to the requirement of the policy without any meaningful stakeholder engagement. In South Africa, Nare *et al.*, (2011) showed that despite having engagement structures in place, the government's efforts, especially with rural stakeholders, had not been translated into effective participation. Similar results in the engagement of stakeholders in water resources management have been reported in Malawi (Laisi, 2009; Kamoto *et al.*, 2013; Chiluwe and Nkhata, 2014).

2.5.2 Stakeholder analysis

In recent years, stakeholder analysis (SA) has developed as a concept to support more objective and comprehensive stakeholder involvement. Several definitions have been proposed for SA. Grimble and Wellard (1997, p.175) defined stakeholder analysis as "a holistic approach or procedure for gaining an understanding of a system, and assessing the impact of changes to that system, by means of identifying the key actors or stakeholders and assessing their respective interests in the system". Reed *et al.*, (2009, p.1933) described it as a

“process that defines aspects of a social and natural phenomenon affected by a decision or action, identifies individuals, groups and organisations who are affected by or can affect those parts of the phenomenon (this may include non-human and non-living entities and future generations); and prioritises these individuals and groups for involvement in the decision-making process”.

Key to both definitions is the recognition of interactions between the natural system and its stakeholders depending on their interests. In light of the fact that water resources have many users with varied interests, its management requires detailed insight on the interaction between the natural system and its stakeholders.

Stakeholder analysis has been extensively used by policy-makers, regulators, government and non-government organisations (Friedman and Miles, 2006). Furthermore, Grimble and Wellard (1997) have noted that SA has been applied in independent developments such as decision theory, multi-criteria analysis, environmental impact assessment, outcome measurement, participatory appraisal, social actor approaches, and conflict resolution. Its popularity lies in the fact that broad participation is expensive and that involving only the relevant stakeholders could achieve the same results with less cost. In addition, in some cases, it has been recognised that traditional economic tools such as cost-benefit analysis (CBA) are not always able to select a socially viable outcome since they do not always account for the many individual non-market preferences and externalities that are associated with decision-making.

In natural resources management, SA approaches such as rapid or participatory rural appraisals have long been applied to forests and land-use. However, Grimble and Wellard (1997) highlighted the inability of such tools to resolve community structural problems and conflicts of interests. Ensuring greater participation of stakeholders, which has been the emphasis of traditional participatory tools, does not in itself achieve policy or project objectives. A fundamental tenet of SA has therefore been to recognise and take better account of the relevant stakeholders. Careful identification of stakeholder influence and interests, and potential conflicts is essential to guarantee the success of a policy

or project. Stakeholder analysis has thus often been applied in natural resources management to address deep-seated problems that have not been effectively tackled with standard methods, thus causing the failure of well-intended interventions, through inadequate attention to those who are implicated or affected by the outcomes.

2.6 Summary

This chapter provides a review of background literature associated with the issue of water governances in Malawi. The critical finding in the review is that water has many competing uses and that there are many users who can affect or are affected by water resources management and development. Participation of relevant stakeholders in decisions over water is therefore of great importance to help prevent conflicts amongst users that could lead to water resource degradation.

3 METHODOLOGY

This chapter outlines the methodological approach developed for the research that provided the basis for data collection. Firstly, the study area is described, providing a brief overview of the context of rural communities in Malawi and the rationale for selection of the case study sites. The research methodology is then described followed by the data collection methods used during the fieldwork. The fourth section presents data management and analysis adopted. Finally, ethical issues taken into consideration during the research are described.

3.1 Study area

The research sets out to explore rural community engagement in water resources management at the catchment level. The focus was on three catchments in Malawi largely situated in the rural areas.

3.1.1 Understanding rural community context in Malawi

The word 'rural' means different things to academics, policymakers, and the public (Berry *et al.*, 2010). This has implications for rural policy formulation and implementation of development projects. Several attributes can be used to distinguish rural areas from urban areas. Typically, geographic spaces such as agricultural land with small settlements are categorised as rural areas (Cloke and Thrift, 1994). Attributes such as population size, occupation, and socio-cultural values can then be used to characterise an area that has been classified as either rural or urban (Bealer et al., 1965; Antolak *et al.*, 2017). For example, Prayitno *et al.,* (2018) characterised rural regions of Indonesia as areas having high poverty levels, a surplus of low-skilled labour and under-employment. Mphande (2016, p.17) defined rural areas as "land which is sparsely populated with minimal infrastructure".

Thus, rural areas occur outside cities and towns and have an economy that is mainly dependent on farming. The term "rural community", therefore, refers to a group of people permanently settled in a rural area with agriculture as its main livelihood activity. Farming accounts for a significant proportion of rural household

income, as much as 90% and 70% globally and in Africa respectively (Davis *et al.*, 2010).

A recent World Bank report shows that low-income countries have a larger proportion of their populations living in rural areas than high-income countries (World Bank, 2014). For example, more than 80% of the population of Malawi lives in rural areas with a crude birth rate (40.4%) that is higher than in urban areas (34.6%) (Malawi Government, 2010).

Malawi is the most densely populated country in southern Africa (145 inhabitants per km^2) with a population of about 17 million living on an area covering 118,484 km^2 (FAO, 2017). This high population density, combined with a high population growth rate (2.9%) (UN, 2017) has degraded the environment, and particularly water resources, by increasing pressure on sanitation and waste management services (Malawi Government, 2010; Palamuleni *et al.*, 2011; Pullanikkatil *et al*., 2015).

3.1.2 Rural community administration

Traditionally, rural communities have their own administrative arrangements. Communities settle in an area based on tribal relations. The smallest unit of organised administration is the village, consisting of groups of families living in clustered settlements. A chief leads each village. The chiefdom is inherited from either the male or female side of the family depending on tribal norms and culture. Generally, for Chewa people who dominate the central region of Malawi and parts of the southern region, the chiefdom is passed through the female. With other tribes, the chiefdom is passed through the male. The full traditional leadership hierarchy consists of the village head, group village head, and traditional authority with each level up comprising in more villages and covering a larger area. Chiefs have been and continue to be very important in community development (Chiweza, 2007; Cammack *et al*., 2009; Øyvind, 2011).

The traditional leadership system still exists in most rural communities (Øyvind, 2011). However, there have been several reforms introduced by the government. The objectives of these reforms were to: (i) increase the participation of the rural

community in decision-making; and (ii) enhance rural development impacts (Malawi Government, 1998a, 1998b). The reforms introduced new positions within the existing leadership hierarchies such as senior group village head, sub-traditional authority, and senior traditional authority or paramount chief. In addition, following the adoption of a new pro-multi-party constitution, which embedded participatory democracy, a decentralisation policy devolved certain powers of the central government to regional and district administration. A local government act was instituted which established local authority headed by a district, town, municipal, or city assembly (Malawi Government, 1998a). Rural community chiefs such as the traditional authority or paramount chief are now part of the district assembly committee to ensure community representation.

3.1.3 The rationale for case study catchment selection

Three catchments were selected for the research, Linthipe, South Rukuru, and South West Lakeshore. Linthipe is situated in the central region, South Rukuru is located in the north, and South West Lakeshore covers parts of the central and southern regions in Malawi (Figure 3.1).

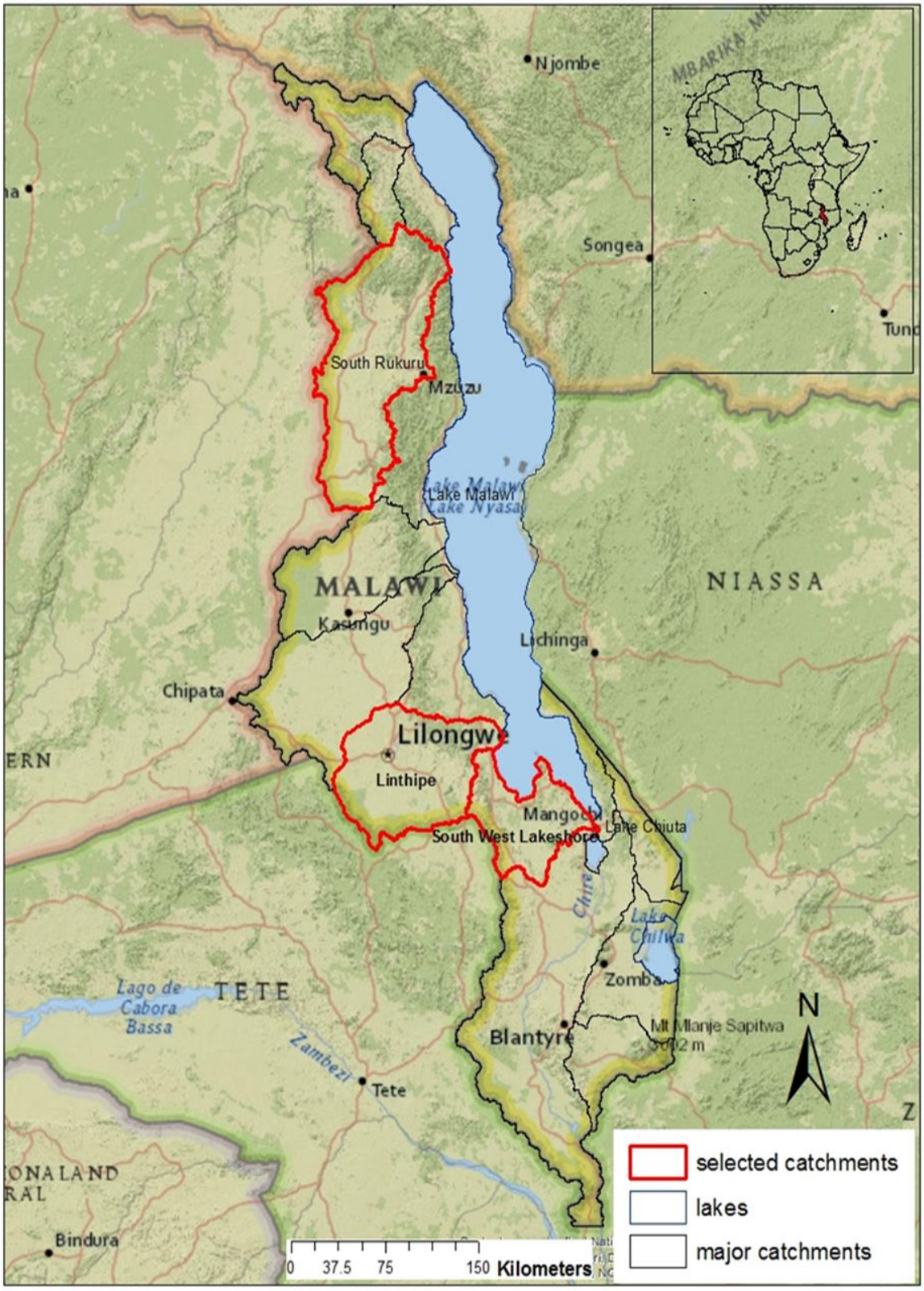

Figure 3.1: Location of the three case study catchments (Linthipe, South Rukuru and South West Lakeshore) in Malawi

Hydrologically, Malawi is divided into 17 major watersheds (commonly referred to as catchments) (Figure 3.1). The catchments were selected for a variety of reasons, including their economic importance, range of stakeholders, and for logistical reasons:

Economic importance. Linthipe and South Rukuru catchments supply drinking water to Lilongwe and Mzuzu respectively. Lilongwe is the capital and a hub for many industries and Mzuzu is the main city of the northern part of Malawi. Urbanisation is high since people have migrated to both Lilongwe and Mzuzu in search of employment. However, this population increase has caused catchment degradation in several different ways.

The increase in population has created a high demand for services including water and electricity. However, energy supplies are insufficient (Taulo *et al*., 2015) and there is a large gap between electricity demand and supply (MCA, 2010). This has increased the demand for charcoal as an alternative source of energy in Lilongwe and Mzuzu (Zulu, 2010; Wanda *et al*., 2014) and charcoal production has become an important business for poor urban dwellers. The source of the wood used to produce the charcoal for the cities is the forests in the surrounding water catchments and the resulting deforestation (Kamoto *et al.*, 2013) has impacted negatively on water quality and quantity.

Poor urban dwellers are also engaged in sand mining and farming along the riverbanks. Figure 3.2 shows dug-out pits along the Lilongwe River where sand is extracted and sold in town for construction purposes. Sand mining is an important economic activity for peri-urban dwellers. However, the open pits have exacerbated erosion and increased silt loads in surface water run-off, causing significant water quality problems downstream.

The selected catchments are also home to protected forest reserves of Dzalanyama, Lunyangwa and Zozi-vayi and the ability of these forests to provide ecosystem services is undermined by the deforestation taking place (Malawi Government, 2010, 2011, 2015a).

Figure 3.2: Sand extraction pits dug by poor peri-urban dwellers along Lilongwe River (Source: Lilongwe Water Board, 2017)

Stakeholder mix. For the research, it was necessary to interview different stakeholder groups to capture the representative views of the rural communities is concerned. These case study catchments provided an opportunity to interview a range of stakeholders in water resources management, including government officials at all levels (i.e. at headquarter level, regional office level, district office level, and local area level), academics, private sector, civil society, water utility companies, and local communities with varied local organisations including irrigation clubs and conservation committees. This mix of stakeholders and their exposure to local community issues provided a unique opportunity to develop deeper understanding of the involvement of stakeholders in water resources management.

Logistics. The catchments were also selected based on their familiarity to the researcher. This made planning for data collection exercises easy. With three case study catchments to collect data from, the familiarisation helped in saving some time as the researcher directly travelled to particular locations within the catchments.

3.1.4 Attributes of the case study catchments

As previously noted (section 3.1.1) more than 84% of the population in Malawi is based in rural areas with only 15% in urban areas (Malawi National Statistical Office, 2018). The urban areas in Malawi are mostly considered to be the cities of Mzuzu in the north, Lilongwe in the centre, and Zomba and Blantyre in the south. The specific physical and socio-economic attributes of the case study catchments are summarised in Table 3.1. This shows that the catchments receive a considerable amount of rainfall each year. The characteristics of the aquifers in the catchments suggest a potential for good groundwater yield. Water is predominantly used for agriculture and domestic purposes. The rural population generally practices smallholder agriculture in each of the catchments.

Table 3.1: Physical and socio-economic attributes for the selected catchments

Attribute		South Rukuru	Linthipe	SW Lakeshore
Physical	Location	Northern Region	Central Region	Central/Southern
	Rainfall range (mm)	850-1,300	800-1,000	790-980
	Aquifer Type	weathered basement	weathered basement	quaternary alluvium
		fractured basement	fractured basement	fractured basement
			quaternary alluvium	
	Main rivers	Kasitu, Runyina, S Rukuru, N Rumphi	Livulezi, Bwanje, Lingadzi, Kabudire	Linthipe, Lilongwe, Diamphwe, Lumbadzi, Likuni
	Surface water yield (Ml/d)	3,673	3,265	4,450
Socio-economic	Population	1,100,000	2,980,000	890,000
	Pop mix (urban/rural)	176,000/934,000	882,000/2,098,000	0/890,000
	Type of farming	irrigation and rainfed	Irrigation and rainfed	irrigation and rainfed
	Dominant type of farmers	smallholders	smallholders	smallholders
Water use category	Arable agriculture	45%	26%	43%
	Domestic	33%	50%	46%

Source: (Malawi Government, 2008a, 2015c, 2015b)

Linthipe Catchment: Linthipe catchment is important for supplying water for domestic and industrial uses in Lilongwe and the surrounding towns and villages,

as well as to support the development of agriculture and improved crop yields in the catchment (Malawi Government, 2015b). It has a relatively warm and wet sub-tropical climate. Temperature and rainfall are generally affected by the topography, which ranges from the uplands to the lowlands on the shore of Lake Malawi. The plateau, around areas such as Dedza is relatively cold with temperatures of about 6°C but much warmer around the lakeshore. Two seasons, a wet and dry season, occur. The wet season between November and April is characterised by regular rainfall, and the dry season between May and October by very little rain (Malawi Government, 2015b). This causes the seasonality of river flows in the catchment.

The soils are of relatively recent deposition and consist mainly of alluvium, thick residual soils, and colluvium. The soils are generally well-drained and evenly divided between deep and moderately deep soils, with the shallower soils occurring to a greater extent in areas of high relief. Very shallow soils are found in the Dedza-Salima escarpment (Malawi Government, 2015b). Generally, there is a significant amount of subsistence farming with common crops such as maize and tobacco as well as livestock (cattle, goats, sheep, pigs and chicken).

There are two protected areas in the catchments: the Dzalanyama Forest Reserve with an area of nearly 1,000 km^2 southwest of the catchment, and the Thuma Forest Reserve, which covers an area of about 200 km^2 on the eastern escarpment. Both of these reserves have significant areas that have been impacted by deforestation primarily for charcoal burning, as do many unprotected regions in the catchment (Kamoto *et al.*, 2013). There are some wetland areas in the catchment, although the majority of these are under cultivation for subsistence farming, which utilises the residual moisture in the soil after the rains.

The catchment has an estimated population of 2.5 million people projected from the 2008 Population and Housing Census (Malawi Government, 2008). It has a higher population density of 371 people/km^2 than the national average density of 139 people/km^2. The high density is mostly due to urbanisation as people move into and settle in the capital city of Lilongwe (Lilongwe City Council, 2013; Lilongwe Water Board, 2013).

South Rukuru Catchment: South Rukuru is the second largest catchment in Malawi and has a total area of 12,726 km^2 covering parts of Chitipa, Mzimba, Nkhatabay and Rumphi districts (Malawi Government, 2011). Land in the northern part of catchment rises to over 2000 m above sea level, but the majority of the rest of the area sits at about 1000 m above sea level except at the very eastern side where it drops rapidly to the lakeshore (Malawi Government, 2011). The catchment has a subtropical climate with a distinct rainy season from November to May. Land use is highly varied but dominated by arable agriculture in forested areas and grassland areas in the north-central part of the catchment (LTS International, 2010; Malawi Government, 2011a). Typical crops grown include maize, tobacco, groundnuts, and cassava. There is an extensive area of dambos running along the western edge of the catchment.

The catchment faces degradation as a result of population growth. According to the Population and Housing Census 2008, annual population growth is 4.4% for Mzuzu City (Malawi Government, 2008a). Wanda *et al.,* (2014, 2015) reported a reduction in water quality and quantity in the catchment due to the urbanisation of Mzuzu City. Kafatia (2010) found that one of the main causes for the Northern Region Water Board's failure to meet current water demand in the city was due to catchment degradation. For this reason, the government declared that the Kaning'ina Forest Reserve should be protected as it is a major source of potable water for the city. The Department of Forestry is responsible for the protection and monitoring of the forest reserve. Recently, however, NRWB has shown interest in working with different stakeholders including rural communities living near the forest with the aim of conserving the catchment through a co-management approach (Wanda *et al.*, 2014). The NRWB is also considering used of a co-management strategy for the conservation of the Lunyangwa catchment.

South West Lakeshore: The catchment has no single major watercourse but instead has several smaller rivers flowing into Lake Malawi. The average annual rainfall is estimated at 890 mm. South West lakeshore covers an area of approximately 5,002 km^2 and has six sub-catchments in the districts of Dedza, Mangochi, Ntcheu and Salima (Malawi Government, 2011b). Based on

population growth projections made by the National Statistical Office, it is estimated that the catchment should have approximately 890,000 people currently (Malawi Government, 2008c). Land in the catchment is generally low lying although it rises steeply to the west at the rift valley escarpment (Malawi Government, 2011).

Arable agriculture and forest areas dominate land use. Agriculture is generally practised in both winter and summer in the catchment. The dominant crops include maize, tobacco, rice, and cotton. Cattle, goats, sheep, pigs and chicken dominates livestock production in the catchment. However, selling fish is the most common economic activity for those living along the lakeshores of Lake Malawi in Salima, Dedza and Mangochi districts (Malawi Government, 2011). Water use is dominated by agriculture and domestic requirements accounting for 43% and 46% of the total demand respectively (Malawi Government, 2011b).

3.2 Research methodology

This research aimed to explore current practice in engaging rural communities in water resources management through an assessment of the interaction and relationships that exists between different groups of stakeholders. For this reason, the research used a qualitative social science approach. Research in social science is informed by belief regarding the nature of the social world and what can be known about it (ontology), the nature of knowledge and how can it be acquired (epistemology), and the methods that should be applied for studying the social world (Denzin and Lincoln, 2003; Snape and Spencer, 2003). There are five broad paradigms for social research: positivism, post-positivism, critical theory, constructivist-interpretive, and feminism (Creswell, 2009; Robson, 2011; Scotland, 2012). These paradigms are defined by their understanding of reality and knowledge, which therefore determines the research methods that can be applied in understanding the social world. Constructivists view social reality as an active, constructive process. Robson and McCartan (2016, p.24) note that in constructivism “meaning does not exist in its own right; human beings construct it as they interact and engage in interpretation”’. Informed by objectives, this research chose to take a constructivist approach, in which the subjective reality

experienced by different stakeholders in water resource management would be investigated.

Two methodological approaches are typically used in social research: qualitative and quantitative approaches, which are mainly distinguished by the type of data collected. In quantitative research, data collection is mostly in numeric form while in qualitative research data is non-numerical, usually in the form of words (Robson and McCartan, 2016). For some social scientists, ontological and epistemological considerations inform which of these two general approaches should be used. Positivists would opt to use quantitative methods since, for them, reality is an objective fact and should, therefore, be studied with the same approaches that are used in natural sciences. For constructivists, reality is a subjective reality, interpreted by the individual, and can only be explored through narrative (Scotland, 2012).

Despite criticism of the qualitative social science research, made mainly for not applying the natural science paradigm that is used by quantitative social science research, Robson and McCartan (2016) report that the two paradigms still exist, supported strongly by researchers on each side of the divide. In recent years, there has been an increase in research which combines both quantitative and qualitative approach (mixed-methods approach) (Collins *et al.*, 2007; Johnson *et al*., 2007; Onwuegbuzie and Collins, 2007; Tashakkori and Creswell, 2007; Bryman *et al.*, 2008; Greene, 2008; Mertens, 2010; van Griensven *et al.*, 2014). Robson and McCartan (2016, p.27) state that this 'casts the doubts on the incompatibility' of the two traditions that some social scientist seek to promote.

This research aimed to develop an understanding of the subjective reality experienced by stakeholders in water resource management and in this respect, exhibited the typical features of a qualitative social science study as described by Snape and Spencer (2003). The data collected aimed to provide detailed understanding of the experiences and views of the research participants based on detailed narratives. Relatively few participants were involved and these were purposefully recruited. The data were non-numerical and generated by prolonged

face-to-face interaction between the researcher and participants through interviews.

3.2.1 A qualitative case study approach

Several research methods are typically used within qualitative social science research. The commonest include case study, ethnography, grounded theory, narrative research, and phenomenology (Brown, 2008; Petty *et al.*, 2012; Robson and McCartan, 2016). A case study is defined by Robson and McCartan, (2016, p.150) as "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon with its real-life context using multiple sources of evidence". Crucial to the definition of the case study is the extent of the details or depth of study, context or boundary and the use of varied methods. It is distinguished from other techniques such as experiment, survey, archival analysis, and history based on three conditions of (a) research question type, (b) researcher control over the actual behaviour of events, and (c) degree of focus on contemporary events (Yin, 2009). Table 3.2 illustrates Yin's (2009) comparison of the different methods based on the three conditions.

Table 3.2: Comparison of qualitative research methods based on relevant situations

	Conditions		
Method	① Form of Research Question	② Requires Control of Behavioural Events?	③ Focuses on Contemporary Events?
Experiment	how, why?	Yes	yes
Survey	who, what, where, how many, how much?	No	yes
Archival Analysis	who, what, where, how many, how much?	No	yes/no
History	how, why?	No	no
Case Study	how, why?	No	yes

Source: (Yin, 2009, p.8)

The choice of each research method is related to these three conditions. The comparison (Table 3.2) shows that two methods may be similar using one or two conditions, but one may be more appropriate than the other. Most of the research objectives in this study fall under the case study strategy where the researcher sought to answer 'how' and 'why' (Baxter and Jack, 2008; Noor, 2008; Yin, 2009) questions regarding the involvement of rural communities in water resources management. Furthermore, the focus on water management processes in Malawi requires a boundary and context to be set, which is one of the pre-requisites for the case study strategy (Yin, 2009).

Critics of the case study question its reliability, scientific rigour, and generalisability (Brown, 2008; Noor, 2008; Yin, 2009). However, Flyvbjerg (2006) suggested that these criticisms are based on a misunderstanding of the nature of case study research. Flyvbjerg (2006) and Noor (2008) both outlined the ability of case study research to analyse complex situations by using multiple sources of data and cases. Further, Yin (2009) while acknowledging certain weaknesses of case study research, recognised its strengths in providing rich evidence which other methods cannot always provide.

3.3 Research methods and data collection

One of the key characteristics or strength of the qualitative case study is the ability to use multiple sources of data which also entails different methods of data collection. Sources of evidence include documentation, archival records, interviews, observations, physical artefacts (Yin, 2009) and shadowing (Mcdonald, 2005). Different data collection methods possess different strengths and weaknesses. Various methods were used in this research in a mixed-methods approach thereby enhancing the reliability and validity of the findings. They included in-depth interviews, focus groups discussions, and (water-related) policy documents analysis.

Other methods such as shadowing (Mcdonald, 2005; Gill, 2011) and (direct) observation (Taylor-Powell and Steele, 1996) were also considered. Mcdonald (2005, p.456) defines shadowing as a "research technique which involves a researcher closely following a member of an organisation over an extended

period" and Taylor-Powell and Steele (1996, p. 1) defines observation as an approach that "provides the opportunity to document activities, behaviours and physical aspects without having to depend upon people's willingness and ability to respond to questions". However, the study did not seek to observe single members of organisations and the time-requirements for these approaches would have made the logistics of this research extremely challenging.

The case study research adopted the following process as developed by Yin (2009).

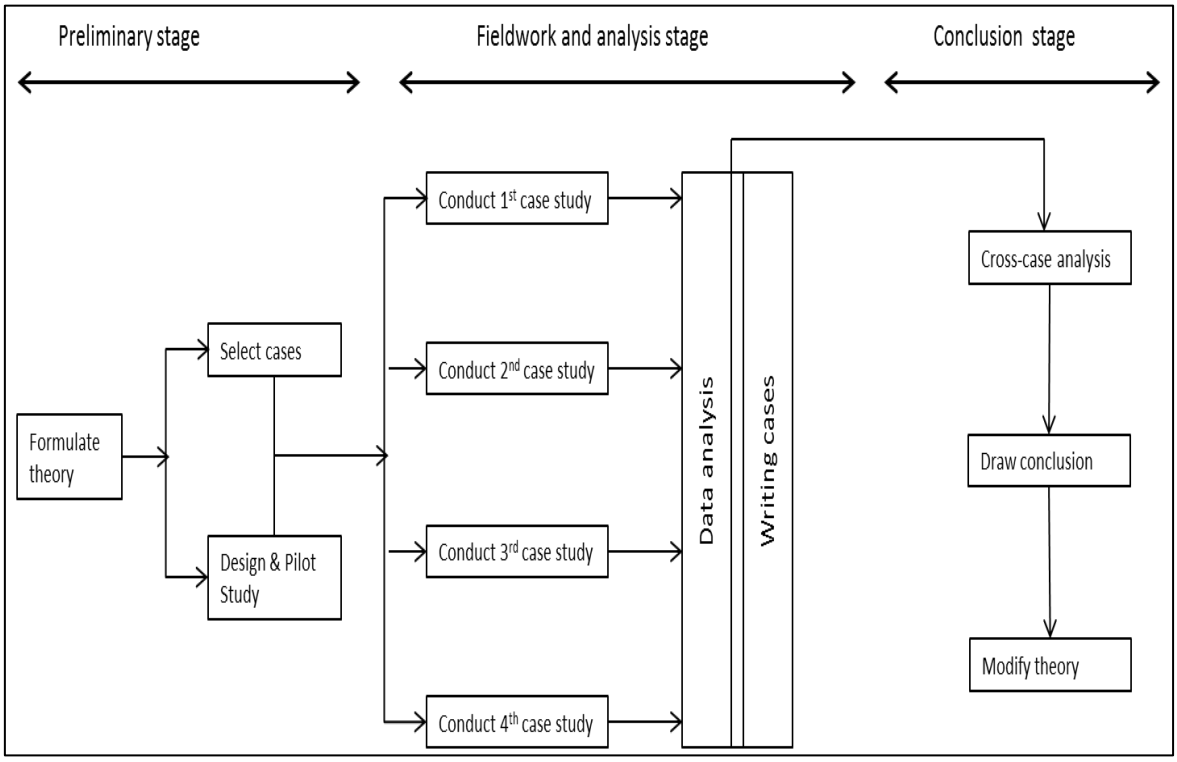

Figure 3.3: Step by step procedure for conducting case study research (Source: Noor, 2008; Yin, 2009)

The preliminary stage of the research here involved conducting a literature review on water governance, stakeholder engagement and participation in water resources management. This review provided a detailed understanding of the topic and helped to inform the theoretical basis of the research. It also served to select the case study, frame the research questions, and inform the focus of the

pilot study. Explanation of the different data collection methods as applied in the first and second stages (Figure 3.3) is given below.

3.3.1 In-depth interviews

In-depth interviews are one of the main primary data collection techniques employed in a qualitative study (Legard *et al.,* 2003). The use of in-depth interviews is predicated on the assumption that meaning is embedded in people's experiences and accounts, which is then illuminated during conversations. It is this feature that most distinguishes in-depth interviews from surveys and observations. Interviews can be conducted in various ways: telephone, in-depth (face-to-face), and internet-based (Robson and McCartan, 2016). In-depth face-to-face interviews despite being resource intensive in terms of time and money, due to the travelling required by the researcher, were preferred as they were interactive, allowed flexibility in that the researcher could use a range of probes during the interview, provided more detailed data (DiCicco-Bloom and Crabtree, 2006). From a practical perspective, in-depth interviews have a high response rate relative to telephone and internet-based interviews (Carley-Baxter, 2008) and in Malawi, many rural people would not have had access to telephones or internet services.

Three types of in-depth interviews can be defined based on the data collection approach and the structure of the questions. These are fully structured, semi-structured, and unstructured interviews. This study used semi-structured interviews, which lie between the extreme of the structured and unstructured interview. The semi-structured interviews provided flexibility whilst maintaining consistency between interview with different participants (Legard *et al.,* 2003; Noor, 2008). Researchers typically use a guide as a checklist to cover the required topics but at the same time both the researcher and interviewee are free to discuss other issues not on the pre-designed checklist (Wengraf, 2004; Robson and McCartan, 2016). Two generic interview guides (*Appendices A and B*) were used targeting participants who were grouped into two categories (see below). The topics addressed in the interview guide included general water management, water policy and legislation, identification of stakeholders,

involvement of stakeholders, and community institutions or structures which facilitate engagement.

The interviews were conducted in all the three case study catchments. The researcher spent six months collecting data during two phases: an exploratory phase to characterise and select the case catchments between March and June 2016, and a detailed data collection phase between April and July 2017. The first phase of data collection, March to June 2016, also served as a pilot study to improve the design of the questions and to establish contacts for the second phase of data collection (Patel, 2003). Figure 3.4 shows various aspects of fieldwork while the researcher was undertaking data collection. The participants were sought from different stakeholder groups to gain a variety of perspectives, and came from the following organisations:

1) Government ministries, departments, and agencies: This included government officials working directly with the Department of Water Resources and other ministries and departments such as for forestry, land resources, irrigation, agriculture, and the environment. Other participants were sought from water utility companies, and the National Water Resources Authority (NWRA).

2) NGOs, academics, private water-related companies, and international water consulting companies.

3) Local communities living in the catchment, local chiefs and other leaders, and government extension workers.

Participants were divided into two groups, based mainly on their role in water resources management and whether they initiate engagement or not. In one group, there were policymakers, which comprised of participants from the government, NGOs, academics, private companies, and international water consulting companies. These were considered to have the ability to engage rural communities in water resources management. The other group comprised in the rural community. This division was necessary to allow participants to answer specific questions in line with the research objectives. This study employed a

purposive sampling technique to recruit interview participants (Teddlie and Yu, 2007; Tongco, 2007). Two inclusion criteria were critical in the sampling technique: the knowledge an individual had on water resources management; and the willingness to participate in the interview (DiCicco-Bloom and Crabtree, 2006) with respect to research ethics (see 3.6). Secondary inclusion criteria included the age of the participant and the period someone has been working at a particular position or stayed in a specific community. The age criterion was mostly considered in the case of rural community members as certain experiences were assumed to be obtained only after the age of 16.

Interviews were mainly conducted at the home of the participant or in a public place such as a school or church for rural community members. For all other participants, interviews were held at their offices. Three participants were sent the interview questions by email because it was difficult to meet in person. A phone conversation followed whenever the participant or researcher sought clarifications. On average interviews lasted between 30 to 60 minutes. Interviews were conducted in three languages: English, Chewa, and Tumbuka all of which the researcher is fluent in.

3.3.2 Focus groups

Focus group discussions (FGD) were also employed in this research. Finch and Lewis (2003, p. 171) noted that group discussions are different from in-depth interviews in that they create a process where 'interaction between group participants generates data'. Thus participants' ideas were shaped as the discussions progressed. Interactions allowed the researcher to assume the role of a listener, thereby providing the opportunity to accurately follow the discussion, control the flow, and probe for more responses. The focus groups offered a more natural environment with less influence from the researcher and participants freely interacted amongst themselves. The focus group discussions in this study served to validate claims or triangulate data collected from the in-depth interviews. For instance, commonly cited issues (see findings in Chapters 4 and 5) raised during in-depth interviews across the catchments were further probed in the focus group discussions. In this way, the individual claims made during the

in-depth interviews were re-examined, verified, and triangulated. Participants in focus groups were also divided into two categories of local communities and policymakers. The size of the groups ranged from six to eight participants.

Whilst the focus groups were instrumental as an additional source of information and thereby could be used for triangulating previously collected data (Yin, 2009), they were also a key method for achieving research Objective 5 (see section 1.4) which aimed to develop an engagement framework for rural stakeholders. Thus, the focus groups were also used to develop a Theory of Change (ToC) framework to identify the changes needed to engage rural communities in water resources management at the catchment level. Van Es *et al.*, (2015, p. 12) defined ToC as "the ideas and hypotheses ('theories') people and organisations have about how change happens". Here, the ToC was developed using a five-stage procedure developed by Vogel (2013, p. 8,9):

a) The context for the initiative
b) Long-term change
c) Sequence of events
d) Assumptions
e) Diagram and narrative summary

Participants for the focus group discussions were first introduced to the ToC concept. Brief discussions on research objectives one to four of this thesis were held to serve as the background and context for the development of the ToC. Participants were then asked to discuss the long-term goal of (rural) stakeholder involvement in water resources management. After identification of the final 'goal' for the ToC, they discussed 'what and how' to achieve it. These comprised of a sequence of events known as outcomes. Each event, as noted by Vogel, (2013, p. 1), needed to lead to the desired goal. Discussion on the underlying assumptions then followed the identification of the events/outcomes. For each outcome, participants discussed what conditions were necessary for its achievement. Several assumptions were identified (see details in Chapter 6). In addition to assumptions, participants also discussed the underlying risks that would prevent a particular event from taking place. Each discussion on the ToC

was summarised in a diagram showing the goal, outcomes, assumptions and risks.

3.3.3 Analysis of policy documents

Document review or research is a useful tool for data collection in case studies (Mogalakwe, 2006; Ahmed, 2010). Yin (2009) suggested that the best use of documents is when they are used to validate and augment evidence from other sources of data such as in-depth interviews. Documents are defined by Guba and Lincoln, (1981, p. 228) as “any written material other than a record that was not prepared specifically in response to some requests from the investigator”. Typical examples of the documents include files, statistical records, records of official proceedings, and images (Silverman, 2006).

In this study, documentary research was employed to review and collect relevant texts, and facts on the extent of stakeholder participation proposed in policy versus what is on the ground. This was done on the basis that water policy and legislation and other instruments guide the management of water resources through mandates given to different stakeholders. The analysis of documentation was also used to examine the formulation, periodic review, and implementation of stakeholder policy and legislation.

The review explored and identified what caused the gap between what is within policy and the actual implemented measures and programmes. The documentation was analysed to identify thematic areas, sections, or articles relating to policy and catchment management. Furthermore, the implementation plan for IWRM and its actors were identified. The key structures (organisation and implementation mechanisms) within the policy supporting the implementation of IWRM were identified.

As Robson and McCartan (2016) have urged caution regarding the accuracy and potential biases of documents that are not prepared by careful research. Here, a careful selection of the relevant documents was undertaken to specifically align with the research and focussed on obtaining original policy documents. The

following main legal documents, authored by the Government of Malawi, were obtained and reviewed in detail:

a) Water Resources Act (2013)
b) National Water Policy (2005)
c) Forest Policy (2016)
d) Catchment Management Guidelines (2016)

Other water-related policy documents reviewed include the Irrigation Policy, Agriculture Policy and Environment Policy.

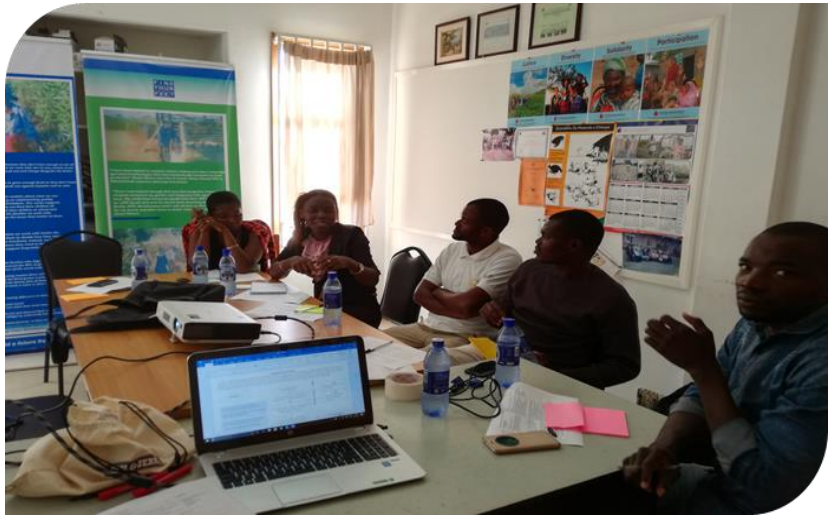

Figure 3A: Focus group in session

Figure 3B: Researcher conducting field interview

Figure 3C: Participants showing how they cure tobacco using firewood

Figure 3D: Participants discussing focus group questions

Figure 3.4: Figures 3A-3D shows various aspects of fieldwork in Malawi

3.4 Data management and analysis

The researcher personally conducted all data collection activities. During fieldwork, data were recorded as verbatim transcripts of interviews or discussions using an audio recorder and a notebook. These data were later transferred and stored on a computer and an external hard drive as back-up. An example of interview transcripts is presented in Appendix E. For full details of transcripts see Appendices G and H.

The data were analysed qualitatively using thematic analysis (Maryring, 2004; Braun and Clarke, 2006; Vaismoradi *et al.*, 2013). Thematic analysis is defined by Braun and Clarke (2006, p. 6) as “a method for identifying, analysing, and reporting patterns (themes) within data”. It is similar to the framework analysis developed by Ritchie and Spencer (1994) (cited in Srivastava and Thomson, 2009).

The data analysis used the framework developed by (Green *et al.*, 2007) (see Figure 3.5). As shown below (Figure 3.5) the process of data analysis is iterative, and themes are inductively developed and linked directly to the data. The process comprised of four steps. The first step was data immersion, which required familiarisation with the data, and was done through reading and re-reading the transcribed data. The transcription aided this familiarisation, as it provided the researcher with the opportunity to listen to all the recorded audio files taken from the field (Riessman, 1993, as cited in, Braun and Clarke, 2006, p. 17). Data familiarisation was followed by coding, which involved identifying sentences from the interview transcripts with themes relating to the research topic. A theme was taken to be a recurring concept or idea in the interview transcripts which was related to the research topic. The identified themes were further refined through re-reading and comparison between the themes. A complete example of the excel data sheet used for the thematic analysis is shown in Appendix F.

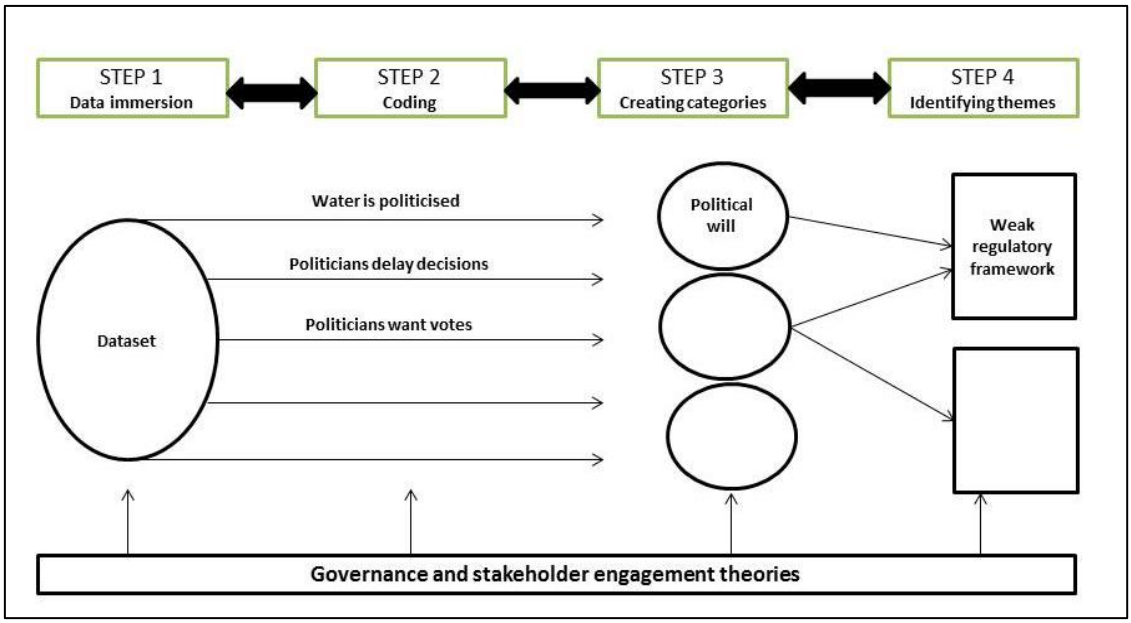

Figure 3.5: Four steps of data analysis used to generate qualitative evidence (adapted from Green *et al.*, 2007)

3.5 Data validation

As highlighted in section 3.2.2 above, a weakness of the case study approach as a research strategy concerns the generalisability of the data. Hammersley (1992) as cited in Lewis and Ritchie (2003, p. 264) described two categories of generalisation: empirical and theoretical. Empirical generalisation deals with transferability of the findings to other populations or settings, while theoretical generalisation is concerned with concept generation and the extent to which these can have a wider relevance.

Lewis and Ritchie (2003) noted that there are difficulties in using the two generalisation criteria due to distinction failure. Hence, they proposed three concepts of generalisation: representational, inferential, and theoretical. The first links sample findings to populations. The second is the application of the findings to other settings and contexts. The third involves a wider application of the theoretical principles.

This study used the inferential generalisation as it was considered that findings could be extrapolated (Patton, 2002) to other catchments within Malawi which

have similar settings or contexts (see 3.1). In support of inferential generalisation, Lincoln and Guba (1985) noted that congruency is what matters between what they coined as the 'sending context' (where the study was done) and the 'receiving context' (where the findings can be applied). In this respect, sufficient detail of the study catchments (sending context) has been provided, to allow the reader to assess whether inferential generalisation may be possible to other catchments in Malawi.

Another method employed in this study in handling reliability and validity has been the use of multiple sources of information, which is in itself a critical characteristic of a case study approach. The use of various methods is noted for offering validation of data and findings through triangulation (Denscombe, 2007; Hesse-Biber, 2010). For instance, commonly cited issues identified during in-depth interviews across catchments were further probed in the focus-group discussions. In this way, the claims were re-examined, verified and validated. In some instances, there was cross-checking between different stakeholder groups during in-depth interviews. For example, claims made by rural communities could be verified by policymakers and vice versa, primarily when one group was referring to another group. Corroboration among interview participants in different catchments was a means of checking the reliability of data and was implemented both during data collection and data analysis.

3.6 Ethical considerations

Ethics is an integral part of research, and its importance varies depending on the methods of inquiry. Robson and McCartan (2016) note that whilst in surveys and experiments, anonymity and confidentiality are straightforward, flexible and multi-strategy designs such case studies, demands careful consideration. The Cranfield University Research Ethics Committee approved fieldwork (approval references: CURES/895/2016 and CURES/2492/2017) as a low-risk (Level 2b) research/proposal. The following ethical principles were followed in this study:

- Participant consent – participation in the interview was not compulsory. Before the interview, the researcher introduced the research context and aimed to the participant. The rights of the participant were thoroughly outlined so that

the participation was voluntary. Each participant signed a consent form (part of the question checklist) accepting the interview and provision of contact details such as phone or emails.

- Confidentiality – participants were assured that actual names would not be kept but rather anonymised to protect their identity. Participants were also assured that the data is only accessible to the researcher and his two supervisors. Transcripts and audio would be destroyed upon the completion of the research.
- Follow-up after research project completion – participants were given the opportunity to request the interview transcripts if they were interested. Some participants also asked for the results of the research to be shared with them.

4 STAKEHOLDER IDENTIFICATION, CATEGORISATION AND ENGAGEMENT

This chapter presents results relating to research objectives 2 and 3 which focussed on (i) the processes of stakeholder identification, categorisation, and engagement; and (ii) the factors influencing stakeholder participation in catchment management. The practice of engaging stakeholders in natural resources management is reviewed with emphasis on the rural community, notably forests or catchments. The methods employed in data collection and analysis are described, followed by a discussion of the key findings and their implications.

4.1 Introduction

Stakeholder engagement guides organisations (e.g. a government, company, or NGO) on how to engage other organisations or people who can affect or be affected by the implementation of its decisions. Research has often shown that projects can fail due to ineffective stakeholder engagement (Bourne and Walker, 2006; Missonier and Loufrani-Fedida, 2014). The benefits of stakeholder engagement are however well documented and evident. For example, in environmental management, it increases the quality of the outcome of a decision-making process (Beierle, 2002; Brody, 2003). It helps to establish trust and enhances legitimacy and acceptance of management policies and decisions (Innes, 1996). It is known to help resolve conflicts (Alfredo *et al.*, 2016; Furber *et al.*, 2016; Megdal *et al*., 2017). Participation also increases the likelihood of compliance with rules and regulations thereby reducing the costs of enforcement (Ong'or, 2005; Reed *et al.*, 2008; Nikkhah and Redzuan, 2009; Nare *et al.*, 2011).

Many government policies have included the principle of "public participation" to ensure that the decision-making process is carried out by involving all relevant stakeholders to achieve the set goals (Reed, 2008). In Malawi, for instance, Principle 3.4.3 of the National Water Policy 2005 (GoM, 2005, p.6) states that; "*Water resources management shall be based on the concept of decentralisation and local participation*…" On a global scale, the participation principle is

enshrined in many international policies. Notable environmental and water-related policies with the public participation principle embedded in them are presented in Box 4.1. The articles on public participation echo the importance of engaging users and other stakeholders in the development and management of water resources. Unfortunately, these articles have either remained in international policy documents or only been replicated in national government policies without being implemented effectively in practice. For example, Ker Rault and Jeffrey (2008) highlighted several challenges of implementing public participation within the European Water Framework Directive. Similarly, Kidd and Quinn (2005) showed that several initiatives developed for shared watercourses in Southern Africa provide for public participation, but these have been paper exercises which have not been reflected in practice.

*"**The public concerned shall be informed, either by public notice or individually as appropriate, early in an environmental decision-making procedure, and in an adequate, timely and effective manner…"*** Part of Article 6 section 2 of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (UNECE, 1998, p. 9)

"***Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels"*** Principle 2 of the Dublin Statement on Water and Sustainable Development (Global Water Partnership, 1999, p. 9)

"***Indigenous people and their communities, and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development".***
Principle 22 of the Rio Declaration on Environment and Development (UN, 1992, p. 4)

"Promote stakeholder engagement for informed and outcome-oriented contributions to water policy design and implementation" OECD principle 10 of water governance (OECD, 2015, p. 12)

"Member States shall encourage the active involvement of all interested parties in the implementation of this Directive, in particular in the production, review and updating of the river basin management plans…" Article 14 of the EU Water Framework Directive 2000/60/EC (European Community, 2000, p. 16)

Box 4.1: Selected of the public participation principles embedded in international policies (Sources: UN, 1992; UNECE, 1998; GWP, 1999; European Community, 2000; OECD, 2015)

The stakeholder engagement concept guides implementation of the participation principle. The concept defines the purpose for participation and enlists stakeholders (Mitchell *et al.,* 1997). The theory of governance, on the other hand, informs public participation in water resources management, particularly in IWRM which in itself is a participatory approach. Useful tools and frameworks such as 'stakeholder analysis' (Grimble and Wellard, 1997; Brugha and Varvasovszky, 2000; Reed *et al.*, 2009), and the 'stakeholder engagement wheel' (Mott Lacroix

and Megdal, 2016) have been developed to guide participation on a step by step basis.

Common steps in stakeholder analysis tools include identification, categorisation, and engagement. Stakeholder identification and categorisation are core steps leading to meaningful engagement because it maps the primary (those having a direct “stake”) and secondary (those having an indirect “stake”) stakeholders (Manetti, 2011). Furthermore, there are other frameworks which are used for evaluating the effectiveness of participation. One notable example is the earlier work of Arnstein (1969) commonly known in participation literature as the “Ladder of citizen participation”. It outlined eight steps in forms of rungs of a ladder in which each rung represents the extent of citizens influencing the decision of an agenda.

Recently, other frameworks have been developed which re-examined Arnstein’s earlier work and proposed fewer steps. For instance, Cundy *et al.*, (2013) used a five-step framework comprising of inform, consult, involve, collaborate, and empower while evaluating stakeholder engagement in environmental risk management of contaminated sites within Europe. In a study of assessing participation processes in the formulation of climate change policies and strategies in Austria, Prutsch *et al*., (2017) utilised a framework with three steps: informative, consultative, and decisional participation. Reilly *et al*., (2016) only used a three-step framework with inform, consult, and involve included in their study. In all the frameworks, each additional step implies a greater expected level of participation.

Drawing on this literature, the three-step approach was considered to be ideal for this study due to its simplicity. In particular, given the findings in the literature, it was considered that the third step, ‘involve’ would be especially important for improving the engagement of rural communities, as this would help to “ensure that public concerns and aspirations were consistently understood and considered in decision-making processes” (Cundy *et al.*, 2013, p.286).

Despite well-documented evidence on the importance of stakeholder engagement and a comprehensive procedure for its implementation, evidence

shows that actual stakeholder participation in water management remains a challenge in Malawi. Studies show that participation is the most critical problem affecting natural resources management (Ferguson and Mulwafu, 2001; Laisi, 2009; Kamoto *et al.*, 2013). Of particular importance is the participation of rural communities who make up 80% of the country's population and live close to water sources (Malawi Government, 2010).

Rural livelihood activities have been shown to cause catchment degradation across the country. For instance, studies in Lake Chilwa, Linthipe, South Rukuru and Lufilwa, catchments show high rates of deforestation, polluted water resources, and lack of proper sanitation due to unsustainable land use practices (Malawi Government, 2015c, 2015b, 2015a). According to Wanda *et al.*, (2014) the population-poverty-environment nexus forces rural communities to engage in charcoal businesses leading to deforestation in the Lunyangwa catchment. Deforestation, in turn, has increased silt loads affecting the quality of water abstracted by the Northern Region Water Board (NRWB), which supplies Mzuzu and its surrounding settlements. In Likangala catchment, three studies (Chidya *et al.*, 2011; Pullanikkatil *et al.*, 2015, 2016) have shown poor water quality due to degrading land use practices by rural communities. Chimtengo *et al.*, (2014) while analysing the environmental flows of Rivirivi River catchment reported that human activities were causing low environmental flows of water. Furthermore, they noted a significant reduction in forest cover across the catchment. The findings support the claim that it is mostly rural communities that cause catchment degradation which in turn degrades catchment water sources and water quality (Mangadze *et al*., 2016; Tanaka *et al.*, 2016; Nascimento *et al*., 2018).

There is little literature exploring the participation of rural communities in catchment management. Most research on rural community engagement has concentrated on water supply (Kleemeier, 2000; Hope, 2015), sanitation (Nare *et al.*, 2011) and use through arrangements such as Water Users Associations (WUA) (Adams and Zulu, 2015; Adams, 2018; Adams *et al*., 2018) and Water Point Committees (WPC) (Gutierrez, 2007). Without a comprehensive analysis of the current practice of rural stakeholder engagement, it is difficult to understand

the complex relationships and dependencies between water resources degradation, rural communities, and water policy.

4.2 Methods

A qualitative approach was used to explore the process of stakeholder identification, categorisation and engagement and to identify the factors influencing stakeholder participation in water resources management. The approach constructed meaning and themes from perspectives of the people (Snape and Spencer, 2003; Creswell, 2009). Participants for the study were recruited purposively (Teddlie and Yu, 2007; Tongco, 2007) based on their knowledge and willingness to participate in the interviews (DiCicco-Bloom and Crabtree, 2006). Additional participants for the interviews were recruited using snowball sampling (Atkinson and Flint, 2001) with initial participants then identifying others. A detailed explanation of the methodology is given in Chapter 3.

4.2.1 Data collection

Data collection was conducted in three catchments (Linthipe, South Rukuru and South West Lakeshore) in the central, northern, and central-south regions of Malawi, respectively. Three methods: in-depth interviews, group discussions and document analysis were used to collect data (see Chapter 3 for details). In-depth interviews were conducted with a variety of participants sought from government agencies, NGOs, academics and water experts (local and international). Another group of stakeholders interviewed was the local community living near and surrounding catchments including the local chiefs and other leaders and government extension workers. During the interviews, stakeholders were split into two groups: one composed of local communities and the other consisting of all other stakeholders (government departments, ministries, water utility companies, academics, private companies and NGOs representatives). The division was based on participants' roles and knowledge in water resources management. This necessitated specific and relevant questions to be asked to the two group of stakeholders and two different interview schedules were

therefore developed *(see Appendix A and B).* Seventy-nine face-to-face participants were interviewed altogether.

Focus group discussions provided a unique opportunity to collect data generated through the interaction of participants. A discussion guide (*Appendix D*) was used to make sure that participants focussed on issues that were relevant to the research topic. The size of the focus groups ranged from six to nice people. As with in-depth interviews, focus groups were held separately depending on the category of stakeholders. Group discussions took place either in one of the participant's offices or in a conference room. For discussions among participants from the local community, a public place was used such as the village church hall (Figure 4.1). FGDs did not take place in South West Lakeshore as scheduling of the meetings failed twice because participants were committed to their work or to other business. Five focus groups were held between March to June 2016 and April to July 2017.

Figure 4.1: Researcher with rural community members outside a village church hall after a focus group discussion (Ntheta Village, TA Nyaluwanga, Nkhatabay-3 May 2017)

4.2.2 Data analysis

The researcher personally conducted all the data collection activities. The interview guides and fieldwork plans are shown in Appendices A to D. During fieldwork, interview data were recorded using a notebook and/or an audio recorder. The data were later transferred and stored on a computer and an external hard drive. The data were analysed qualitatively using thematic analysis (Maryring, 2004; Braun and Clarke, 2006). This method first involved data familiarisation and this was achieved by reading and re-reading the transcribed data. The transcription process itself supported data familiarisation as it provided the research with the opportunity to listen to all the recorded audio files collected during fieldwork. Data familiarisation was followed by coding, which took the form of extracting sentences from the interview transcripts that were relevant to the research topic. The coded data were then iteratively adjusted into sub-categories that could be assigned into themes. Re-reading and comparison further refined the identified themes (*see Appendix F*). Finally, once completed, a summary for each theme was developed.

4.3 Results

A total of 79 in-depth interviews were conducted (Table 4.1). Twenty-four interviews were conducted during the exploratory study (Phase I) and the remainder (55) completed during the detailed study (Phase II). Five focus groups were held altogether, one during Phase 1 and four during Phase II. The results are structured into the three key sections corresponding to those processes identified as essential for effective stakeholder engagement through the literature review: identification, categorisation, and engagement/participation of stakeholders. The first part of the results presents the stakeholders identified by participants as critical within the process of water resources management in Malawi and groups them into different categories. The second part of the results presents the extent to which the identified stakeholders are currently engaged within that process and identifies the factors limiting the engagement process.

Table 4.1: Summary of interviews (in-depth and FGD) conducted in Malawi

Phase & Duration	Catchment		In-depth interviews	FGD
Phase I	Linthipe		13	0
(March-June 2016)	South Rukuru		11	1
	South West Lakeshore		0	0
		Total	**24**	**1**
Phase II	Linthipe		16	2
(April -July 2017)	South Rukuru		22	2
	South West Lakeshore		17	0
		Total	**55**	**4**

4.3.1 Commonly identified stakeholders

Interview participants identified the following stakeholders: government ministries, departments and agencies, utility service providers (water and electricity companies), non-governmental organisations (local and international donors), and rural communities surrounding catchments. There was a similarity regarding the typology of groups of stakeholders identified among the three study catchments.

Despite the similarity in groups of stakeholders, some stakeholders were cited more often than others in individual catchments and by individual interviewees. For instance, the government and its agencies were cited most in Linthipe and South Rukuru. But the rural community was the most commonly identified stakeholder in South West Lakeshore. In most cases, a participant's previous interaction with a stakeholder determined their choice. Government officers often cited other government departments and ministries as stakeholders. Less than half (8 in 21) of the government officers identified rural communities as stakeholders. In contrast, participants representing NGOs, service providers and academics identified diverse lists of stakeholders comprising of government, local authority, rural community, civil society, and the public. Table 4.2 show quotes from a selection of participants to illustrate the range and variation in the stakeholders identified across the catchments.

Table 4.2: Types of stakeholders identified by in-depth interview participants

ID	Typical illustrative quotes	Identified stakeholder
01-L	*"At the district level, we used to involve Forestry department, Environmental Affairs Department, Metrological department, Land Resources, World vision, DANIDA. Recently it is the same Environmental Affairs Department, NGOs we had WASH project under UNICEF, and COMWASH"…*(Government officer)	• Forestry Department • Environment Affairs department • Metrological department • Land Resources department • World Vision • Danish Development Aid (DANIDA) • NGOs • UNICEF • COMWASH
03-L	*"… Only government stakeholders. But you know they were a number of stakeholders, and I cannot exactly recall who was involved apart from the government officials. We [water utility company] involve the Department of Forestry. In terms of pollution issues, we involve the NWRA, Environmental Affairs, Lilongwe City Council, Lilongwe District Council, and Ministry of Lands. There are a lot of construction works taking place between our intake point and the dams mainly in Chigwirizano area so involve these stakeholders. Even the locals themselves, the local leaders we involve them"…*(Water Utility Company official)	• Forestry Department • NWRA • Environment Affairs department • Lilongwe City Council • Lilongwe District Council • Ministry of Lands • Community leaders (chiefs)
06-L	*"For me, it is still the Community, extension services providers; in case of Malawi the local government structures such ADCs, VDCs"…*(Water Regulatory Authority official)	• Rural communities • Extension service providers • Area Development Committees (ADCs) • Village Development Committees (VDCs)
14-L	"*Water Boards/water services providers (government departments, NGOs), consumers, and communities"…(*Academician)	• Water Boards • Government departments • NGOs • Rural Communities
08-SR	*"…mainly at district, we have what we call DESC team, District Environmental Sub-Committee. There are the forestry people, irrigation people, land resources people, water people, environment people, and fisheries"* (Government officer)	• Forestry Department • Irrigation department • Land Resources department • Water Resources Department • Environment Affairs department

ID	Typical illustrative quotes	Identified stakeholder
		• Fisheries department
11-SR	*"The communities, the NGOs (Water Aid, InterAide, World Vision, Water for People), the Ministry of Agriculture, Irrigation and Water Development"...*(Local NGO representative)	• Rural communities • Water Aid • InterAide • World Vision • Ministry of Agriculture, Irrigation and Water Development
20-SR	*"Communities, Water Utility Companies, and City Councils. The communities it is because they live close by and they go in the catchment! Moreover, the city council controls waste disposal. Once they have rules and regulations which are strong, it is possible to reduce pollution and less cost of treating the water. We (water board) are service providers, and we get our resources/products from the catchment"…(*Water Utility Company official)	• Rural communities • Water utility companies • City councils
09-SWL	*"Communities, Department. of water, agriculture, NGOs [in Ntcheu we have United Purpose/Concern Universal, CUMO, SRBMP, TSP)*"….(Local NGO representative)	• Rural communities • Water Department • Agriculture department • United Purpose (UP) • CUMO • Shire River Basin Management Programme (SRBMP) • Training Support for Partners (TSP)
11-SWL	*"Departments of water, forestry, Agriculture, land resources; communities and NGOs"…*(Government officer)	• Water Department • Forestry Department • Agriculture department • Land Resources department • Rural Communities • NGOs
12-SWL	*"I would say communities surrounding a particular catchment, and local leadership [Village headmen and TAs]"*…(Water Utility Company representative)	• Rural communities • Traditional Authority • Village headman
16-SWL	*"Primarily the communities who live in the catchments as their actions directly impact on water resources. For example, deforestation changes the way that water runs off the catchment (fast and*	• Rural communities • Legislators • Enforcers

ID	Typical illustrative quotes	Identified stakeholder
	during and soon after rainfall events rather than slowly released over time) and increases erosion and sediment runoff and consequently increases sedimentation of watercourses leading to increased flooding and drought. Legislators and enforcers of legislation are also key, especially in urban catchments where polluters can effectively 'remove' a water resource through pollution, like the Mudi in Blantyre. But essentially it takes all stakeholders to work together to make effective water resources management happen – as per the principles of IWRM"…(Private company representative)	

During the FGDs in Linthipe and South Rukuru, participants identified lists of stakeholders which they considered to be vital in water resources management (Table 4.3). The typology of stakeholders was similar to those identified by individual participants during the in-depth interviews. The difference between the stakeholders identified by the in-depth interviews (Table 4.2) and FDGs (Table 4.3) shows that it is important to build up a picture of the stakeholder landscape from many different perspectives so that relevant stakeholders are not omitted or forgotten.

Table 4.3: Summary of stakeholders identified during the five focus groups held in Malawi between April 2017 and July 2017

Group of stakeholder	Identified stakeholder	
Government	Department of Water Resources	Ministry of Health
	Department of Forestry	Ministry of Transport
	Department of Land Resources	Ministry of Tourism
	Department of Wildlife and Parks	Ministry of Justice
	Department of Environment	Ministry of Finance and Economic Planning
	Department of Energy and Mining	
Companies	Illovo Sugar Ltd	Electricity Supply Commission of Malawi
	Demeter Agriculture	BWB
	Salima Sugar	CRWB
	Eastern Produce	LWB

Group of stakeholder	Identified stakeholder	
(private and statutory companies)	Mzuzu Coffee Kawalazi Tea Estate Tobacco companies	NRWB SRWB
Public	Youth Women Politicians (MPs, Councillors) Religious Leaders Media	Local leaders Farmers Community members Academics
NGOs/Civil Society	African Development Bank World Bank European Union	UNDP UNICEF BADEA

The process suggested that no pre-existing lists of stakeholders existed within any of the organisations represented by the participants. Stakeholders were therefore identified according to the experience and knowledge of the participants. Some participants hinted that the financial resources particular organisations provided for various water-related management activities influenced their choices.

> *They provide funds, so we hold meetings… Like UNICEF has been quite instrumental in terms of funding*
>
> Government officer-Ministry Headquarters

Rural communities were identified as stakeholders based on their livelihood dependency on catchments since the catchments provided farmland, water, and energy in the form of firewood to surrounding communities. Findings also established that there was no systematic stakeholder categorisation approach known to the participants, regarding the grouping of stakeholders, whether based on their levels of influence and interest in water resources management or any other criteria, confirming that systematic engagement processes for stakeholders did not exist.

4.3.2 Levels of stakeholder participation in water policy formulation and review

The extent to which the identified stakeholders were engaged varied from one catchment to another and between different stakeholder groups. There were also variations regarding the engagement of stakeholder groups throughout the different phases of water policy development (formulation/review and implementation phases). Outlined below are the findings for each catchment on the extent of participation.

Linthipe: Sixteen participants (five rural community members and 11 policy makers and service providers) were asked about the extent of stakeholder participation in water resources management in Linthipe. Seven of the 11 policy makers and service providers acknowledged their participation. Two of the eleven participants said they were not involved while one mentioned having been consulted, and one noted that he/she was only made aware of the stakeholder engagement process. Participants who expressed a lack of engagement or were only 'informed' suspected educational qualification and rank within government determine their involvement. One of them stated *"maybe they are looking at [my] qualification I do not know. Or they may just be looking at someone with a Master's degree, thus what I am thinking about"* (Government official at the Ministry headquarters).

Policy makers and service providers were explicitly asked to comment on rural community engagement. Eight of the 11 participants observed that rural communities are often left out in most of the policy processes. The three participants, who acknowledged involving rural communities, explained they did so through community leaders, mostly the traditional authority. However, most rural community participants disagreed that such engagement had ever happened as they never recalled that their traditional authority had provided them with information about this. This contradiction raises concerns about whether adequate follow-up work is undertaken by policy makers and service providers to ensure that traditional authorities disseminate the information given to them during meetings where they represent their tribes.

There has never been a day when the traditional authority had called for a feedback meeting to brief us

Community member

Most (80%) of the rural community members recalled that they had not been engaged in water resources management by policy makers or service providers. Only one participant said that consultants once approached him. However, he noted that the consultant's questions were generic and not specific to water. Some service providers echoed the lack of engagement expressed by rural community participants. One participant from the National Water Resources Authority (NWRA), a water regulatory authority, observed that rural community engagement is only undertaken in water utilisation and sanitation with little focus on catchment management. The participant noted that WPCs, which are only involved in the care and maintenance of boreholes or shallow wells, had been established in most parts of the country. However, no specific committees had been set up in the communities to manage catchment conservation and protection activities.

South Rukuru: Almost half of the policy makers, private and public companies, government agencies providers reported being involved in water policy processes in South Rukuru. These were mostly government officers stationed at headquarters and regional offices. Three participants reported that the extent of their engagement had reached consultation level. They stated that consultants hired to review policy and other regulations would come only to ask a few questions. Participants were not sure if their views were eventually taken into consideration.

Furthermore, one participant indicated that the engagement process was limited to policy reviews while the policy formulation was left to senior management. Participants (representing local NGOs) while acknowledging participating in most government policy processes, categorically stated that so far they had not been engaged in water-related policy processes. This might mean that few water policy formulations or reviews are not carried out, or as observed in the Linthipe catchment and suggested here by three participants serving in government, that

qualification and position determine participation in policy-making processes. As in Linthipe, policy makers and service providers in South Rukuru claimed that communities were represented in workshops discussing policy processes. However, it was stated that generally, only Water User Associations (WUAs) members represent rural communities in workshops. Most of the policy makers and service providers (9 of 13) said local communities were are not engaged in the policy process at any stage.

All nine rural community participants reported that they had never been engaged in policy processes. Very few (2 of 9) reported being aware of regulations relating to water management. The awareness of regulation was reported to have been facilitated by NGOs and irrigation clubs. Participants in the FGD also echoed the lack of engagement of rural communities. They added that extension workers in the community concentrated on agronomic practices. WUA committee members present during the FGD said that they had not been invited to attend policy-related workshops, contradicting the comments made by policy makers and service providers about the engagement of WUAs in water resource policy development. Two village chiefs who were part of the FGD also reported that they had never been invited to represent their respective villages.

South West Lakeshore: All six participants from the government reported that they had not engaged in stakeholder participation activities for water resources management. In addition, they stated that rural communities were also not engaged. A participant representing the local water utility company also reported to have not engaged in water policy formulation or review. Four participants from NGOs stated that they had also not engaged in water policy formulation and review processes. One of them reported acting as the organisation's liaison officer on government projects and meetings including those discussing policy processes. However, the participant recalled having never attended water policy-related meetings. One participant working for an international consulting company in a catchment management project said that their company had no role in policy formulation and review. The participant, however, through the activities the company was implementing, observed that there was low interest in

catchment management amongst farmers. The participant stated that poverty deterred rural communities from participating. Farmers were too busy meeting basic livelihood needs and catchment management activities in this context were considered to be less important.

> *Most often, they are just too busy trying to survive to bother about such matters*
>
> International Consulting Company representative/Catchment Management Expert

All five rural community members interviewed indicated that they had never been engaged in water policy formulation and review processes. This lack of participation of rural communities demonstrates that stakeholders from rural areas are often not incorporated in environmental management decision-making processes.

The evidence from each catchment presented above show that levels of stakeholder engagement varied depending on stakeholder type and to a lesser extent on the catchment. Most of the participants' responses on engagement in policy processes referred to policy formulation and review processes. Policy makers and service providers across catchments expressed relatively high levels of participation in policy implementation through the various activities they undertook. On the other hand, findings showed low levels of participation for rural communities. Participants noted that challenges in the implementation of the policy were found to profoundly relate to the lack of engagement of stakeholders in the policy formulation and review stage.

4.3.3 Factors limiting rural stakeholder participation

Twenty-four factors were identified from the thematic analysis as barriers to stakeholder participation in water policy formulation and review and included factors affecting rural stakeholders both directly and indirectly. The direct factors prevented stakeholders themselves from engaging in the process, whilst the indirect factors affected policy makers and service providers mandated to engage rural stakeholders, thus having a 'knock-on' effect on the participation of rural stakeholders. Table 4.4 summarises the barriers identified, their descriptions, and

selected quotes from interview transcripts. The factors identified were found to be similar across the three catchments.

Table 4.4: Barriers to stakeholder participation identified by interview participants

Factors identified	Description/Definition	Selected typical illustrative quotes
Demand for allowance N = 16	Community members often participate in environmental management when they are given money as a per diem or allowance for attending any activity they are invited to	"*The issue of handouts has destroyed our communities. If you go there without let's say a drink or without an allowance [money], people will say "no". We will not come, we are not attending."* (Government Officer-District Office) *"If they [community] feel that they are called to meetings or activities for which [community] are not going to get any money, they perceive and think that such meetings or activities are useless."* (Government officer-District office) *"Sometimes community members will first ask? Who is coming? If its government they will shun to come and participate because these people love allowances and they know that the government does not give allowances."* (Government Officer-District office)
Lack of awareness or sensitisation N = 13	There is a general lack of awareness or sensitisation of the water policy and legislation among the public/stakeholders and mostly among rural communities	*"I think its lack of proper sensitisation by the service providers – different messages or meeting different people and messages are distorted"* (Agricultural extension officer) *"We are not sensitising much concerning the benefits of managing the environment."* (Government Officer-District office)

Factors identified	Description/Definition	Selected typical illustrative quotes
		"But we need to go a step further to sensitise and conduct awareness meetings on the policies that we have so that the communities are aware." (Government Officer-Regional office)
Inadequate budgetary allocation N = 9	The water sector, especially the regional and district/local offices are not allocated enough funds by the treasury to carry out key programs including water policy formulation and implementation	*"But the barrier to participation may be its resources; we are not reaching out."* (Academic) *"I think number one is resources. Because what happens if you want to engage every partner who is an interested party in water resources in that particular area you need to spend on which most of the stakeholder organisation do not have that budget."* (Government Officer-Regional office) *"Another thing is fewer funds. For example, as a District Water Officer for me to reach out to these communities, the funding I receive known as ORT [Other Recurrent Transactions], it is just very small, and so I cannot manage to reach out to the communities with the message concerning catchment management."* (Government officer-District office)
Lack of interest N = 7	Members of the rural community are not interested in catchment management	*"Poverty and lack of interest in, caused by a lack of understanding of the need for, effective management."* (International consultant) *"People seem to have town life, and so they do not care."* (Government officer-District office) *"People do not care and are not interested."* (Forestry extension officer)

Factors identified	Description/Definition	Selected typical illustrative quotes
Poor regulatory enforcement N = 6	Despite water policy and legislation being available, it is not comprehensively enforced on the ground	*"Enforcement is an issue in government. Several factors contribute to the low levels of enforcement."* (Government officer-Regional office) *"The government is weak; whenever we are meeting, they need to make sure that they enforce just to make sure that policies are implemented."* (NGO representative)
Lack of political will N = 4	Water management has not been the priority of the government in power; politicians prefer to please electorate rather than objectively implement water policy objectives	*"Politicians they want only projects that can be done in a short period rather than the longer time."* (Government officer-Regional office) *"Political interference, because some politicians want to buy favours from the community. So basically when you advocate for one thing, for example restricting people to do something politicians come and say no go ahead, you can do this."* (NGO representative)
Un-harmonised policies and activities N = 4	Un-harmonised policies and activities confuse stakeholders	*"It is unharmonised programme implementation but at the same time we do not want that harmonisation just because we feel that we will lack participants or the participants will be very few."* (NGO representative) *"There is no harmonisation-they don't know to what extent they are to do their work."* (NGO representative) *"There is no harmonisation of activities. Everyone does their way. You find three or four NGOs are doing the same thing in*

Factors identified	Description/Definition	Selected typical illustrative quotes
		a particular area." (Private company representative)
Ownership complexities/land tenure system N = 4	Rural communities perceive forests (catchments) as government property and are hence not obliged to protect it	*"Ownership-most communities do not feel that it is their forest-they don't get benefits from it so they cannot participate."* (Government officer-Regional office) *"The main barrier for me what I can say is lack ownership. It is one of the main barriers because the government owns most of the catchments it seems, farmers do not own them."* (Government officer-District office) *"The biggest problem now is that there is no sense of ownership. For instance, they do not take that the catchment belongs to them."* (Government Officer-District office)
Poor information flow N = 4	Information on water resources management is not comprehensively shared amongst key stakeholders	*"Limited circulation of information of interventions amongst stakeholders."* (NGO representative) *"They are not knowledgeable of the practices we are bringing in as I have said that they are not part of making some laws."* (Agricultural extension officer)
Lack of human capacity at the catchment level N = 3	Catchment management committees have not yet formed to lead in the implementation of water management activities at catchment; there are very few extension workers under departments of forestry and water	*"We are looking at staffing levels. You find that the vacancy rates in these ministries/departments that are supposed to enforce these rules are very high in such a case that one officer may not adequately enforce."* (Government Officer-Regional office) *"We used to have forestry guards but nowadays those structures are not there, or they are becoming weaker and*

Factors identified	Description/Definition	Selected typical illustrative quotes
		weaker." (Government Officer-District office)
Poverty N = 3	Rural communities are impoverished and would rather spend the time on their survival than catchment management; Poverty forces rural communities to rely on catchments for livelihood and some activities are in conflicts with catchment protection and conservation	*"Another thing is poverty. It is poverty that forces the community to expect something from the service providers."* (NGO representative) *"Economic barriers-people are poor. Over-dependence on natural resources. I would that is the biggest challenge."* (Catchment agency representative)
Resistance to change N = 3	Rural communities do not want to embrace change – it is difficult to resolve with other alternative livelihoods	*"Reluctant to change – for them to change we need really to convince them. If we want them not to cut trees, we need to convince them and perhaps give then other [livelihood] options."* (Government officer-Headquarters) *"The other barrier is in some communities/catchments is the lack of understanding –lack of understanding I would combine it with poor mindset."* (Government officer-District office)
Cultural barriers N = 2	Women easily engage in developmental activities compared to men; cultural beliefs/rituals may impede catchment management	*"One it has to do with cultural beliefs….Men will only be involved in activities which have to do with income while women will always get involved in any developmental work even if there is no money."* (NGO representative) *"Culture – if it is contrary to what they believe in then it requires a lot to convince the community on catchment*

Factors identified	Description/Definition	Selected typical illustrative quotes
		management." (Government officer-Headquarters)
Misinterpretation of democracy N = 2	Democracy is wrongly interpreted to mean public activities should not be forced on people and if so people should be paid; There is no longer respect of rural community leadership as compared to before (1994) the multiparty system was introduced in Malawi	*"The main barriers especially with this time with democracy. You know these days as opposed to the past when the village headman calls for a meeting whether an environmental meeting or any other meeting, people these days have the right to say I am not going to attend your meeting I am busy."* (Government officer-Regional office)
Poor coordination N = 2	There is a lack of coordination among key stakeholders in implementing some activities	*"Lack of stakeholder coordination."* (NGO representative) *"One is poor coordination among stakeholders"* (NGO representative)
Non-recognition of existing engagement structures N = 2	Key established structures through which developmental activities are supposed to be channelled both at the district and community level are engaged; Government is also not following up with those defaulting the practice	*"Donors are result-oriented kinds of people who want results. So what they do is that if you have an organisation and you want to do conservation agriculture, [they] go and meet farmers and do conservation agriculture."* (Government officer-Regional office) *"As much as we (NGOs) are given freedom of doing things but I think Government has a role to make NGOs accountable."* (NGO representative)
Pressure on local NGOs from donors N =2	NGOs which implement water-related or catchment-related programs claim to have	*"We feel that we will lack participants or the participants will be very few…. for example in area A we are targeting 2800 households so for us to get the 2800*

Factors identified	Description/Definition	Selected typical illustrative quotes
	pressure from the donor to deliver results – hence sometimes implementation of programs have followed shortcuts; handouts are also given to buy participation, and hence competition is created	*households by the end of the project we have to make sure that even the donor if you target may be 100, then it will be a negative to you."* (NGO representative)
High illiteracy levels N = 2	Rural communities have low literacy levels and hence have difficulty grasping concepts	*"Literacy levels – [rural communities] feel it is a waste of time"* (Government officer-District office) *"Also literacy levels have affected the participation – there are difficulties in understanding."* (NGO representative)
Training prioritised over actual implementation of activities N = 1	There is a tendency to concentrate in capacity building regarding the training of personnel at the expense of actual activities implemented on the ground	*"We have spent too much time on development and capacity building but less on implementing the real activities [?]. we do not have tangible things that can be shown in implementing the policy"* (Government officer-District office)
Implementing competing programs N = 1	Programs for catchment management have sometimes been designed to work hand in hand with other programs such as road construction or school construction – mostly participation has been accorded to other activities other than catchment management because of the benefits perceived	*"Catchment management is just a component or a subset of a particular huge programme, and because of the technical aspects of the catchment management you find that most of the communities they would prefer to engage in the other activities which are easier and more profitable than activities relating to catchment management."* (Government officer-District office)

Factors identified	Description/Definition	Selected typical illustrative quotes
Land unavailability/land tenure system N = 1	Lack of arable land has forced people to cultivate in protected catchment areas	*"The other issue is land availability. Some don't have land in the upper areas, and so they only concentrate on dambo/dimba."* (Government officer-District office)
No punitive measures N = 1	Water policy and legislation lack punitive measures that would deter catchment degradation	*"But as compared to other countries like Tanzania, you find that they have got strong laws if you cut a tree you are given a very big penalty, and as a result, people are managing."* (Government officer-District office)
Poor priority setting by government N = 1	The government may have other priorities other than water	*"The priorities of government – they have other priorities even if we understand that food production is water, health is water, this one is water but what is appealing to the political [eye] is what is playing the biggest part. We know water is life but for them, water is drilling boreholes, and any infrastructure or any other infrastructure beyond that should be a special project."* (Catchment Agency representative)
High levels of corruption N = 1	Those entrusted with enforcement of the policy and legislation are corrupt	*"But we are also looking at issues to do with corruption because some officers may not enforce these laws because they are corrupt they are getting something from doing that. Especially those cutting down trees for charcoal some of them they bribe the officers."* (Government officer-Regional office)
Poor engagement mechanisms N = 1	The approach of engagement has been for long top-down	*(I think it is the approach we take. It is always top-down approach instead of taking the bottom-up approach."* (Government officer-Headquarters)

Note: 'N' denotes the number of participants whose transcripts contain the respective barrier

The most cited factors emerging from the thematic content analysis included the following: (a) demand for allowance; (b) inadequate awareness or sensitisation of the water policy and legislation among stakeholders; (c) limited financial resources allocated by treasury for water resources management; (d) lack of general interest in catchment management by stakeholders mainly rural communities; (e) poor regulatory enforcement; (f) political will or interference; (g) unharmonised policies and programs; (h) ownership complexities; and (i) ineffective information flow amongst stakeholders.

The frequency of citation (N) (Table 4.4) for each factor varied among catchments. For example, the most cited factors in Linthipe were lack of awareness, demand for allowances, and inadequate enforcement mechanisms. In South Rukuru, the most common factors cited were demand for allowances, poor information flow, limited financial resources, un-harmonised policies and activities, and failure to follow the existing local engagement structures by service providers. Demand for allowances was the single most cited barrier in South West Lakeshore catchment. The most cited barriers are not necessarily the most critical factors. Less frequently identified barriers, such as weak punitive measures provided for in the policy and legislation was only mentioned in South West Lakeshore but could deter practices such as deforestation which lead to water resource degradation.

The identified factors influencing participation as outlined in Table 4.4 were found to be strongly inter-linked displaying a cause-effect relationship. Using a cause-effect analysis (Mayne, 2008), the factors were divided into three groups of barriers: primary, secondary, and tertiary barriers (Figure 4.2) based on the rate of occurrence. The ‘primary’ (or immediate) barriers were often the underlying causes for non-participation of local communities and manifested more earlier than other factors. Most commonly if the primary/immediate factors are not addressed led to secondary or tertiary factors limiting stakeholder engagement. The secondary (or intermediate/penultimate) barriers usually occurred following the primary barriers more especially if not addressed. The tertiary barriers most often manifested itself after both primary and secondary barriers have occurred.

For instance, most rural communities are poor and are interested in livelihood activities that would bring them basic needs such as food and shelter hence the primary barrier for participation is poverty. Since communities are poor, they will always be looking forward to engaging themselves in community programmes which offer monetary incentives and hence they demand allowance (secondary barrier) for their participation. When their expectations are not met, they no longer have any interest (tertiary barrier) in catchment management activities. One participant described the cause-effect scenario as follows:

> *Another thing is poverty. It is actually poverty that forces the community to expect something from service providers*
>
> Government officer-District office

The barriers grouping based on the rate of occurrence in Figure 4.2 however does not mean entirely mean that primary factors are the most important. In fact, the factors apart from primary barriers influencing secondary barriers and so on, it was noted that barriers within a category could also affect each other. For instance, both limited financial resources and lack of awareness were categorised as secondary barriers. However, lack of awareness was partly caused by inadequate funds from service providers.

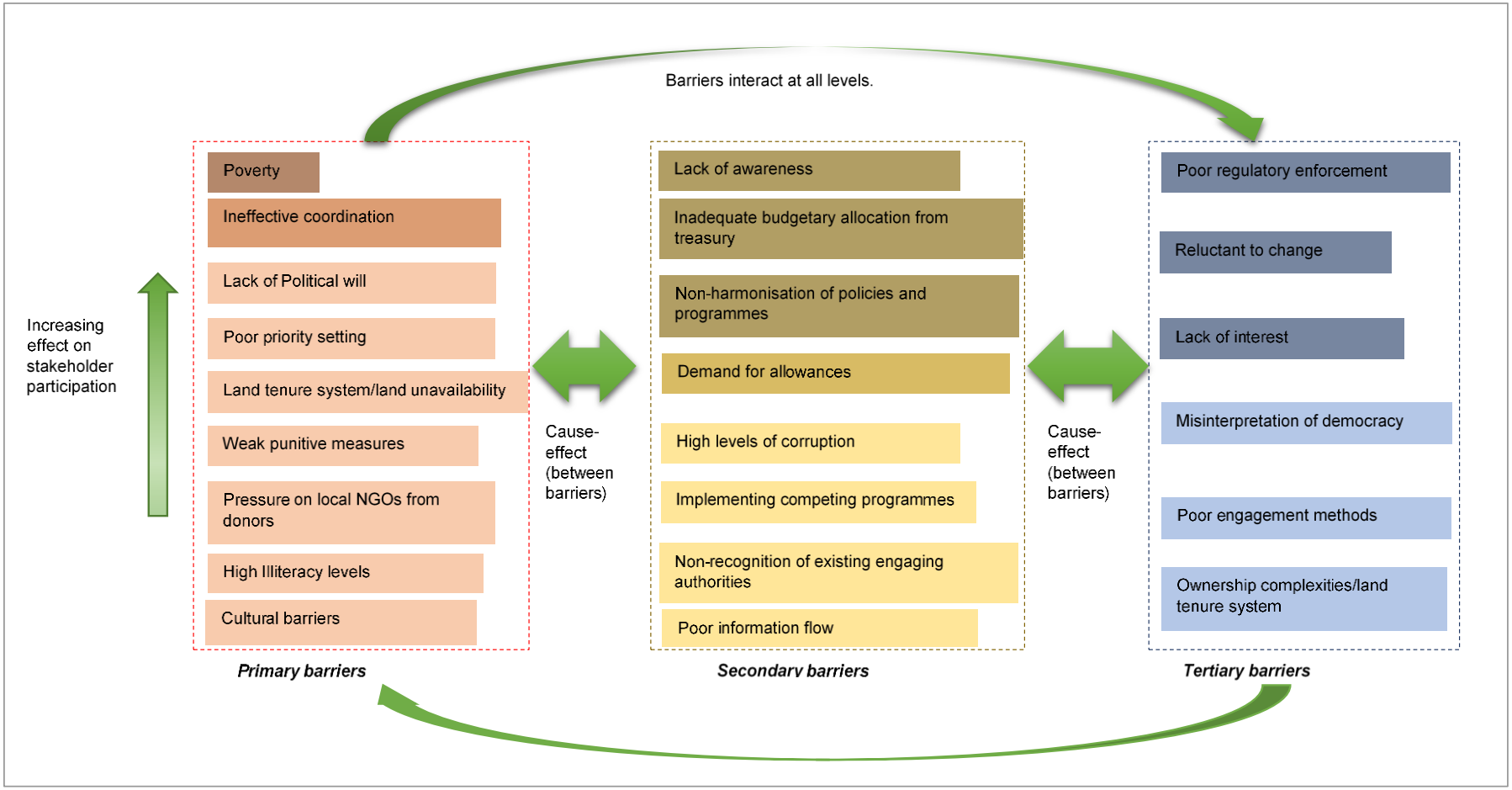

Figure 4.2: Identified barriers to rural stakeholder participation in water resources management and its cause-effect relationship

In addition to the categorisation of barriers (Figure 4.2) based on the cause-effect approach, barriers were thematically divided. Seven major themes (Figure 4.3) were identified under which each of the 24-barriers were classified. The major themes included: weak regulatory frameworks and mechanisms; inadequate resources; poor coordination; high level of corruption; lack of commitment and ownership, cultural factors; and resistance to change. The categorisation does show not only similar barriers grouped together but also the level of influence and intervention. It shows whether the factor's influence is at the individual, national or international level. This detailed analysis, therefore, helps policymakers and service providers to design programme interventions that would address a particular barrier. For instance, cultural beliefs or land availability mostly operates at an individual level while an unharmonised policy is a national barrier that an individual rural stakeholder cannot control.

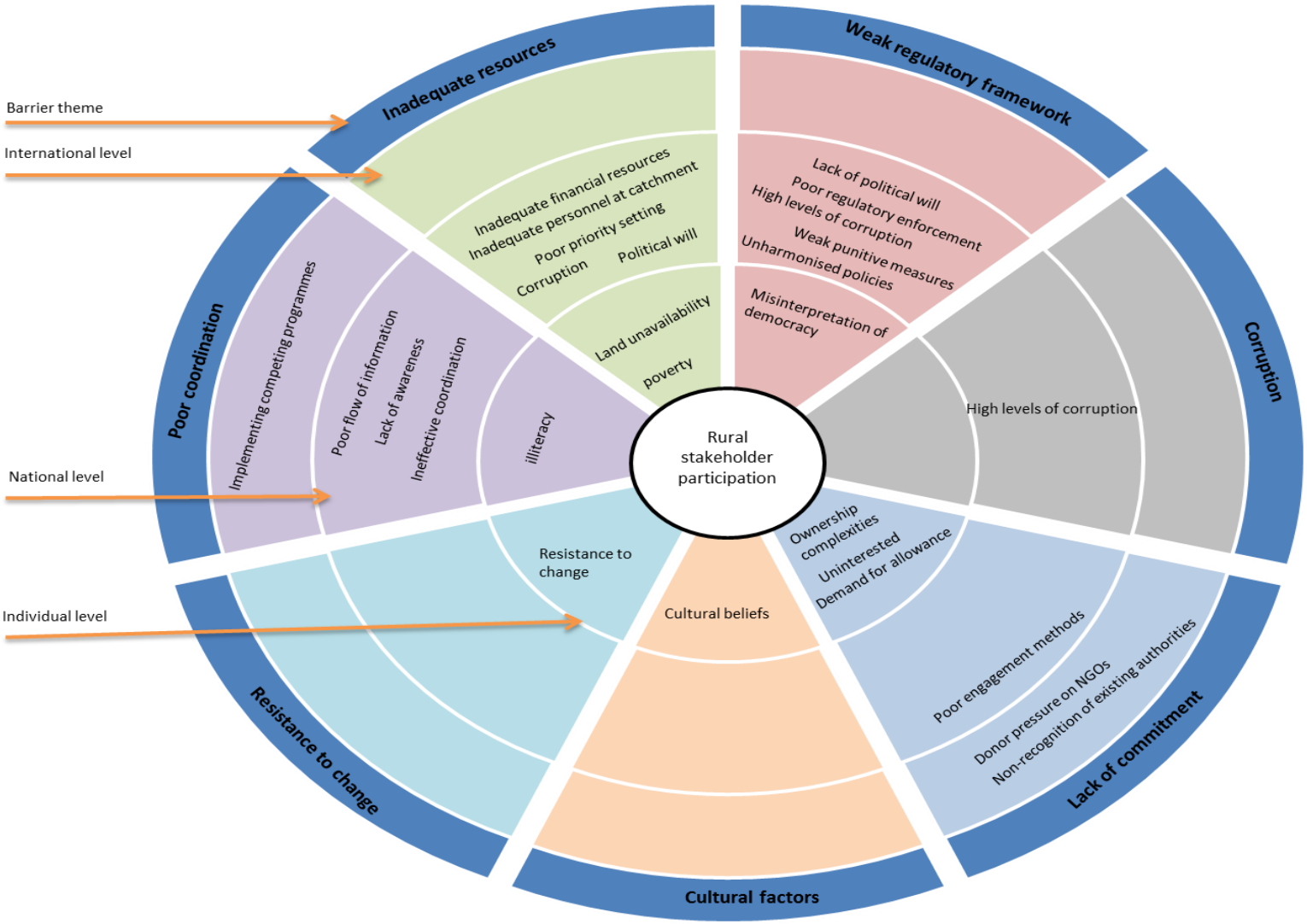

Figure 4.3: Barriers of rural stakeholder engagement classified based on theme and level of influence and intervention

4.4 Discussion

4.4.1 Stakeholder identification process

Stakeholder identification is the first step in the process of engagement, and its core purpose is to identify relevant stakeholders for a particular issue or problem. Cundy *et al.*, (2013) noted that often the range of water resources stakeholders is broad necessitating a process to allow the most relevant stakeholders to be chosen. This research showed that individual officers in the government and other service providers mostly undertake stakeholder identification. They often do not consult. For successful engagement, however, studies (Glicken, 2000; Conde and Lonsdale, 2004; Krupa, 2016; Spangenberg *et al.*, 2018) have recommended the use of a mixture of methods and tools to ensure that as many relevant stakeholders as possible can be identified.

Methods used for stakeholder identification include focus-group, interviews and snowball sampling (Reed *et al.*, 2009). While stakeholder identification by individual government officers as currently used in Malawi is comparatively straightforward, less time consuming, and cheap, critics argue that this approach is limited since individual knowledge may be inadequate and individual interests and motivations biased, affecting the identification process (Huesemann, 2002; Krueger *et al.*, 2012). The frequent omission of rural stakeholders from the list of identified stakeholders in Malawi illustrates how personal motivations and interests can result in poor stakeholder selection choices. Rural stakeholders are omitted in water policy formulation and review despite the rural community's influence and role in catchment protection and conservation. Failure to recognise rural communities as stakeholders at the onset of projects and policy formulation makes it more challenging to involve them later.

Furthermore, since much 'professional opinion' takes the view that stakeholders are in most cases "self-evident" or "self-construed" (Reed *et al.*, 2009), it often excludes key stakeholders. In contrast, the face-to-face interviews and the FGDs created comprehensive lists of stakeholders, reinforcing the need to use a mixture of methods for identifying relevant stakeholders.

The omission of rural stakeholders in water resources management could also be the result of the criteria used in the identification process. A stakeholder's ability to provide funds for water resource management activities was one of the criteria often used by the government. Rural communities, however, cannot afford to contribute financial resources to such an exercise. The absence of the critical consideration of criteria for selecting stakeholders is an indication that problems and boundaries are not well defined (Butler and Adamowski, 2015).

In this study, as policymakers and service providers viewed the role of rural community members in terms of the implementation of measures and programmes that had already been decided, rural communities tended to be viewed as stakeholders only at the policy implementation stage. Most policy-makers and service providers did not see the importance of engaging with the rural community during formulation and review of the policy. However, best practices for stakeholder engagement demands the identification of all relevant stakeholders as early as possible to ensure their engagement and representation throughout the policy processes (Reed, 2008; Butler and Adamowski, 2015; Megdal *et al.*, 2017).

Early identification of relevant stakeholders allows policymakers and service providers to engage stakeholders as early as possible. It ensures that stakeholders are entirely aware of activity and clearly understand their role and participation. Omitting rural communities at the policy formulation and review stage will reduce their participation at the implementation stage.

4.4.2 Assessing the extent of stakeholder participation in water resources management

Several engagement spectrums (Arnstein, 1969; Luyet *et al.*, 2012; Cundy *et al.*, 2013; Reilly *et al*., 2016) have previously been developed to help guide the evaluation of engagement process. Each step in the spectrum (Cundy *et al.*, 2013; Reilly *et al.*, 2016) is associated with a level of participation that involves increasing interaction and engagement (Figure 4.4). The increasing interaction and engagement, according to Arnstein's (1969) and Reilly *et al*., (2016) also means incorporating views from stakeholders into the decision-making process.

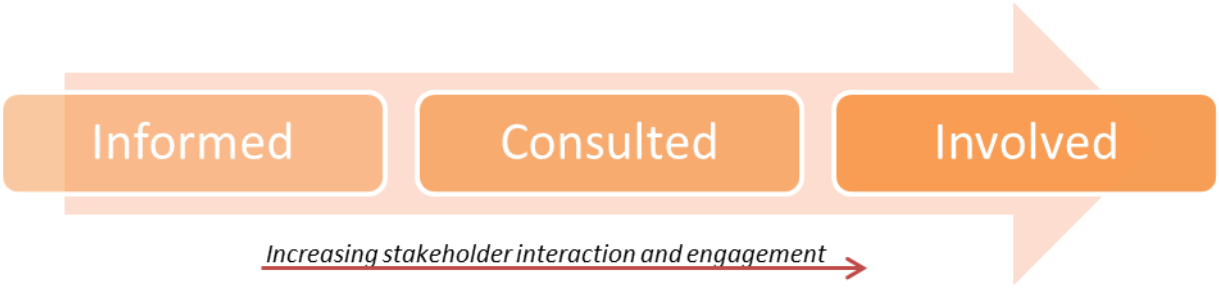

Figure 4.4: Spectrum of stakeholder engagement showing levels of participation (adapted from Reilly *et al.*, 2016)

The commonest level of participation in water resources management achieved in Malawi for rural communities was 'informed'. Arnstein (1969) while developing the 'ladder of citizen participation' noted that when participation ends at information or consultation levels, it is measured by how many people attend meetings, take home brochures, or answer questionnaires. This does not lead to an improved quality of decision-making in the policy processes. Manzungu (2002) referred to such participation as a "mere headcount" of stakeholders. In Section 4.2.1 above, it is apparent that low levels of rural stakeholder engagement are often the result of ignoring key methodological steps (Figure 4.5) in the process of stakeholder analysis (Reed *et al.*, 2009; Butler and Adamowski, 2015). These steps demand to engage stakeholders appropriately and systematically in an 'engagement plan' (Cundy et al. 2013). Figure 4.5 shows one approach as to how that engagement and the interlinked steps could be achieved.

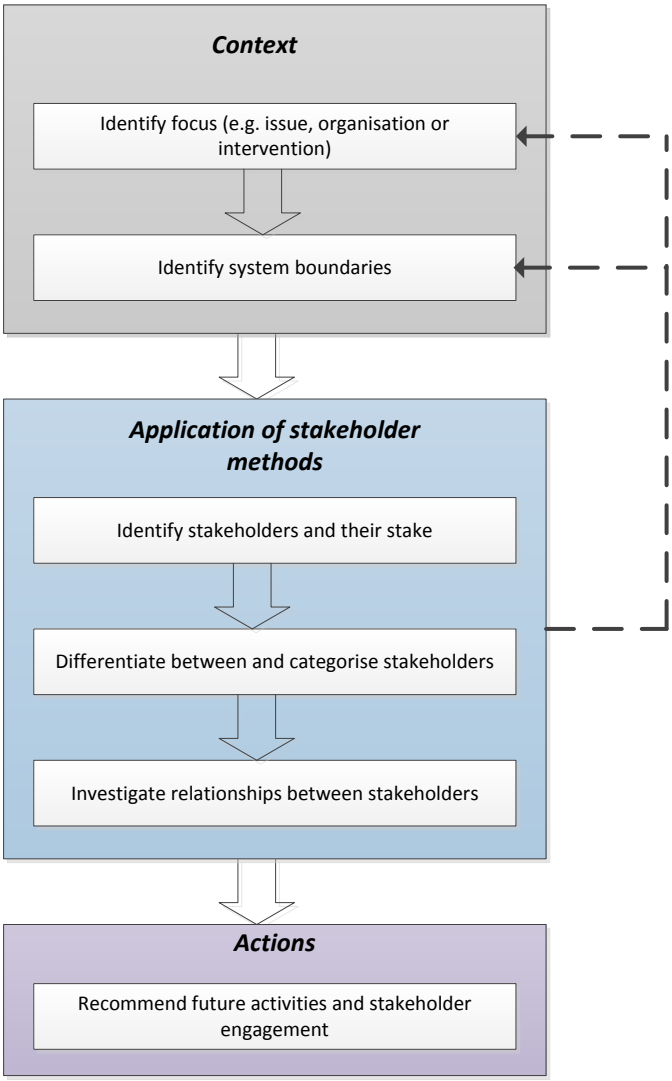

Figure 4.5: Steps used in the process of engaging stakeholders (after Reed *et al.*, 2009)

Grimble and Chan (1995) and Lawrence and Deagen (2001) have shown that meaningful stakeholder engagement and effective project implementation can largely depend on correct categorisation of the identified stakeholders. Also, Vente *et al.*, (2016) reported that appropriate stakeholder representation and engagement methods are some of the most critical factors affecting outcomes of the participatory decision-making processes.

One of the apparent limitations in public participation is that it is an expensive process that would require a large number of stakeholders to engage constructively in water management. However, by using the appropriate steps,

optimisation is possible, thereby achieving quality engagement. Henisz *et al*., (2014) for instance, showed that stakeholder engagement, which includes stakeholders with known “stakes” could bring enormous benefits to an organisation implementing a particular project. Targeted engagement, however, requires stakeholders to be carefully identified and then categorised. Categorisation leads to more cost-effective participation as appropriate methods can then be used to engage specific groups of stakeholders.

There are numerous methods for stakeholder categorisation including card sorting (Hare and Pahl-Wostl, 2002), cooperation versus competition (Reed and Curzon, 2015), influence and interest matrices (De Lopez, 2001; Reed *et al.*, 2009), Q-methodology (Ockwell, 2008), radical transactiveness (Hart and Sharma, 2004) and urgency versus legitimacy versus influence (Mitchell *et al.*, 1997). However, none of these methods was employed in Malawi. It was found that there was no particular method used for stakeholder categorisation. It could not be established whether the absence of stakeholder categorisation was the result of policymakers lacking knowledge in the methods or otherwise. However, when ‘influence and interest matrices’ were introduced and used in one of the group discussions, most participants acknowledged being not aware of the method.

4.4.3 Barriers to rural stakeholder engagement

The responses from policy makers, service providers, and community members in three catchments show that a range of complex factors (Table 4.4) can limit rural stakeholder participation in water resources management. The findings also showed that within the broader context of water management other components such as catchment management (protection and conservation of catchment) are neglected, particularly in developing countries, raising questions regarding the practicality of IWRM implementation. Most developing countries prioritise their focus on specific pressing issues such as water supply, utilisation, and sanitation. The prioritisation, by developing countries such as Malawi, is because of the struggle with economic water scarcity (Seckler *et al.*, 1998) where supply and distributional infrastructure is limited. The water sector has thus prioritised supply

and utilisation at the expense of catchment management, which is so critical particularly in the context of water stressors such as climate change and population increase.

Among the various factors identified, economic factors as shown in (Figure 4.2 and 4.3) influenced engagement to a greater extent than social and political factors. For example, participants suggested that poverty had a 'knock-on' effect on several other factors, affecting the participation of rural communities through demands for allowances, corruption, and reluctance to change (Figure 4.2). Rural communities mostly focussed on economic needs because of its immediate impacts on their livelihoods. As such, they were not interested in activities such as catchment protection and conservation which did not solve their immediate livelihood problems. These findings support earlier studies that reported that poverty leads to natural resources degradation (Scherr, 2000). This also explains why community forest management has not been successful in Malawi (Pinyopusarerk *et al.*, 2014). High levels of poverty and lack of opportunity have forced rural communities to engage in the production of charcoal for sale in urban areas which has caused deforestation. Despite knowing about the effects of deforestation on water resource management, rural communities have resisted change because they would lose income.

Most barriers identified in this study were not unique to Malawi. They have been identified in other studies (Irvin and Stansbury, 2004; Petts, 2004; Tseng and Penning-Rowsell, 2012). However, this study showed that there are new factors such as the demand for allowances or per diems. Per diems are usually payments made to cover expenses while travelling during extended periods (Erasmus *et al.*, 2017). It has varied uses including reimbursements for travel-related expenses (Vian *et al.*, 2013; Sanner and Sæbø, 2014). Allowances encourage participation at professional developmental meetings or workshops (Skage *et al*., 2015). They have been reported to motivate participants while undertaking strenuous activities (Vian *et al.*, 2013) and act as incentives that increase the job satisfaction of employees (Nkamleu and Kamgnia, 2014), especially where per diems exceed salaries (Ridde, 2010).

The evidence collected here show that rural communities in Malawi are increasingly making these payments a pre-requisite to any form of engagement. The demand for allowances has paralysed several catchment activities and programmes implemented by the government and other service providers since they do not have the resources to pay them. The government often does not budget for allowances to be made to the rural community. Therefore, most rural stakeholders only participate in activities implemented by NGOs as they have the financial capacity to pay for allowances. This has created conflicts between NGOs and the government as the government finds it increasingly difficult to involve stakeholders in its own engagement activities.

In addition, there are inconsistencies as to how much should be given to participants in a particular activity and whether a standard rate should be established and adopted by all service providers. There have been attempts to develop harmonised guidelines for fuel payments and allowances made by donors and NGOs. However, such guidelines tend to apply only to salaried employees (mainly civil servants) (Malawi Government, 2013a). The present guidelines do not include allowances for members of the rural community or the general public.

The growth of allowances has created a culture where personal financial gains overshadow true agendas for the policy meetings and the question as to whether it should be legitimate to pay allowances to rural community members attending meetings or workshops or implementing particular activities remains an unresolved issue in Malawi.

This study has also highlighted that the barriers to stakeholder participation in water resource management overlap. The interlinkage of barriers helped to identify factors (primary barriers) limiting participation. For example, despite inadequate financial resources being one of the most common barriers to participation in Malawi, it was viewed here as an intermediary barrier, having been also caused by lack of political will and poor priority setting by the government (see Figure 4.2).

The identified interlinkages also provided insight as to how a barrier's impact could be reduced. For example, limited financial resources to carry out awareness campaigns which have a 'knock-on' effect on several other barriers could be reduced by improving information sharing, coordination, and the harmonisation of programmes and policies. Improving coordination or information flow may not necessarily require extensive financial resources. When service providers and policy-makers coordinate effectively, vital programs and activities can be shared reducing the overall financial burden on a single actor, an outcome that may be especially important for government departments and ministries that are generally poorly funded. However, this study established that such leverage is not used.

The barriers to stakeholder participation show that each country or region has a unique and complex set of factors to deal with. There was little difference among the catchments regarding the general set of barriers identified, although some barriers were more frequently cited in certain catchments than others. Overcoming these barriers requires the development of a comprehensive engagement framework which gives due consideration to specific socio-cultural, economic and political contexts.

4.5 Summary

In this chapter, a process of rural stakeholder identification, categorisation and engagement in three selected catchments in Malawi was undertaken. Stakeholder involvement in local water resources management was critically analysed. Factors which limited stakeholder participation in water resources management were highlighted. The findings show that criteria used for identifying stakeholders have a significant influence on actual stakeholder engagement. It was found that professional opinion was the most common method used to identify stakeholders. It has been shown that this method results in bias as the process of identifying stakeholders is highly subjective. Although quick and cheap to implement, this approach fails to identify key stakeholders such as rural communities, omitting them from the water resource management and

constraining their participation during the later stages of stakeholder engagement.

Twenty-five factors acting as barriers to stakeholder participation were identified. The most frequently mentioned factors included the demand for allowances, lack of awareness and sensitisation, limited financial resources, lack of interest in catchment management among rural communities, and weak regulatory enforcement. The barriers to participation were inherently interlinked and overlapping. The evidence presented in this chapter showed that there was weak governance in water resource management. The basic principles and tools of stakeholder engagement were not adhered to, leading to poor engagement. The evidence also highlighted failure on the part of the government to implement policy effectively. These findings informed the development of an engagement framework for rural communities. The next chapter explores the disjunction between the water policy itself and what is implemented in the catchment.

5 WATER POLICY PROCESS: EXPLORING DISCONNECTIONS BETWEEN FORMULATION AND IMPLEMENTATION

This chapter contributes to addressing objective 4 by identifying the underlying barriers and constraints between water policy formulation and its implementation. A disconnect between water formulation and implementation processes hinders the realisation of the expected policy outcomes. Identifying and understanding the context in which these factors occur offers empirical evidence to provide alternative approaches for policymakers in considering how to formulate and implement water management related policies.

5.1 Introduction

Public policy as noted by Aiafi (2017) has many different definitions. Most definitions, however, are concerned with how governments make public decisions. For instance, Birkland (2016, p.9) defines policy as “statement by the government of what it intends to do, such a law, regulation, ruling, decision, order, or a combination of these”. Governments have many policies, which it uses to guide its actions in different sectors. Natural resource policies and legislation govern the use, protection, and management of resources including water with an aim to achieving sustainable economic development. They set national visions and agendas to inform various policy instruments including bye-laws, guidelines, regulations and strategies which help to translate policy and legislation into action. For example, water policy instruments outline allocation procedures or pollution control standards.

Public policy development and implementation is the mandate of the national or federal government in many countries (Birkland, 2016; Yiran and Stringer, 2017). Policy development generally consists of five sequential steps: problem identification, formulation, adoption, implementation, and evaluation (Figure 5.1). This approach (Figure 5.1) assumes that each policy addresses a particular problem the public faces. Hence, the development of the policy starts with defining the problem. Following policy development, adoption, and

implementation, an evaluation process is then carried out to assess whether the policy goals have been achieved and to re-adjust policy actions depending on the changing nature of the problem. Policy reviews are thus a standard exercise to ensure that policies are up-to-date and fit for purpose.

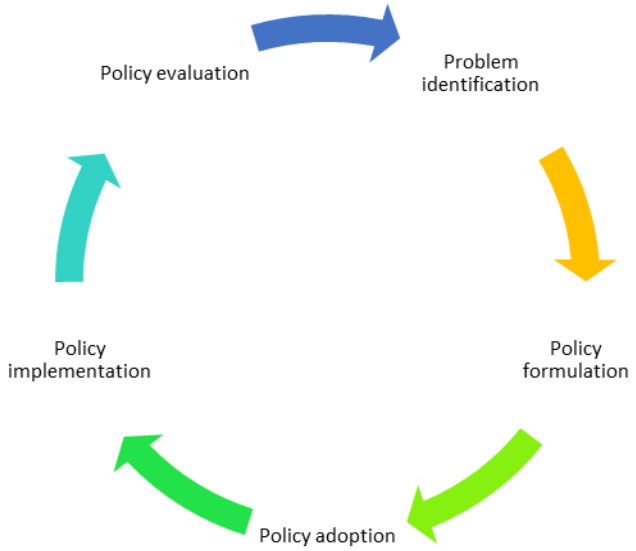

Figure 5.1: Steps undertaken during public policy development and implementation (Source: Birkland, 2016)

Natural resource and water policies provoke much debate regarding the involvement of the public in each step of the policy process shown in Figure 5.1. This stems specifically from the complexity of environmental problems and the number of individuals that can be affected. Unlike other sectors of development, inclusive decision-making in the environmental sector is essential and is supported by various international agreements, which have encouraged the participatory principle (GWP, 1999). There are numerous potential benefits in involving stakeholders in the policy-making process. Prutsch *et al.*, (2017) categorised the benefits as relating to both the policy-making process itself and its outcome (Table 5.1). Process-related benefits are those that occur during the policy formulation exercises. For instance, when different stakeholders gather to develop policy, trust is established among different groups, usually those of opposing sides such as government and environmental lobby groups or the

public. Furthermore, as different groups or individuals have different ideas, policy-making becomes democratic.

Outcome-based benefits are the strengths of a policy which has been formulated while involving various stakeholders. Table 5.1 shows that a relationship exists between the policymaking process and its outcomes. When stakeholders are effectively engaged in the process, the outcome-related benefits are more likely to be realised.

Table 5.1: Potential benefits of engaging stakeholders in the policymaking process

Process-related benefits	Outcomes-related benefits
Make policymaking more democratic inter alia by enhancing equity of access to policymaking	Improve the quality/effectiveness of policies based on knowledge values, and interests articulated by stakeholders
Build trust between stakeholders and governments and strengthen relationships/collaborations	Enhance long-term support and active implementation
Prevent conflicts or unexpected negative outcomes	Build adaptive capacities by raising awareness promoting social learning and empowering stakeholders
Increase legitimacy acceptance and ownership of and compliance with policies	Influence policies in line with self-interests by articulating subjective values and preferences and needs
Stimulate a sense of social cohesion/solidarity	Maximise synergies between policy options
	Minimise costs of policy implementation

Source: (Prutsch *et al.,* 2017, p.273)

Despite extensive literature on the benefits of stakeholder engagement in the policy process (see Chapter 4), empirical evidence is contradictory. Some authors have found positive results, but others have reported the opposite. Beierle (2002) analysed 239 case studies of stakeholder involvement in environmental decision making in the USA and showed that participation increased the quality of decision made. On the other hand, in Austria, Prutsch *et al*., (2017) reported that participation in the formulation of climate change adaptation policy only achieved awareness among participants, but failed to enhance commitment amongst policy-makers towards implementation. Such opposing studies show that good decisions do not guarantee action if key players are not ready to act on the policy. Jordan (1999) in Europe and Clement and

Amezaga (2009) in Vietnam investigated failure to implement agreed environmental and forestry policy plans. Their findings showed that policy goals did not match their intended outcomes. Recently in Ghana, Yiran and Stringer (2017) reported on the weak link between climate change adaptation policies and action. Clearly, environmental management policies need to be implemented to achieve their outcomes and Young (2005, p.728) concluded that “policy is worth nothing unless it results in actual change”.

Previous studies have focussed on understanding the disconnection between policy development and policy implementation and proposed means of closing the gap. These studies, however, have mostly focussed on climate change adaptation (Amundsen *et al.*, 2010; Moser and Ekstrom, 2010; Masters and Duff, 2011; Barnett *et al.*, 2015; Yiran and Stringer, 2017) and forestry (Kalaba, 2016). Some studies have examined organisational capacity (Baker *et al.*, 2012; Berkhout, 2012; Xerri *et al.*, 2016) to implement policies and regulation. But very few studies have focussed on the process of water policy development and the disconnect that occurs during implementation. Studies which focussed on water have mainly explored institutional capacity to plan for drought and other climate change impacts on water (Engle, 2012; Azhoni *et al*., 2017). Little has been undertaken to understand the link between water policy goals and their outcomes by exploring the key policy processes of formulation, review, and implementation. In Malawi, the water policy process has received little attention from the research community despite facing numerous challenges which have affected implementation.

5.2 Method

5.2.1 Data collection

Two methods of data collection were employed: document analysis (Bowen, 2009; WHO, 2009; Huang *et al.*, 2010; Wesley, 2010) and in-depth interviews (Dorussen *et al*., 2005; Opdenakker, 2006; Sheng *et al.*, 2009) (See Chapter 3 for full detail of thesis methods).

Document analysis is ‘a systematic qualitative procedure for reviewing or evaluating documents - both printed and electronic material’ (Bowen, 2009, p.27). Policy and legislation documents were reviewed to examine the processes of formulation, periodic reviews, and implementation. The review identified and explored what caused the gap between what is in the policy and the actual implemented measures and programmes. The National Water Policy of 2005 and the Water Resources Act of 2013 were read and analysed to identify thematic areas/sections or articles related to catchment management.

Furthermore, the implementation plan including the actors for particular actions was identified. Structures (organisation and implementation mechanisms) within the policy supporting the implementation of IWRM were also reviewed. This was compared with evidence gathered from in-depth interviews with key informants across the case study catchments. These interviews provided expert opinions and perspectives regarding the actual practice of both policy formulation and implementation processes. With an emphasis on water resources management, the National Water Policy of 2005 and the Water Resources Act of 2013 were the main documents which were reviewed in detail. Other key documents such as the Water Resources Regulation and National Water Masterplan could not be analysed because they have been under review since 2014. Sector policies complementary to water resources management were also reviewed including those relating to agriculture, environment, forestry, irrigation, and land resources. Policy documents were obtained in printed or electronic form from respective departments and ministry representatives. Most government departments have websites that do not provide public access to policy documents. However, the Centre for Environmental Policy and Advocacy (CEPA), a not for profit non-governmental organisation has uploaded some government policy documents on its website (http://www.cepa.org.mw/).

Participants for the in-depth interviews were sought from government departments and ministries at all levels (headquarters, regional, district offices). The government departments and ministries included those for agriculture, forestry, irrigation, land resources, and water resources. Other participants were

sought from NGOs, universities, and private companies. As participants were required to be knowledgeable in water resources management and on policy matters, in particular, purposive sampling was used for recruitment. The snowball sampling method was used in which the first participants identified additional participants who they regarded as knowledgeable in the topic area (Heckathorn, 2011). The sample size was mainly determined by a point of reaching data saturation when no new evidence could be added to already collected by any of the additional interview sessions (Ritchie and Elam, 2003; O'Reilly and Parker, 2013; Fusch and Ness, 2015). Interviews were mostly in English, although in some cases, the local language was used. Tumbuka was used during interviews in South Rukuru and Chewa used in Linthipe and South West Lakeshore.

5.2.2 Data management and analysis

Document analysis focussed on two sets of documents: (a) specific policy articles, strategies, or principles supporting catchment management, the organisational structures established to achieve or implement the policy, and the involvement of rural stakeholders; and (b) the implementation status of the policy through specific regulations or guidelines including the implementation plan and those actors responsible for its implementation. Specific articles on catchment management were analysed using content analysis. Bowen (2009, p. 32) defined content analysis as the "process of organising information into categories related to the central questions of the research". Huang *et al.*, (2010) recommended that content analysis be used for analysing government documents since it could be used to provide data on textual content systematically and objectively. In-depth interviews which focussed on policy implementation were examined through thematic content analysis (Braun and Clarke, 2006, 2012, 2013; Vaismoradi *et al*., 2013).

The researcher personally conducted all data collection and analysis. Field data were recorded in either a field notebook or audio recorder and were later stored on a computer and external hard drive.

5.3 Results

Findings from the analysis are reported in two sections: 1) policy articles on catchment management (section 5.2.1), and; 2) the implementation of policy (section 5.2.2). The findings further outline the factors contributing to the disconnect between policy formulation and implementation. A total of 29 interviews were conducted in the three catchments (Table 5.2).

Table 5.2: The number of interview participants and their organisations in the Linthipe, South Rukuru, and South West Lakeshore study catchments

Catchment	Participants' organisation	No. of participants
Linthipe	Government departments (Water, Land Resources, Forestry); Regulator (NWRA); NGOs (which are in policy advocacy); Academics (Forestry); Private company, Water Board	10
South Rukuru	Government departments (Agriculture, Water, Irrigation, Land Resources, Forestry); NGOs (which implement water-related activities and programs); Water Boards	11
South West Lakeshore	Government departments (Agriculture, Water, Irrigation, Forestry, Land Resources); NGOs (which implement water-related activities and programs and which take part in water policy dialogue); Consultant	8

5.3.1 Policy and legislation articles supporting catchment management

Currently, two documents, the National Water Policy (2005) and the Water Resources Act (2013) guide catchment management in Malawi. Both contain IWRM principles reflecting the country's effort to update water policy to tackle the challenges affecting water resources. It was found that the National Water Policy (2005) was under review to harmonise it with the National Agriculture Policy of 2016. One participant explained that the government had in the past noted that unharmonised policies within different sectors created contradictions and challenges in implementation and had recognise the need to harmonise related policy.

We needed to tap our strategies from the National Agriculture Policy as we are in the Ministry of Agriculture Irrigation and Water Development we should then look at priority areas in the Agric policy, and then we develop sector-related policies…

Government Officer-Regional office

Table 5.3 presents extracts from the National Water Policy 2005 and Water Resources Act 2013 which support catchment management. The policy and legislation have various articles within them to address the issue of catchment management in a participatory manner.

Table 5.3: Key articles in the National Water Policy of 2005 advocating for catchment management and stakeholder engagement

Article/Principle/Strategy	Source	Description
Part II (sections 8, 10, 13)	Water Resources Act 2013	Establishment of the National Water Resources Authority with functions of managing water resources in a participatory approach NWRA to have key representation at regional level
Part III (sections 26, 32, 33)	Water Resources Act 2013	Establishment of the Catchment Management Committees (CMCs) based on hydrological delineation to assist the NWRA in water resources conservation, use and allocation Development of catchment management strategy for the management, use, development, conservation, protection and control of water resources within each catchment area CMCs to sensitise water users in a catchment on water resources protection and management
Part XIII	Water Resources Act 2013	Establishment of Water Users Association – enabling greater involvement of users in water management
Policy objective 3.3.4	National Water Policy 2005	Empowering user communities to invest to own, manage and invest in water resources development
Policy objective 3.3.5	National Water Policy 2005	Promote public and private sector participation in water resources management, development, supply, and conservation

Guiding principle 3.4.3	National Water Policy 2005	Water resources management shall be based on the concept of decentralisation and local participation so that the unit of water resources management shall be the catchment
Specific objective 4.1.9	National Water Policy 2005	To promote proper catchment management to protect and sustain the eco-system biodiversity and wetlands
Part 9	National Water Policy 2005	Promotes the linkage of various institutions including public stakeholders in the management of water resources

Source: Malawi Government (2005, 2013)

A review of water-related policies within agriculture, environment, forestry, irrigation and land resources found that each policy mentions some measures and programmes related to water resources management. However, most of these measures and programmes were very generic and not specific on catchment management. Mostly it aimed to be complimentary in recognition of the fact that there was specific government policy and legislation (National Water Policy and Water Resources Act) addressing water resources management.

5.3.2 Implementation status

The specific policy articles and principles supporting catchment management were tracked to establish whether they had been implemented or not. A desk-based critique of the evidence showed that most of the articles, principles and strategies had not been implemented as originally planned and that implementation plans had been delayed (Table 5.4). For most of the policy measures and programmes, implementation had taken longer than the timelines outlined in the implementation plans. For example, according to Article 1.1 (Table 5.4) a National Water Resources Authority was supposed to be established in 2007. However, this was only established by the Water Resources Act in 2013. In addition, most of the organisations dealing with catchment management and rural community involvement have yet to be fully operationalised. Key institutions for catchment management such as the Catchment Management Authority and Catchment Management Committees have yet to be established in different catchments across the country.

Table 5.4: Review of the implementation status of the selected articles and strategies of the National Water Policy 2005 relating to catchment management

Thematic area	Strategic intervention, indicators, and time frame	Review of the implementation status		
		Delayed	Not implemented	Review Comment
Water resources management and development	1.1 Establishing and empowering the National Water Resources Authority to effectively and efficiently manage the country's water resources using IWRM approach by 2007	✓		The NWRA was only established in 2013 through the enactment of the Water Resources Act 2013. NWRA is yet to be fully operationalised
	1.2 Establishing Catchment Management Authorities and devolving water resources management to catchment level using IWRM approach (by 2009, three catchment management authorities in place)	✓		Only one pilot catchment management authority, Shire River Basin Authority, was established in 2016 under a World Bank funded catchment management project
	2.2 Identifying, delineating and protecting water resources conservation areas (by 2008, four catchments areas conserved)		✓	Only three selected catchment management strategies were developed in 2015
	3.2 Reviewing and disseminating procedures, guidelines and regulations governing surface and groundwater development activities (by 2007, guidelines and regulations are updated)	✓		Regulations are being updated – the time data collection finished in July 2017, the regulations were not yet finalised.
	4.1 Empowering the National Water Resources Authority to effectively and efficiently manage the country's water resources schemes at national and river catchment levels using IWRM approach (management system in place by 2007)	✓		NWRA not fully operationalised at catchment level
	5.2 Updating of the National Water Resources Master Plan of 1986 (by 2008 master plan updated)	✓		National Water Resources Master Plan started to be updated in 2014 and was finalised in late 2017.
Water Utilization-(Urban, Peri-Urban and Market Centres Water Services)	3.1 Developing a national water and sanitation services regulatory framework (Water Supply and Sanitation Regulatory secretariat by 2007)		✓	The secretariat has not been established, and there are no plans so far to establish it

Thematic area	Strategic intervention, indicators, and time frame	Review of the implementation status		
		Delayed	Not implemented	Review Comment
	3.2 Incorporating local governments and communities in planning, development and management of water supplies and sanitation services	✓		Despite an on-going intervention, communities across three catchments expressed that they are not incorporated in planning (as established in chapter 4)
Water Utilization-Irrigation/fisheries services	3.1 Harmonising and mutually enforcing natural resources legislation to protect water resources from degradation and pollution	✓		Despite on-going, it has taken too long review some policies to reflect the harmonisation. For instance, in 2016 two vital natural resources related policies were reviewed/updated (Agriculture and Forestry) to reflect the harmonisation. Water Policy of 2005 is yet to be reviewed.
Policy monitoring and evaluation	1.2 Undertaking periodic reviews of the specific programmes of the policy implementation	✓		Despite on-going, this is the area which many participants noted that reviews had not been carried out
	1.3 Conducting participatory consultative meetings with the relevant stakeholders in order to assess the impact of the programme.	✓		Despite on-going, respondents noted that consultations have not been comprehensive

5.3.3 Factors affecting policy implementation

A review of the policy and legislation documents and in-depth interviews with participants working within policy identified that the Ministry of Agriculture, Irrigation and Water Development was responsible for policy formulation, review and implementation of water-related catchment management strategies. Other organisations tasked with supporting the ministry in this mandate included the National Water Resources Authority (NWRA) and the regional water boards (Blantyre Water Board, Central Region Water Board, Lilongwe Water Board, Northern Region Water Board, and Southern Region Water Board). Thematic analysis of the participant interviews showed that policy processes have not been

effective and most are marred by delays, which have affected the organisations responsible for programme implementation. For instance, the NWRA which was established by the Water Resources Act of 2013, with various key responsibilities relating to stakeholder engagement in the area of water resources management has not yet been fully operationalised:

> *For example, this time around we are unable to employ a CEO. Of course, they were shortlisted, but it is taking time up to now for those who were shortlisted to have an interview so that we have a CEO in our office.*
>
> Government Officer-Headquarters

With the delays experienced in operationalising the NWRA, most of its key water resources management programmes including water allocation, monitoring, and catchment protection have been negatively affected.

Furthermore, most interviewees expressed that the processes of policy and legislation formulation and review had not been regular and that in most cases, these had omitted inputs from other stakeholders. Most participants acknowledged that many pressures were being increasingly exerted on water resources due to climate change and cross-cutting, such as gender equality in access to water, which necessitated review and updating of parts of the water policy:

> *Things are changing environmentally. Right now we are talking of issues of climate change, the issues of gender. So I think 20 years ago the issues of climate change, gender and other cross-cutting issues were not there. So those cross-cutting issues have an impact on our environment and so we need to keep on changing.*
>
> Government officer-Regional office

Several factors were identified as causing the gap between policy development and implementation on the ground. Largely, factors limiting the participation of rural stakeholders outlined under *sections 4.3.3 and 4.4.3* contribute to the gap at a catchment level. Among these, however, specific factors mostly relating to policy makers were singled out which also cause difficulties in water policy implementation. The factors include: (i) political influence, (ii) inadequate funding, (iii) unharmonised policies and (iv) weak institutional coordination.

Political influence: Most participants agreed to the fact that *"…most of the government policies [were] outdated"* (Local NGO representative). The failure to review policy was mostly blamed on *"…the lack of commitment on the government's part [especially politicians]"* (Government Officer-Regional Office) and lack of financial resources. Some also added that politicians had misplaced their priorities regarding the implementation of the policy:

> *Politicians look at boreholes as source of [election votes] votes. When you tell them about the management of water resources, they do not see the immediate impact [and benefits]. So they could not allocate enough resources for review and all other things.*
>
> Government Officer-Headquarters

Other participants said that policy should not be reviewed strictly according to a pre-determined time-frame. They stated that an objective-based review would be preferential because as long as the policy was still relevant, it could be used. However, they still agreed that some sections of the policy and legislation were outdated and that government departments responsible for the administration of policy and legislation were not proactive enough. However, they argued that government departments could carry out partial reviews and address specific issues such as the establishment of buffer zones alongside water bodies.

Participants also stated that since winning votes motivate politicians, they have interfered with policy implementation by supporting activities in the controlled areas of particular catchments. An NGO representative highlighted an incident where a member of parliament allowed people from his constituency to cultivate in a catchment that both the Department of Forestry and an NGO had designated as a controlled area to avoid further degradation of water resources. However, since the parliamentarian wanted to win the support of his people he allowed them to cultivate at the expense of catchment protection and conservation.

Inadequate funding: The majority of the participants here (mainly policy makers and service providers) identified lack of financial resources as hindering policy

implementation. It was noted that most of the critical catchment activities for water policy remained unimplemented.

> *The main issue is to do with funds because as you know when you are doing a review of such a document it requires a lot of consultations, field investigations, field appraisals, so you need a lot of [financial] resources*
>
> Government officer-Regional office

Participants at district offices stated that there was a severe lack of funds to implement activities with rural communities on the ground:

> *For example, as a District Water Officer for me to reach out to these communities, the funding I receive known as ORT [Other Recurrent Transactions], it is just very small, and so I cannot manage to reach out to the communities with the message concerning catchment management. The money I receive is for office utilities*
>
> Government officer-District office

However, there were some conflicting perceptions regarding the need for funding amongst participants from NGOs. While some NGO representatives agreed with policy-makers that funding was poor and that this impacted stakeholder engagement activities, others stated that it was the lack of commitment from government to prioritise catchment management that was the challenge. They stated that the government's approach to implementing catchment management programmes was unplanned.

> *They [government] sometimes implement programs without any guiding framework…. We do not drive some of the interventions we do, it's externally driven. We respond to influence from outside. For example, there are issues now to do with erosion, deforestation, but we will wait until a project comes which will be driven by outside influence [donor funded]. So most of the things we do are ad-hoc and programme-based.*

I for one will not agree to the fact that finance is a reason. Finance [lack of funds] should not be a scapegoat. It is a question of priority setting.

Local NGO representative

Unharmonised policies: During in-depth interviews with policy-makers and service providers, it was widely noted that natural resources policies were not harmonised, which directly affects the implementation of activities because some were stated to be in conflict. Inconsistencies between related policies were also observed to exist by participants from government especially those in the departments for forestry, irrigation, land resources and water resources. A commonly cited example was a buffer zone which had a different meaning between different departments:

A good example is the buffer zone and let's find out what does the Forestry say, what does the Agric say, what does Environmental Affairs say. We have differences. Even within the Ministry of Agric, we have irrigation, water, land resources we differ. So we have known these differences for a long time.

Government officer-Regional office

There have, however, been on-going efforts to harmonise most environment policies. For example, the Ministry of Agriculture, Irrigation and Water Development have developed a parent policy, the National Agriculture Policy 2016. This has eight priority areas which cover all its departments including water resources, irrigation, and land resources. Sectoral policies such as irrigation, land resources and water resources with separate policies will be reviewed in order to make sure they are harmonised with the agriculture policy. The outcome of this reform is yet to be realised as so far only the agriculture policy has been developed.

Weak institutional coordination: Ten participants noted that coordination (collaboration) amongst government institutions was weak which led to limited information sharing. This had led to implementation of competing and conflicting

activities. One participant stated, *"…since I started working I have not been involved with other stakeholders say for instance the department of water"* (Local NGO representative). In a focus group discussion, another participant said *"…the water [department] they are used to stand alone and have their structures…in fact, this is the first time for me to have a meeting with someone from the water board"* (Focus Group Discussion-respondent).

Most government participants claimed that there was a culture of working in isolation that had led to this lack of collaboration. Yet all these departments belonged to a sector or related sectors where activities and programmes needed to be complementary to ensure success. Furthermore, NGOs that collaborated with the government in the implementation of policy programmes and activities said there was an information gap amongst government officers:

> *Well to say the truth collaboration or integration among various stakeholders especially in the government, we [Malawians] are not good at all. This has been a problem for the government of Malawi. Departments do not just work in collaboration. It is a huge problem. This problem is seen even in the knowledge of government officials; just because they do not collaborate so that there is an exchange of information within government departments, you find that officers are not aware of critical issues. For instance, in the implementation of the lead farmer programme, I mentioned earlier, in some districts we found out that even officials at department land resources at district level did not know about catchment guidelines, yet these are the people to lead in the implementation of programs at district and community level*.
>
> Government officer-Regional office

5.4 Discussion

5.4.1 Enabling environment for catchment management

Since the development of the Dublin-Rio principles (UN, 1992; Global Water Partnership, 1999) and other international discourses on environmental management (UNECE, 1998), reforms have been centred on 'enabling the environment'. This is one of the most significant steps in achieving good water

governance as it defines rules and regulations and legitimises practices for improved water resources management. The adoption of new water management paradigms, mainly IWRM, means changing from the conventional approach which was criticised for being 'top-down', bureaucratic and disintegrated (Falkenmark, 2004; Hirsch, 2006) to a more holistic system which considers various stakeholders and uses of water. In Malawi, for instance, current water policy was developed following a critical review of the Water Resources and Management Policy 2000 and the 1969 Water Resources Act (Mott MacDonald and Malawi Government, 2003) which identified a failure to accommodate participatory principles and comply with international and regional policy commitments. Hence, the challenges for water resources could not be addressed adequately.

In comparison with other regional and international practice, Malawi has significantly improved by developing policies and legislation that support IWRM (Mkandawire and Mulwafu, 2006) and particularly catchment management. Both the current policy and legislation support participatory approaches to water resources management and most of the objectives, principles, and strategies in the country's policy and legislation are supportive of water resource management based on participatory approaches. Under previous policy and legislation, district water personnel were responsible for catchment management, but could not cover all the catchments effectively. Thus, current policy and legislation have developed supporting organisations such as the NWRA, Catchment Management Committees (CMCs) and Water Users Associations (WUAs) to increase the participation of stakeholders in water resource management at the catchment level. Indeed Chiluwe and Nkhata (2014) in analysing water governance in Malawi noted the achievements the government had made through current national water policy. The current challenge for Malawi appears to be implementation of policy rather than in development of policy.

5.4.2 Implementation plan and status of catchment management supporting articles and principles

For policies to be effective, they have to be implemented. However, public policies in support of environmental improvements have a known history of lacking implementation which Jordan (1999) labelled the “implementation gap or deficit or disjoint”. The failure to implement environmental policies is a global problem affecting both developed and developing countries. Swanson *et al*., (2001) reported how environmental policy implementation has failed in rural China. Environmental policy implementation deficits within the European community were investigated by Jordan (1999). In Nepal, Dangi *et al*., (2017) noted that policy to manage solid waste lacked enforcement and outcomes were not realised. A systematic review carried out on the implementation of sustainability policies around the world by Howes *et al.*, (2017) showed that policies were very far from achieving intended outcomes. An analysis of 60 water infrastructure projects in India, Mexico and South Africa by Starkl *et al*., (2013) noted that failures were due to ineffective implementation of policy reforms following the Dublin-Rio principles. The lack of implementation of the proposed solutions embedded in updated policy and legislation makes the process of developing new policies a waste of resources.

The implementation process in Malawi has stagnated despite the reforms that the government has made to water policy and legislation. The organisational structures established to champion the implementation process have not been fully operationalised. This has created a gap in the programmes of supporting organisations, such as other government departments, the private sector, and NGOs, resulting in conflicts between stakeholders, especially NGOs implementing similar programmes in the same catchment.

In the absence of the parent organisations such as the NWRA, CMCs, and WUAs progress has been limited. These organisations are critical for integrative and participatory management approaches. This research found that currently, IWRM is generally an idealised concept in Malawi, concurring with earlier critics who have argued that the gap between the conceptualisation of IWRM and its

implementation remain extensive (Bandaragoda, 2006; Agyenim and Gupta, 2012; Mehta *et al.*, 2014). This finding contrasts with the overwhelming relevance and demand for IWRM as expressed by respondents in a study carried out by Mkandawire and Mulwafu (2006). Given such enthusiasm for IWRM appears to exists amongst stakeholders, it might have been expected that the associated principles and structures would have been enacted much sooner.

There have also been considerable delays in reviewing or updating policies or legislation. Most often the recommendation has been that the review of policies and legislation does not necessarily need to follow a regularly designated time-frame but could be based on emerging issues that need to be tackled. However, the case of Malawi necessitates that reviews need to be based on both a time-frame criterion and critical issue criterion. The Water Resources Act of 1969 was only repealed in 2013 after 44 years and during this period, the same environmental policies and instruments agreed in 1969 were applied without a single regulation being updated. This rendered environmental policy principles such as the Polluter-Pays and the User-Pays principles (Correljé *et al.*, 2007; Iho *et al*., 2015) ineffective as almost all the penalties and charges were too low to deter or encourage good behaviour. Even after the old legislation was repealed in 2013, the new regulations have still not been finalised and approved. Thus, there are no water resources regulations for enforcing current water legislation and the old regulations are still being used, resulting in high degradation of water resources because penalties and charges are not high enough to have any impact. The population has also increased significantly over the same period exerting intense pressure on water resources for competing domestic, industrial, and municipal uses (Falkenmark, 1990; Kummu, Philip J Ward, *et al.*, 2010; Beck and Bernauer, 2011). Water policy should have been proactive, anticipating what would need to be done to protect water resources, given these demographic changes.

5.4.3 Policy implementation challenges

This research showed that policy disconnects are often the result of complex and interconnected factors that are frequently context-dependent. Here, common

factors in creating policy disconnects were found to include: contradictory policy objectives, limited consultation with stakeholders, poorly drafted legislation, lack of enforcement, lack of cooperation amongst diverse and numerous actors, and insufficient capacity of political entities to achieve policy objectives. These factors have also been found to create policy disconnects in previous research by Jordan (1999), Starkl *et al* (2013). Dangi *et al* (2017), and Howes *et al.*, (2017). Here, they created gaps between what was written into policy, legislation, regulations, bye-laws, and guidelines and what was implemented on the ground. Some of these factors, in particular unclear legal frameworks, costs associated with implementation, political influence, lack of institutional capacity, lack of government support, and lack of stakeholder engagement were found to cause implementation challenges and are supported by findings in the literature (Massoud *et al.*, 2010; Kalaba, 2016; Mazzi *et al.*, 2016; McTigue *et al*., 2018).

While previous research has reported on institutional barriers (Suhardiman *et al*., 2015; Kalaba, 2016) quite often these have tended to be related to capacity (human resources, equipment) and design. In this research, the most typical problem associated with institutions was poor coordination or collaboration. There was ineffective coordination or collaboration among seemingly related governments departments and ministries such as these for agriculture, environmental affairs, forestry, irrigation, land resources, and water resources. Furthermore, despite a deliberate decentralisation policy (Malawi Government, 1998b), where district level planning is supposed to accommodate all related sectors, participants in the in-depth interviews noted that this was not sufficiently achieved. There was a lack of information sharing amongst departments despite the availability of structures to enhance the sharing of information and planning activities. For example, at the district level, there exists a District Executive Committee (DEC) which is comprised of all sector heads. However, most members were not aware of what was happening in their sectors, which had led the departments to implement competing programs. Ongolo (2015) has noted that even comprehensive policies are constrained during implementation by lack of coordination.

The traditional sectoral approach to management is one where departments have their own policies operating independently of other departments in the same sector (Mkandawire and Mulwafu 2006). These policies overlap, creating conflicts and the need for policy harmonisation (Chipofya *et al*., 2009). Here, for example, participants stated that policy implementation can suffer when departments do not implement a particular activity assuming that another department is doing this, or when different departments advocate different interventions for the same problem. Ongolo (2015) reported similar challenges for policy implementation and similar inconsistencies were reported in Cameroon and Zambia (Dkamela *et al.*, 2014; Kalaba, 2016). In Malawi, water has been recognised in the Malawi Growth and Development Strategy (MGDS), the national blueprint for development, to be at the centre of economic development (Malawi Government, 2012). The MGDS affects all crucial development sectors the country depends on including agriculture, irrigation, forestry, mining, and tourism and it is essential that agriculture, environment, forestry, and irrigation policies take proper account of water policy.

A further barrier to implementation of policy in developing countries is inadequate funding of the implementing agency (Dkamela *et al.*, 2014; Ongolo, 2015; Kalaba, 2016). In Malawi, government staff at all levels, at the headquarters, regional, and district offices, stated that the monthly allocation of funds to their departments, referred to as Other Recurrent Transactions (ORT) was inadequate. In some case, they stated that it did not even pay for office utility bills and stationery, and yet officers were expected to carry out stakeholder engagement activities using this fund. Participants stated that this lack of resourcing had led to a lack of implementation in essential activities. As a result, many of the programmes and projects implemented in the water sector were funded by international donors under external control. This reduced the commitment of local stakeholders who then often participated only if personal gains could be made through per diem allowances, which are greatly abused in Malawi (Nkamleu and Kamgnia, 2014; Erasmus *et al.*, 2017).

Participants felt that political interference was often to blame for inadequate funding of water resources management in Malawi. Politicians were said to support activities that degraded catchments water resources because they believed this would win them votes during elections. As a result, many important water policy activities have been neglected.

In addition, government officers stated that catchment management had not been given priority in water resources management, because politicians preferred to focus on water supply and utilisation issues, such as borehole drilling, since this provided more immediate results and could gain them more immediate political support. Yet, water professionals were also aware of the fact that once catchments were not properly protected and conserved, water resources would become degraded, leading to problems in the water supply.

5.5 Summary

This chapter sought to identify factors leading to the disconnect between policy goals and outcomes by exploring the policy processes of formulation, review and implementation. As with other environmental policies, the importance of achieving the goals set for water policy cannot be over-emphasised because of its importance in human economic and social development. However, policy implementation has lagged behind processes of formulation and review.

The findings here are in agreement with previous research and confirmed there is a gap between what is required by policy and what is being implemented on the ground. Some sections of the policy and legislation which were never implemented, or were delayed, are crucial for the management of water resources. This research has shown that institutions such as the NWRA, CMCs, and WUAs developed to champion and implement integrated water resources management have not been fully operationalised despite being legally established. This has affected other vital components of water resource management such as awareness and involvement of stakeholders. Other factors identified contributing to the disconnect between policy development and policy implementation include political influence, inadequate funding, unharmonised policies, and weak institutional coordination.

Addressing the barriers to the policy processes would enhance the impacts of policy outcomes. It has been shown that resolving these barriers however requires a comprehensive and holistic approach amongst key stakeholders. A workable framework for policy implementation is paramount.

6 RURAL STAKEHOLDER ENGAGEMENT FRAMEWORK

This chapter outlines the development of a rural stakeholder engagement framework which was informed by analyses presented in Chapters 4 and 5. The background and importance of the framework is explained, followed by the method development, guided by the theory of change. Results are then presented followed by a discussion and implications for water policy.

6.1 Introduction

6.1.1 Enabling environment

Despite significant policy and legislation reviews of water management that aimed to ensure adequate stakeholder representation, evidence from Malawi shows that effective rural community engagement guidance is still lacking, particularly for those living near to or surrounding of the catchment. For instance, Chapter 4 highlighted failures in achieving meaningful inclusion of the rural community in decision-making which has subsequently led to poor implementation (Chapter 5) of water policy. However, several rural community livelihood-supporting activities threaten catchment water security. Practices such as clearing land for farming, deforestation for charcoal production, and use of trees for flue-cured tobacco have resulted in erosion and heavy silt loads in water bodies, negatively affecting water quality and quantity.

Malawi like many countries in sub-Saharan Africa water policy and legislation reforms are responding to equitable and sustainable water management challenges (Dungumaro and Madulu, 2003; Lankford and Hepworth, 2010). The reforms typically encourage the adoption of holistic approaches underpinned by the Dublin principles (Watson and Howe, 2006; Mouratiadou and Moran, 2007). Notably, the National Water Policy of 2005 and the Water Resources Act of 2013 incorporate participatory principles following the review of previous policy (Water Policy 2000) and legislation (Water Resources Act 1969) by the government.

6.1.2 The current rural engagement structures

In order to increase meaningful rural stakeholder participation, the National Water Policy of 2005 and Water Resources Act 2013 established a requirement for rural stakeholder platforms including catchment management authorities (CMAs), catchment management committees (CMCs) and water user associations (WUAs). However, CMAs and CMCs under the newly established National Water Resources Authority (NWRA) have not yet been implemented. The current structures for engaging with the rural community in the water sector are the WUAs and the water point committees (WPCs). These organisations are used by the government and other service providers such as NGOs. However, they ignore catchment conservation and protection, have not yet been established in every catchment, or are stretched beyond their capacity. Engagement through these organisations are also restricted to irrigated farming, sanitation and operation and maintenance of water points such as kiosks, boreholes, shallow wells and rural water supply schemes (public taps). In addition, current engagement structures are stretched beyond their remit or function poorly. For example, WUAs used to be primarily for irrigated farming but are now used in rural water supply management. Chowns (2015) reported that community rural water supply management through WPCs was weak and argued for improved engagement structures to be introduced. Established under the community management concept, the WPCs were expected to enhance technical and financial management of the water points. However, Chowns (2015, p.268) reported that "maintenance is almost never done, and repairs are slow and sub-standard". The committees also fail to collect sufficient fees from users to support maintenance programmes.

Weak rural institutions are common in SSA. For example, Lalika *et al.,* (2015) in the Pangani River Basin in Tanzania found that WUAs were ineffective and lacked coordination. WUAs leaders failed to convene regular meetings with its members and stakeholders; they lacked accountability for revenue and expenditures and often delayed payments for water user fees to the basin authority. In Malawi, Adams and Zulu (2015) reported that peri-urban WUAs were not effective in delivering services. They found that WUAs committees were not

autonomous from water boards thereby limiting empowerment and participation. Management of rural water points by WPCs had also proved challenging. For instance, Holm *et al.,* (2016) found that 10% of the rural population had poor access to water sources and that water points were often in poor condition despite registering high potable drinking water access and coverage at a national level. A study on the functionality of water points in Malawi by Holm *et al.,* (2015) found that only 78% were functioning; this was slightly more than the regional SSA average (64%). The poor state of repair for most pumps was due to the lack of capacity and resources for operation and maintenance committees.

In addition to the different committees (WPCs, WUAs) described above, rural community engagement in Malawi also occurs through village chiefs. Community members and service providers often criticise this type of engagement. Based on the evidence in Chapter 4, community members claimed that chiefs do not circulate information after attending meetings or workshops in which they represent their communities. As a result, the loyalty of community members to their chiefs has declined over time. Further, allowances given to the chiefs for attending such meetings or workshops have negatively impacted on the village chief's primary focus. Increasingly, many of them attend such meetings to benefit from financial incentives provided by organisers of the meetings.

Current rural community engagement mechanisms are weak and face several challenges as outlined previously. Against this background, an improved mechanism for engagement is needed to achieve water security at the catchment level. Such a mechanism will not only address participation of community members but also contribute to achieving other decentralisation benefits including quicker decision-making in the absence of the typical bureaucracies associated with a centralised management system, and increased motivation among community members through their more direct role in decision-making.

6.2 Methods

The concept of a Theory of Change (ToC) was used to guide the development of the rural community engagement framework (Chapter 3). It is an approach that was originally developed for evaluating community development programmes (De Silva and Lee, 2014). The ToC enabled rural community members to critically reflect on the impacts of their livelihood activities on water resources and to identify gaps in the current approach to rural engagement. Focus group discussions were organised and a series of in-depth interviews held with key informants to develop the ToC and engagement framework. A plan showing the tasks to develop the ToC and engagement framework is presented in Appendix F.

The development of the Toc involved specifying the following components: (i) desired goal (ii) ceiling of accountability, (iii) intermediate outcomes, (iv) preconditions, and (v) assumptions and risks (Taplin *et al.*, 2013; Breuer *et al.*, 2016). Ceiling of accountability is defined as "the level at which one stop measuring whether the preconditions have been achieved and therefore stop accepting responsibility of achieving those preconditions" (De Silva and Lee, 2014, p.13). It is often represented by a line drawn between impact and long-term outcome. The methodology is summarised in Table 6.1 . It included: 1) literature review, 2) ToC discussion workshops, 3) analysis of the ToC maps and group discussions, 4) interviews with key informants.

Table 6.1: Approach used to develop the Theory of Change and rural stakeholder engagement framework for water resources management

Step	Aim/goal	Methods	Output
1.	To gather information on catchment water management with a specific focus on the involvement of rural communities To obtain evidence of catchment degradation caused by rural livelihood activities	Literature review: contextual analysis through a literature review of relevant documents including policies, regulations, and legislation	Background report in the form of a literature review outlined in Chapter 2 Draft ToC map based on literature
2.	To create a series of ToC maps in different catchments and with different groups of stakeholders	ToC discussions workshop: ToC facilitators (researcher and research assistants) conducted four	Draft ToC maps

Step	Aim/goal	Methods	Output
		workshops with different groups of stakeholders	
3.	To develop the final draft ToC map	Analysis of the ToC maps and group discussions: workshop discussions were transcribed and analysed thematically and used to refine the drafted ToC	Refined draft ToC map
4.	To develop the rural engagement framework	Group discussions following the development of the Theory of Change	Draft engagement framework
5.	To critic and validate the ToC maps and engagement framework	Interviews with key informants: the refined draft ToC map and framework in steps 3 and 4 were presented to key informants (usually senior government officers) for their input regarding its applicability.	Final refined draft of the ToC map and rural engagement framework

6.2.1 Literature review

A detailed literature review was conducted before the fieldwork, with information screened from scientific databases including Web of Science and Scopus, specialist relevant websites such as the Center for Theory of Change (Center for Theory of Change, 2018) and relevant government documents including policies, legislation and regulations. The review aimed to understand better the development of the ToC, its use in water resources management and specific goals and objectives outlined in policies and legislation in relation to catchment management. The information gathered formed the basis for the development of the first draft ToC.

6.2.2 Group discussions and improvements in initial Theory of Change

A series of workshops were conducted between April 2017 and July 2017 in the three catchments to discuss and critique the first draft ToC. The number of participants varied from 4 to 9, with engagement sought from different stakeholder groups. These included rural community members (chiefs, extension officers, and irrigation clubs), government officers (from ministry headquarters, regional and district offices), water utility companies and NGO representatives. Within these stakeholder groups, participants were purposively sampled and

recruited based on the following criteria: (i) knowledge of water resources management for rural community participants; (ii) working in water sector or natural resources-related organisation; and (iii) willingness to take part in the group discussions.

Workshops were structured to include a brief introduction of the research objectives. The researcher presented the ToC as a generic approach and how the first draft ToC was developed. Participants were divided into small groups of 2 to 3 people to discuss each ToC component. The break-away discussions took about 30 minutes after which a plenary session followed to collect group feedback. Participants then started discussing and agreeing on the key problem - that catchment degradation was occurring and to what extent this was linked to rural livelihood activities. Unlike general discussions where views and opinions are given, in ToC workshops, the agreement of participants on the key problem is crucial as the final output is the ToC map (Gilissen *et al.*, 2018). After a series of discussions to gather individual opinions, participants agreed on the outcome they wanted which then became the final goal for the ToC. Specific conditions and pathways were identified for this to occur, working backwards to achieve the final goal. The links in the pathways were supported by assumptions outlining the conditions for specific outcomes to be achieved. At the end of each workshop, an updated ToC was developed.

6.2.3 Development of the rural community engagement framework

The development of the engagement framework followed the drafting of the Theory of Change in each group discussion. The achievement of the ToC was based on a theorised advantage that the involvement of rural communities in the formulation of policy and legislation and other catchment plans motivate them to participate in its implementation. It assumes that policymakers and service providers engage with communities. An assumption (which was referred to as a precondition in the Theory of Change) was also made that communities have established engagement structures or institutions. However, there was a consensus among participants that rural communities were not engaged by policymakers (see Chapters 4 and 5). Participants were thus asked during group

discussion to develop an engagement framework following the construction of the Theory of Change map.

Participants initially reflected on the current practices regarding engagements of rural communities in various programmes and activities including policy formulation and implementation. Participants were then asked to discuss “how best policymakers and service providers could engage rural communities in water policy formulation and implementation and other water-related programs”. The researcher then asked participants to create a procedure which could be adopted by policy makers whenever there is a need to engage with rural communities.

6.2.4 Stakeholder consultation

The final drafts of the ToC and engagement framework were reviewed by incorporating analysis from recorded discussions. The final drafts were also discussed with senior government officials using in-depth interviews. This acted as a form of evaluation and triangulation as the objective was to determine whether the steps identified in the ToC were indeed appropriate for the Malawian context.

6.2.5 Data analysis

In-depth interviews and workshop discussions were captured using a voice recorder and notebook. Data was later transferred and stored in both a computer and external hard drive as a back-up. The interviews and workshop discussions were transcribed into Microsoft Word and thematic analysis then conducted on the data. Photographs of the draft ToC maps and frameworks were also taken as a visual record.

6.3 Results

6.3.1 Theory of Change

The ToC map with its five key components is shown in Figure 6.1. While the map represents a simplification of reality, the interaction of the components is not linear. For instance, “assumptions” and “risks” are specific to achieving particular intermediary outcomes. The ToC map was also simplified to exclude indicators

for measuring the achievement of outcomes, for instance, water quality standards achieved or a number of rural people implementing a particular catchment management activity. Detailed discussion of specific interventions was not carried out because ToC development only served to identify gaps in the current engagement of rural community by policymakers and development partners. The following narratives should be read in conjunction with the ToC map (Figure 6.1).

The desired goal: Following participants' discussions and key informants consultations, the changes sought through the involvement of rural communities in water resources management were defined. The long-term change sought at catchment level was "Improved water security", and this became the desired goal. The short-term goals necessary to achieve the desired end goal were referred to as "intermediate outcomes".

The intermediate outcomes: Four intermediate outcomes were identified. These were arranged by participants to follow a specific causal pathway which was comprised of four intermediate outcomes:

Outcome 1: *"Awareness of roles and responsibilities".* This specified the need for rural communities to be made aware of their roles and the benefits they could expect through involvement in policy, legislation, strategies and formulation of rural development plans.

Outcome 2: *"Effective involvement in policy formulation".* Once the first intermediate outcome was achieved, this outcome could be achieved since rural communities become more effectively involved in policy formulation.

Outcome 3: *"Formulated policies and legislation incorporate rural community views".* With achievement of Outcome 2, this third outcome would become possible since policy would start to incorporate strategies and input from the local communities.

Outcome 4: *"Rural communities take an active role in implementing policies and legislation".* Finally, with achievement of all three intermediate outcomes, this outcome could be achieved, since rural communities would be actively involved

in policy design, and policymakers would actively consider their contributions, reflecting these in policy development and implementation, allowing rural communities to play their part in the policy cycle.

Ceiling of accountability: The causal pathway described above can only be achieved if all the intermediate outcomes are in place. However, other factors that contribute to water security also need to be in place, and the potential risks need to be mitigated. The ceiling of accountability, hence, presents the limit to which the Theory of Change can be held accountable. The assumptions that are needed to support the achievement of the intermediate outcomes and the risks that could prevent its achievement were identified.

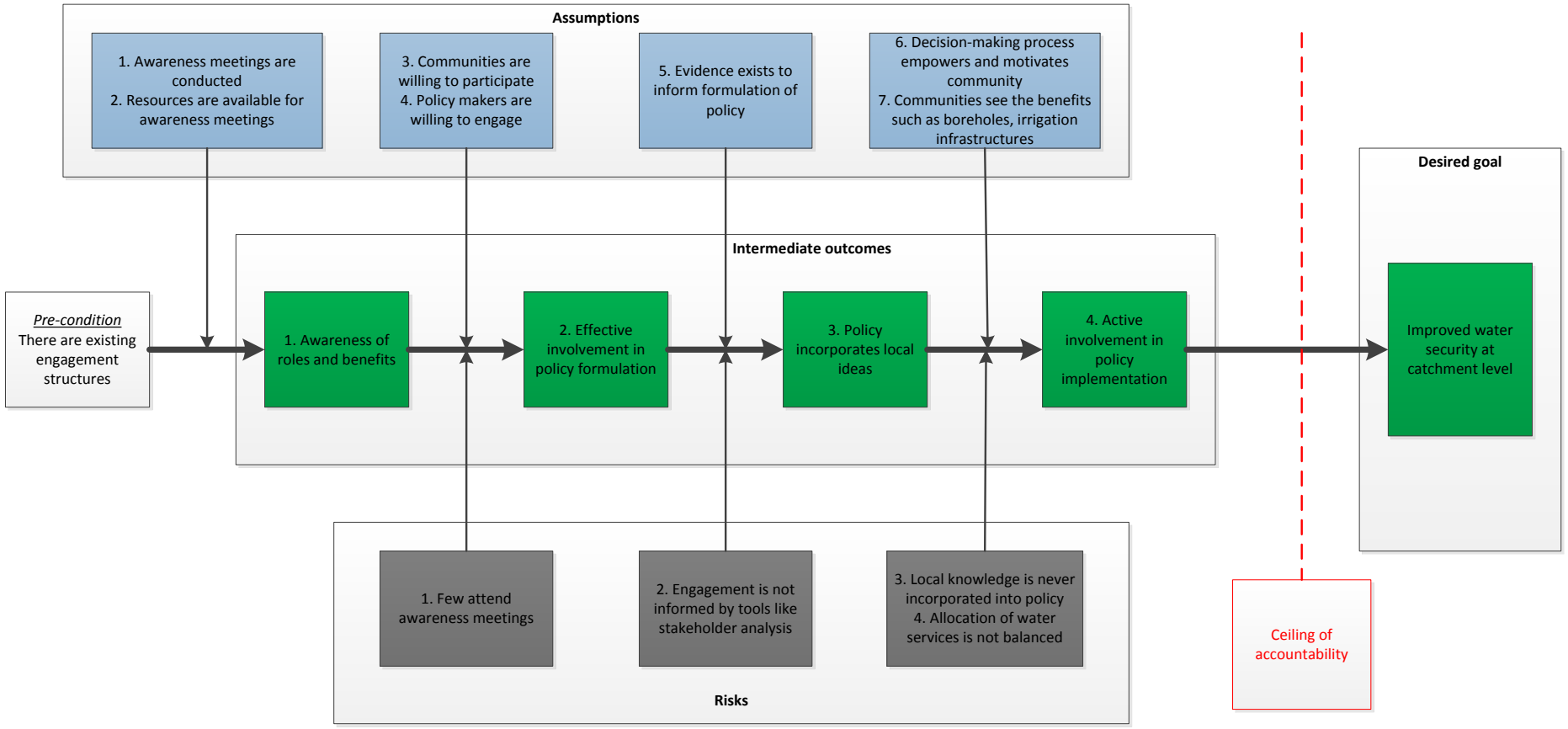

Figure 6.1: Theory of Change map developed by workshop participants showing the causal pathways through which community engagement in water policy formulation and implementation can result in improved water management at the catchment level

Assumptions: The ceiling of accountability as explained above (section 6.2) outlines the conditions for the achievement of a desired goal. In addition to the intermediate outcomes needed to achieve the desired goal; the participants also identified seven assumptions associated with the links between the intermediate outcomes on the causal pathway:

Assumption 1: "*Awareness meetings are conducted*". This is related to achievement of Outcome 1. In order to make rural communities aware of their roles and responsibility, awareness meetings need to be conducted.

Assumption 2: "*Resources are available for awareness*". This is an extension to assumption 1 because awareness meetings with rural communities could only take place if resources were made available.

Assumption 3: "*Communities are willing to participate*". With awareness meetings planned, it will take the willingness of the communities to participate for it to be implemented successfully thereby achieving outcome 2.

Assumption 4: "*Policy makers are willing to engage*". A successful awareness meeting being conducted will also be on the assumption that policy makers make deliberate efforts to engage with the community.

Assumption 5: "*Evidence exists to inform policy formulation*". Once awareness meetings provide necessary knowledge on policy, local communities will be encouraged to contribute to policy deliberation with suggestions that are relevant and valid to address pressing problems.

Assumption 6: "*Decision-making process empowers and motivates community*". Once policy formulation exercises incorporate local ideas, the community will feel empowered to take part in policy implementation programmes.

Assumption 7: "*Communities see the benefits such as boreholes, irrigation infrastructure*". Local communities will further be motivated to implement the policy when they are provided with water services depending on their need.

Risks: In addition to the assumptions four risks were also identified.

Risk 1: "*Few attend awareness meetings*". The success of awareness meetings depends on who and how many attend it.Low attendance poses a risk to achieving the objective of awareness meetings.

Risk 2: "*Engagement is not informed by tools like stakeholder analysis*". Effective involvement will depend on the right tools being used for engagement of stakeholders.

Risk 3: "*Local knowledge is never incorporated in policy*". The motivation of local communities to implement policy could be affected when communities see that their suggestions were not considered.

Risk 4: *"Allocation of water services is not balanced*". In addition to omitting local suggestions in policy formulation, inappropriate water services delivery could limit people's willingness to participate in the implementation of the policy.

6.3.2 The proposed rural community engagement framework

Building on the ToC and preconditions ('there are existing engagement structures'), participants proposed a mechanism for engaging with the rural community, in order to address gaps in existing engagement procedures (Section 6.1.2). The proposed engagement framework is presented below:

The framework represented in Figure 6.2 was proposed which would not only consider actual engagement but also address organisational structures. It is divided into four stages: (1) Reconstruct (2) Evaluate (3) Facilitate and (4) Engage. At stage 1, participants noted that it is ideal to define the purpose of engagement. A clear definition of the purpose of engagement would make it easier to align engagement methods with levels of participation. Not all activities or programmes require the involvement of all community members and similarly may not all demand the same level of participation. In the second stage, participants noted that many rural communities might have different existing organisational structures which mostly are ineffective. Where existing organisational structures are effective participants agreed that trying to form another structure may only complicate the engagement process. Unless the existing organisation is ineffective or there is no such an organisation, an agency

may facilitate (Stage 3) the establishment of an organisation. However, participants observed such facilitation should be carried out with caution to make sure community members take control of elections. Finally, engagement can be carried out informed by the purpose defined in stage 1.

In addition, participants proposed two options for engaging with the community: community conversation and reflect circles. Participants noted that community conversation and reflect circles could not appropriately address the gaps in the current engagement mechanism. They are suited where a structure exists (David and Sara, 1996; Knifton *et al.*, 2010) as such they are not addressing the challenges of weak or unavailability of institutions and leadership. Instead, they are a means of communication. These options include (i) community conversation, an approach to engaging local communities which allows local people to discuss common problems which affect them and propose solutions to address the problems, and (ii) reflect circles, which constitute a similar approach to community conversation but involves community members gathered to learn and discuss issues affecting their lives.

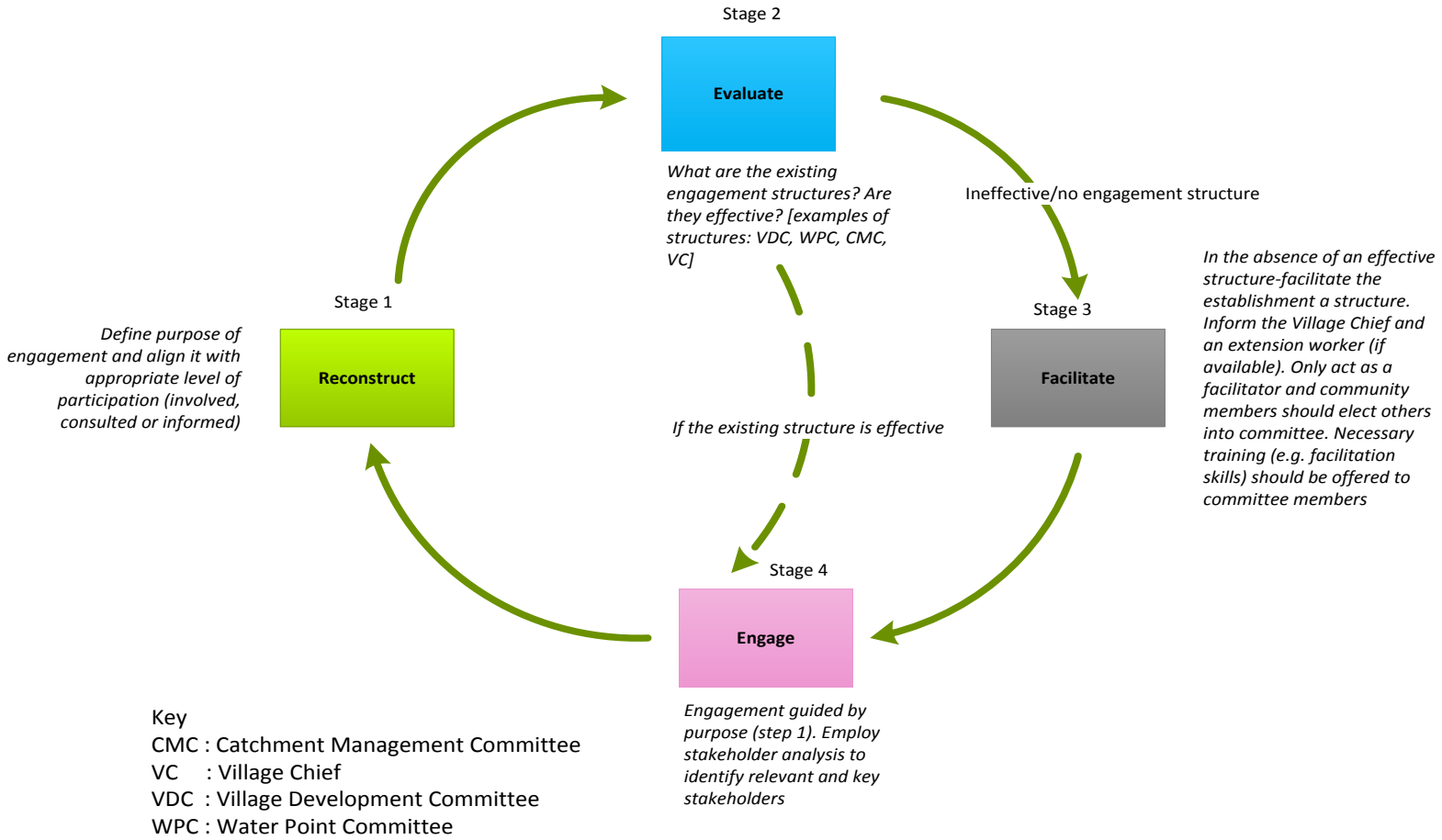

Figure 6.2: Engagement framework developed by workshop participants showing how policy makers and service providers should engage rural communities in water resources management at the catchment level

6.4 Discussion

6.4.1 Mapping the gaps in rural community engagement

The ToC was developed mainly for two broad purposes: (a) to focus on how programmes can bring change and (b) to explore how change has happened (James, 2011). However, in practice, ToCs are used in various ways including to depict development programme theory (Kneale *et al.,* 2015), communicate review findings, and guide the development of programmes or interventions (De Buck *et al.*, 2018).

The ToC developed in this research outlines how engagement of rural communities in policy formulation would contribute to the desired goal of improved water management at a catchment level when they actively participate in implementing the policy and regulations. Previous studies have shown that involving stakeholders in the formulation of policy and legislation ensures their continued participation during the implementation phase (Dungumaro and Madulu, 2003; Stirling, 2005; Ross *et al.*, 2009; Devine-Wright, 2011; Wanda *et al*., 2014). The ToC is context specific in that it addresses specific challenges and focusses on how particular interventions (policy formulation and implementation) may bring change (Vogel, 2012; De Buck *et al.*, 2018). However, it is a simplification of the complex situation (Baxter *et al.*, 2014; Kneale *et al.,* 2015) considering that water security is not only affected by governance (Batchelor, 2009; OECD, 2015) but also other factors such as climate change and population growth (Vörösmarty *et al.*, 2010b).

The ToC map key processes starting with general awareness which increases community knowledge in water resources management and active involvement in policy implementation. Active participation in natural resources management has been shown among the rural community to enable and instil a sense of ownership which ultimately enhances sustainable natural resources management (Ostrom, 1990; Cox *et al.,* 2010). The ToC further explains circumstances or environment (assumptions and risks) under which the outcomes can be achieved. For instance, active participation of the rural

community in implementation as outcome 4 may be achieved assuming that the community is empowered and motivated through decision-making processes and when they perceive equal allocation of water resources. The risk to this causal relationship is when allocation of water services is unbalanced. This is mostly caused by the 'elite capture' where the few people with power and influence usurp the benefits of the whole community (Platteau, 2004; Iversen *et al.*, 2006; Dasgupta and Beard, 2007). It was very crucial to recognise this risk since communities are not homogenous (Mostert, 2003; Warner, 2006; Wood, 2008; Knifton *et al.*, 2010; Anokye, 2013; Rusca and Schwartz, 2014b; Adams and Zulu, 2015) and existing power differences may affect their response to development.

The ToC was developed in a participatory manner by encouraging involvement from different interest groups. This not only ensured that the ToC was relevant but also allowed an exchange of ideas thereby promoting social learning (Mostert *et al.*, 2007). Despite the ToC mainly reflecting the ideas of those involved in its development (as there could be other outcomes, assumptions and risks for achieving water management), it represents the most feasible and relevant context-specific intervention. In addition to outlining the causal relationship of the intermediate outcomes, the ToC has highlighted gaps in current participation practice. The precondition for successful engagement requires that existing engagement structures are active and act as a contact point for policymakers and service providers to engage with the community. With evidence of flaws in community participation (Chapters 4 and 5) reforming the current engagement mechanisms is crucial to achieving water management at the catchment level.

6.4.2 The engagement framework

A community engagement framework was developed to deal with the participation of the rural community from the planning of engagement including the establishment of the community institutions to actual engagement. It consists of four stages: reconstruct, evaluate, facilitate and engage. Activities in each of the stages incorporate key principles of stakeholder engagement.

The first stage deals with defining the purpose of engaging a community. This element is mostly missing in the current engagement practice. However, it is crucial for designing an effective engagement programme. It helps in mapping the boundary in terms of whom and how to involve (Reed *et al.*, 2009; Reed and Curzon, 2015). The second stage establishes appropriate platforms as engagement does not take place in a vacuum. It endeavours to evaluate the context in which engagement will take place: the capacity and particular functions of the engagement structures. In this way, it avoids the current challenge where the available community organisations (WUAs, WPCs) are mainly concentrating on irrigation farming and rural water supply and not on catchment conservation. This stage also avoids problems of establishing numerous institutions in a community which may end up creating confusions and conflicts, especially regarding their eligibility. The third stage deals with facilitating the establishment of the institution. It is vital that the community itself controls this process. This would encourage members of the community to be loyal to the committee and adhere to its rules and regulation. Rusca *et al.*, (2015) in Malawi reported instances where community members expressed ignorance of the organisation which may have been established by an NGO. Such an organisation struggled to operate. Therefore, allowing the community to elect its people into positions of power does not only empower the community but also allows establishing a context-specific organisation. However, Rusca *et al.*, (2015) warn of community members unknowingly electing the elites into positions. The government agency facilitating the establishment of the community organisation, therefore, should make sure the inherent social inequalities or local elite power capture is minimised (Kamoto *et al.*, 2013). The fourth stage is engagement

Previously, engagement frameworks have been developed such as that of Du Toit and Pollard (2008). Most frameworks focussed on general public engagement. However, this framework mainly focussed on the rural community as being a critical group ensuring water management. Du Toit and Pollard (2008) developed a framework based mainly on the tasks of a government agency, Catchment Management Agency (CMA). In this regard, the framework assumed that the public is already organised in a way that it can be effectively engaged.

This is not mostly the case especially in rural areas in Malawi. There are many factors which affect community organisations rendering them weak and unable to provide the community mobilisation role (Chowns, 2015; Lalika *et al.,* 2015). It was established that in most areas community organisations (engagement structures) such as WPCs, WUAs are not effective and in some cases, they do not exist. Further, Malawi is yet to comprehensively operationalise the Water Resources Act 2013 by establishing basin authorities (CMAs) and CMCs) under the NWRA.

This community engagement framework also recognises that different programmes or activities require different levels of participation. In this regard, the framework encourages using tools like stakeholder analysis or mapping (Reed *et al.*, 2009; Reed and Curzon, 2015), stakeholder engagement wheel (Mott Lacroix and Megdal, 2016) and spectrum of participation (Du Toit and Pollard, 2008; IAP2, 2017). These tools, for instance, stakeholder analysis define who are stakeholders of a particular intervention or programmes and prioritise stakeholders for engagement in decision-making processes. This exercise should be carried out in line with the established purpose of engagement suggested under 'Reconstruct' stage. By matching the purpose of engagement, level of participation and stakeholder type, the framework overcomes the common demerits of participation as an expensive, stakeholder fatigue and time-wasting undertaking (Irvin and Stansbury, 2004; Burt *et al.*, 2007; Evans and Reid, 2013).

6.5 Summary

The desired goal resulting from the involvement of the rural community in water resources management was identified using ToC. Most importantly it informed the development of rural community engagement framework by identifying gaps in current engagement mechanisms. Through the framework, appropriate engagement mechanisms (community organisation and engagement procedure) will ensure that rural communities are involved and achieve water management at a catchment level.

The framework is unique regarding its focus. Rural communities play critical roles in the protection and conservation of catchments hence their effective participation in water management cannot be overemphasised. Further, while existing community organisations such WUAs, WPCs only concentrate on irrigation and water supply and sanitation, the framework aims to guide in the establishment of community organisations which deal with some water-related programmes and activities. The framework is similar to other public participation frameworks in matching levels of participation with a particular task a government agency or other water service providers wish to embark in a catchment.

The proposed framework comes at the right time as the proposed catchment organisations (CMAs, CMCs) under the NWRA are not yet in place. The framework would thus help NWRA in establishing its catchment institutions. While the Water Resources Act of 2013 gives power to the NWRA and the community in establishing catchment institutions independently, the framework recommends that such exercises should be undertaken jointly. This will avoid current problems where community members are not aware of the institutions, and consequently, its leadership is challenged. The framework does not prescribe the name of the organisation or type but emphasises the functions. In this case, existing institutions which are effective may be easily incorporated.

7 DISCUSSION

This chapter critically reviews and assesses the research reported in Chapters 4 to 6 and the broader implications for the research. Firstly, the practice of rural stakeholder engagement by policy makers and service providers is discussed including barriers to stakeholder engagement. The benefits of stakeholder engagement on the policy process and the framework for engaging local communities in water resources management are then reviewed. Finally, areas of further research are suggested and limitations of the research project are outlined.

7.1 Rural stakeholder engagement in Malawi

7.1.1 Appraising the current situation

In Malawi, like many other countries, water policy, legislation and regulation have been reformed and guided by the underlying principles of IWRM (Mkandawire and Mulwafu, 2006; Chiluwe and Nkhata, 2014). Within IWRM, public participation is one of the key elements (Neef, 2009). Empirical evidence gathered in this research showed that stakeholder engagement practice does not reflect the requirements within Malawi's water policy and legislation. Stakeholders interviewed confirmed that they had not been appropriately engaged in the process as might have been expected. Government officers, NGOs, and water utility companies with a mandate to engage stakeholders (including rural communities) also acknowledged that current practice does not follow policy and legislation. This has led to low levels of effectiveness of the IWRM concept in achieving its intended objectives regarding stakeholder engagement.

Despite its widespread popularity, IWRM has been widely criticised particularly in the context of its implementation (Varis *et al.*, 2014). Several studies (Biswas, 2004, 2008; Van der Zaag, 2005; Grigg, 2014) highlighted problems with IWRM practice due to difficulties experienced in integrating different issues such as water supply and demand, water quality and quantity, water and land-related issues, and different and competing uses. Biswas (2004) argued that there were

no agreements among IWRM proponents on what exactly should be integrated let alone on the interpretation of the word ‘integration’ which itself has numerous different connotations. Furthermore, Grigg (2014) noted that IWRM is open-ended as and does not outline how it works in practice which have created challenges in the IWRM operationalisation (Hailu *et al.*, 2018). For instance, in Brazil, Ioris (2008) reported that under-estimation of social inequalities and political asymmetries by policy reforms led to IWRM failure, whilst in the USA Grigg (2014) reported that water resources managers did not fully embrace the concepts of IWRM. In Ghana, Mersha *et al.*, (2016) reported on a conflict between IWRM objectives for integrating all water uses and sectors and water service delivery prioritization, whilst in Ethiopia, Hailu *et al.,* (2018) and Mersha *et al.*, (2016) attributed IWRM shortcomings due to institutional failure and lack of political commitment. In Southern African states, Swatuk (2005) reported many shortcomings with IWRM-based reforms: it failed to devolve power from the government to other stakeholders appropriately; rural communities were not adequately informed, and the elites dominated participation in decision-making.

Lankford and Hepworth (2010) also questioned the rationale for implementing water management reforms in sub-Saharan Africa which whilst they may have worked well for different conditions in Europe, in a complex under-resourced environment in Africa it has mostly failed. Particularly with stakeholder engagement, UNEP's (2012) global assessment found little progress has been made in translating stakeholder engagement in policy into practice and reported that the slowest progress had been made in African countries. Because of these challenges, other authors have suggested alternatives such as Polycentric Water Resources Management (PWRM) (Neef, 2009; Lankford and Hepworth, 2010) which is more decentralised at the catchment level. This concept is argued to increase local or community ownership and decision making which IWRM currently fails to achieve because of its emphasis on a centralised regulatory authority.

Irrespective of the arguments for or against particular water management concepts, this research has found that rural stakeholder engagement is

fundamental to most development activities in rural areas. Indeed Biswas (2004) advocated for collaboration among different institutions and stakeholders in managing water resources which call for the active participation of various stakeholders. Most of the stakeholders interviewed in this study had little knowledge of national water policy, legislation, regulations and catchment guidelines. Yet most held critical roles, especially the district office, in implementing water policy and legislation either directly for those under the Department of Water Resources and water utility companies or indirectly under other departments such as Forestry, Agriculture and Irrigation. More particularly local communities are custodians of the catchments and key stakeholder group for implementation of the policy or legislation on the ground. These, however, had little knowledge of water management as dictated by the water policy and legislation. Some practised catchment degrading activities such as charcoal burning because they lacked knowledge. For these reasons, rural stakeholder engagement should be more central to water management, especially at the local level. It, therefore, supports calls for stakeholder engagement to be implemented at all levels of water management.

The benefits of stakeholder engagement in water management have been reported in numerous studies. It is useful in planning (Nutters and Pinto da Silva, 2012; Sayce *et al.*, 2013; Brown *et al.*, 2016; Keijser *et al.*, 2018), knowledge co-production or research (Eden *et al.*, 2016; Graversgaard *et al.*, 2017), social learning (Ballester and Mott Lacroix, 2016; Libanio, 2018), monitoring (Nikoo *et al.*, 2016), co-financing partnership (Thale and Priest, 2016) and enhanced decision-making (Fink and Gober, 2009). In essence, stakeholder engagement is viewed to be an essential part of water governance (OECD, 2015; Akhmouch and Clavreul, 2016; Akhmouch and Correia, 2016).

In this study, an analysis of the responses from different stakeholder groups showed that the government least engaged with rural community members in the process of water management. Often community members reported that engagement was in the form of general awareness, typically when the Department of Water Resources or Irrigation sensitised local farmers or water

user associations regarding water rights acquisition and annual water rental fee payments. Using the spectrum of stakeholder engagement (Arnstein, 1969; Luyet *et al.*, 2012; Cundy *et al.*, 2013; Reilly *et al*., 2016) (Section 4.4.2), this is considered as the lowest level of engagement as the information is only passed from government to the community. In the ladder of participation, Arnstein (1969) classified this as 'non-participation'. Nevertheless, the National Water Policy (2005) and Water Resources Act (2013) have specific provisions to promote active participation of local communities. For instance, the Water Resources Act (2013) established catchment institutions such as Catchment Management Authorities or Committees and Water Users Associations (Parts III and XIII, respectively) to increase the participation of rural stakeholders (Malawi Government, 2013b). Furthermore, the government recently has developed national guidelines for integrated catchment management and rural infrastructure which also focusses on increasing the participation of rural community (Malawi Government, 2015d).

7.1.2 Factors preventing rural stakeholder engagement

Stakeholder engagement was found to be mostly limited to information provision and consultation. The low level of participation reported in this study corroborates with other studies in the region. For example, Xavier *et al.*, (2017) in their research of participatory governance in the energy sector in South Africa, reported that public involvement was concentrated at the stages of information and consultation.

Various factors (Section 4.3.3) were identified during the fieldwork which were found to limit participation of rural stakeholders in water resources management. These were grouped using thematic content analysis into seven themes (Table 4): corruption, socio-cultural factors, inadequate resources, lack of commitment, poor coordination, resistance to change and a weak regulatory framework. Factors were found to affect rural stakeholder participation either directly or indirectly (Figure 4.3). This was the case as engagement has two parties: those to be engaged (rural communities) and those required to engage (policy makers, service providers). Direct factors affected the willingness and ability of rural

stakeholders to participate. For instance, poverty, land unavailability or land tenure system, cultural beliefs will determine whether an individual member of the community will participate in a catchment management project. Indirect factors including engagement methods, political will or ineffective coordination among policy makers and service providers have an indirect effect on participation by rural stakeholders.

The factors identified in this research were similar to those reported in other studies including lack of political will (Akhmouch and Clavreul, 2016; Ballester and Mott Lacroix, 2016; Libanio, 2018), leadership (Niedziałkowski *et al.*, 2018; Nita *et al.*, 2018), resource constraints (Lankford and Hepworth, 2010; Neysmith and Dent, 2010; Van Koppen *et al.*, 2012; Soubliere and Cloutier, 2015), people's cultural beliefs (Faruqui *et al.*, 2001; Pahl-Wostl *et al.*, 2008), institutional fragmentation (Rollason *et al.*, 2018), and poor communication and collaboration (Higgins and Shackleton, 2015).

Other factors identified, however, were new from this study. For example, while payments of allowances for participation in meetings or workshops have been reported elsewhere and in Malawi (Nkamleu and Kamgnia, 2014; Erasmus *et al.*, 2017), this has been mainly for salaried government officers (Smith, 2003). However, this research found that rural community members ignored catchment management activities which did not offer "financial benefits" and payments had to be intentionally offered to motivate participation. Indeed, rural communities in Malawi have started to view payments as a prerequisite for participation. Interviews with key informants showed that this is a new phenomenon as in the past people used to volunteer to participate in development activities including water resources management. It was also noted that offering financial incentives started with NGOs attempting to implement development programmes. During the fieldwork, NGO representatives admitted giving out payments to motivate rural community members to participate in their programmes. This was "to buy participation" so that reports to the donors were satisfactory and they could continue receiving financial assistance for their projects. They highlighted that there was considerable pressure from donors demanding results. The case in

Malawi explains the danger of introducing initiatives in an area without clearly understanding the context and evaluating its long terms impacts.

7.2 Benefits of rural stakeholder engagement in the policy process

Current policy and legislation aim to encourage stakeholder engagement at all levels including national, regional, district and local office levels. For example, the new water management authority, the National Water Resources Authority (NWRA) was designed to have representation at national, regional, district or catchment levels. The establishment of several structures and committees within the NWRA reflects the importance of various stakeholders beyond government officers. However, a detailed review of the Water Resources Act (2013) concerning the governing body of the NWRA casts some doubt as to whether the voices of stakeholders other than government officers will be taken into consideration. According to Article 8 of the Water Resources Act (2013), the governing body of the authority is composed of 13 members, with nine being senior government officers. As decisions are made through votes, there is a high probability that the interests of the senior government officers will prevail.

Further analysis showed that most policy articles, principles and strategies have either not been implemented as planned or completely ignored (Table 5.4). Gutierrez (2007) assessing delivery of water and sanitation services in Malawi and Zambia reported that the poorly defined role of water and sanitation in poverty reduction leads to a lack of prioritisation of making policy choices. Thus, while the policy supports stakeholder engagement, there is inadequate commitment from the government to implement it fully.

Nevertheless, stakeholder engagement is critical in the formulation and implementation of natural resources management policies including water due to its common access characteristics as a “common good”. Water resource is non-excludable and rivalrous as individuals cannot be effectively excluded from using it and at the same time individual use affects its availability for the other (Birol *et al.*, 2006). It has diversified actors and institutions which often overlap (Varis *et al*., 2014). The diversity of actors in many of the natural resources including water

resources demand democratic decision processes in policy making (Costanza *et al.*, 2017). As a shared resource if individual users act independently, it leads to degradation or depletion of the resource, referred to as “The Tragedy of the Commons” (Hardin, 1968).

A lack of stakeholder engagement in the policy process can bring about what Brugnach *et al.*, (2010) referred to as ‘policy uncertainty’. Most policymakers assume rural stakeholders cannot constructively contribute to policy discussions. They consider the policy process exercise as being highly technical. While scientific knowledge is considered vital in this process, other considerations are equally important including the views of stakeholders. The diversity of stakeholders in water resources management means different problems and solutions which can have a tremendous impact on the policy process. Stakeholder engagement ensures a democratic decision-making process. In particular, for local catchment communities, involvement in policy formulation can enhance their participation during policy implementation.

7.3 Improving rural stakeholder engagement

7.3.1 The Theory of Change

This research has established that the rural community forms a critical group of stakeholders to improve water management at the catchment scale. Government officers and service providers acknowledged failure to engage the rural community effectively. Community-level organisations such as Water Point Committees and Water User Associations established following rural water sector reforms in the 1990s (Schouten and Moriarty, 2003) were not active in catchment protection and conservation. This is because both were established to serve water supply and sanitation (Laisi, 2009) and catchment protection and conservation were beyond their remit. This study shows that these institutions still focus predominantly on water supply and sanitation.

Other institutions established under the Community-Based Natural Resources Management (CBNRM) approach (van Koppen *et al*., 2007; Schnegg, 2016) such as Village Natural Resources Management (VNRM) are most active in fisheries,

forestry and wildlife management (Jones, 2004; Blaikie, 2006; Zulu, 2012; Kamoto *et al.*, 2013). Over the years, the CBNRM concept has also faced economic and political challenges weakening local leadership to mobilise the community members (Kayambazinthu, 2000). While it can be argued that forest management in principle protects the catchment for water security, most of the institutions for forestry management have not been developed from that perspective. In fact, in Malawi, forest management aims to conserve, establish, protect and manage trees and forests for sustainable development (Malawi Government, 2016). The current National Forest Policy (2016) does not particularly recognise the roles the department of water resources play in its implementation. Indeed the lack of cooperation between government forestry and water departments identified in this study is evidence that programmes at the operational or local level are not complimentary and that there are still gaps in terms of policy harmonisation (Chipofya *et al.*, 2009). The lack of appropriate rural stakeholder engagement for catchment protection and conservation risks the ability to realise the potential benefits in ensuring water security. Against this background, this study informed by the ToC developed a framework to enhance the engagement of rural communities.

The ToC aimed to describe how rural stakeholder engagement could be mobilised to improve water security at the catchment level. It showed the impact of ensuring water security at a catchment level following a series of carefully planned outcomes resulting from different interventions. One of the assumptions in the ToC was the involvement of rural community across the policy processes. The policy process itself (Birkland, 2016) also connotes the involvement of stakeholders. For instance, problem formulation would be more rigorous if views of different stakeholders are included. Equally, later steps such as implementation would be effective with the involvement of stakeholders.

During the development of the ToC, it was observed that two elements were vital for rural community involvement: (a) community structures and (b) how policy makers, decision makers and service providers carry out the engagement process itself. While community organisations such as Village Development

Committees or Area Development Committees have been in existence since enactment of the decentralisation policy (Malawi Government, 1998a), these have not been effective. Neil *et al.*, (2014) reported that in many parts of Malawi, they do not serve the rural communities by participating in decision-making processes at the local level but continue to report upwards where decisions are then made. They also noted that these organisations do not exist in many places, in contrast to what is reported by the government. Where community organisations exist, this is mostly in response to developmental activities linked of other sectors such as health and education.

One reported reason for this was that communities could not see immediate benefits for catchment protection and conservation while benefits for involvement in other activities in health and education, such as a school or health facility being constructed, were more tangible. For water resources, water points were the obvious benefits. A lack of water points, in particular, was found to demotivate communities from participating in catchment protection and conservation activitiesthey considered water points as the primary benefit. The ToC therefore recommended that the communities are well sensitised to all the benefits including the provision of water points before local communities could be engaged to participate in catchment protection and conservation.

7.3.2 Community engagement framework

The proposed engagement framework for rural communities in Malawi has similar features to other engagement frameworks, such as those developed by du Toit and Pollard (2008) and Mott Lacroix and Megdal (2016). It is similar in that the steps for engagement are iterative as in the ‘Engagement Wheel’ (Mott Lacroix and Megdal, 2016). However, it is unique in that it recognises that existing organisations which might be used, such as VDC, WPC and CMC, have pre-existing objectives. It, therefore, seeks to evaluate the capacity of such organisations to fulfil catchment protection and conservation functions. It does not assume that there are existing organisations through which stakeholders are organised to participate in watershed management.

The framework is envisaged as a cyclic form reflecting its iterative nature. The first stage 'Reconstruct' defines the purpose of engagement. It is at this early stage that the level of engagement is defined. Initial involvement of the rural community could be at one all of three levels in so far as stakeholders could be: informed, consulted, or involved (Reilly *et al.,* 2016). This three-level approach is practical and straightforward and identifies levels of stakeholder involvement as well as steps in the overall engagement process. Thus, policy makers or service providers might opt to inform the community of a particular issue, consult them on that issue, or involve them in improved catchment management. Policy makers could also opt to go through all three steps. Through this research, it was evident that most community members interviewed sought at least some level of engagement from the government and other service providers.

The second stage seeks to evaluate existing rural organisations to avoid duplication of effort and activities. If existing organisations are suitable and effective, stakeholders can be engaged through these, and the process can by-pass Stage 3: 'Facilitate' and move directly onto Stage 4. If there are no institutions, in Stage 3, policy makers or service providers act as facilitators to help the community establish a rural-based institution. For water resources management, such institutions have already been legally established and supported in the Water Resources Act (2013) (Malawi Government, 2013b).

Stage 4, "Engagement" is the final stage when policymakers are sure that their engagement will be effective. During interviews, it was noted that engagement was carried out without consideration of different stakeholders and level of participation applied. This, in turn, weakened the process and full benefits were not realised.

While this framework was developed with stakeholders and later revised through discussions with key informants, it forms the basis of a process for engagement with rural communities in water resources management. Policy makers and service providers using the framework must however have the appropriate facilitation skills and training at each stage of the process to engage effectively with the rural community. These skills are especially important where new rural

organisations need to be established. For example, existing organisations may have been rendered ineffective due to its poor formulation, or because community members feel that these organisations have been imposed on them, they consider the institution not legitimate. Further, knowledge of stakeholder engagement is key. This is useful in working with different stakeholder engagement tools such as those for identification and categorisation of stakeholders.

7.4 Further research

This study generated useful insights into the engagement of the rural community in water resources management. However, the following areas for future work are identified.

- This research identified various factors which limit the participation of rural stakeholders in water resources management. It has shown that these factors are interlinked. This is an important insight which would help reduce the impact on the overall engagement of rural stakeholders and should be explored further. Specific future investigations should consider the extent of this interlinkage between different factors.

- The research has also proposed a framework on how best rural community can be engaged. While this is an important step towards inclusion of rural communities in water resources management, future research may consider evaluating the framework in other catchments and regions in SSA.

- Due to limited resources (time and money) the research was conducted in three out of 17 catchments in Malawi and hence the evidence presented in based on those particular catchments. While careful consideration was given in choosing case study catchments to achieve representativeness, further research may consider covering many other catchments within Malawi and other regions in SSA.

7.5 Limitations of the study

This research was conducted in three catchments in Malawi which were purposely selected. Two field missions were undertaken each covering approximately three months. Qualitative case study approach was used in data collection, analysis and interpretation. Inherent limitations of the qualitative approaches are the inability to generalise and replicate the findings to the broader population (McLeod, 2008). However, the goal of qualitative research is 'nature not number' (Lewis and Ritchie, 2003, p.277). Thus, inference concerns analytic generalisation rather than data prevalence, or statistical distribution (Lewis and Ritchie, 2003a; Yin, 2009) is critical in qualitative research. Indeed the goal of this research was not to provide an accurate picture of the general population but in line with case study research to answer questions of 'how' and 'why' (Rose *et al*., 2015). Although the research was conducted in three different catchments comparison of the findings among them was similar. In all catchments, the same groups of stakeholders were interviewed. The correlation of the findings among the case study catchments increased the generalisability and transferability of the results to other catchments within Malawi. However, the context may change if results were generalised in another country. Another limitation to consider is the longitudinal aspect of data. Data collection was limited to approximately three months which may be shorter. It also involved less number of participants. If the research is replicated, the findings may vary depending on the size of study participants and duration of data collection.

7.6 Research implications on policy

This research was conducted on the understanding that stakeholders mainly rural community would contribute to the improvement of water resources management at the catchment level. Catchments are highly degraded based on the literature reported and the researcher's observation and experience. This section drawing on the empirical evidence gathered in this research proposes the following as possible solutions and new insights that the government may pursue to ensure improved water resources management:

Collaboration among water sector organisations: There is a need to improve collaboration among water sector organisations to leverage on the capacity (human and financial resources) particular organisations may provide. Despite adopting IWRM, evidence in Chapter 4 shows that Malawi still lacks collaboration among different organisations providing services in the water sector. However, IWRM approaches encourage collaboration among different stakeholders.

Use of appropriate methods for stakeholder identification, categorisation and engagement: The government and other stakeholders in the water sector should use tested and proven method to identify stakeholders to include while undertaking various activities and programmes. This would ensure that all relevant stakeholders are considered.

Timely and objectively review of the policy, legislation and regulation: There is a need for the government to update policy, legislation and regulation at an appropriate time and objectively. This would avoid cases of using old legislation and regulation which are not only outdated and not fit for the prevailing conditions but also avoiding using policy instruments which are not prohibitive because penalties are too low.

Adopting the proposed rural stakeholder engagement framework: This research has shown that current procedures of engaging rural community are not effective. The government and other water service providers are encouraged to adopt the proposed engagement framework to ensure rural stakeholders are effectively engaged in water resources management.

8 CONCLUSIONS

This final chapter of the thesis highlights the key insights from the research and relates them back to the aim and objectives. It further reflects on the work presented in the first two chapters of the thesis (Introduction and Literature Review). This reflection helps to re-establish the connection between existing water resources management theory and practice.

8.1 Summary of the insights and research aims

Water resources management approaches or concepts such as IWRM have been widely adopted (Hassing *et al.*, 2009) more particularly in developing countries. Its popularity lies in the participatory nature which is one of the preferred attributes in development claiming it ensures efficiency and effectiveness (Cleaver, 1999). While participation has been the subject of discussion as regards to its benefits based on who participates and its purpose, this study argues that participation of local community on catchment management is critical. Often community members who did not take part in catchment conservation or protection activities cited that they are not involved in programmes implemented in the catchment.

IWRM as a concept has however been previously criticised for failing to achieve its intended outcomes due to difficulties in its operationalisation (Van der Zaag, 2005; Biswas, 2008; Mollinga, 2008; Rusca and Schwartz, 2014). In terms of participation, IWRM supports creation of new institutional/organisational structures which are envisaged to efficiently and effectively manage water resources. However, in so doing, the IWRM concept encourages formation of institutions based on generic models (Rusca *et al.*, 2015) or generalised ‘design principles’ which Cleaver(2002) refers to as bureaucratic arrangements. These arrangements have often failed to achieve its intended outcomes, particularly on participation of rural community members. This study supports Cleaver's (1999, 2002) ‘socially embedded institutional arrangements’ which consider the existing culture, social organisation and daily practice. These institutions, according to

Cleaver (2000, p.381) “evolve through multiple processes involving both conscious and unconscious acts, unintended consequences and a large amount of 'borrowing' of acceptable pattern of interaction from sanctioned social relationships”.

While developing an engagement framework to enhance rural community participation in water resources management in this study, community members expressed concerns with institutions which are mostly initiated by donor organisations or ‘outsiders’ without comprehensively involving them. Rusca *et al.*, (2015, p.779) noted that these “institutions are not developed through an internal process of bricolage but imposed externally’. Community members often did not participate in meetings organised by such institutions as they viewed such as illegitimate institutions.

This study argues that local institutions have always existed, and it is imperative that when applying IWRM concepts consideration should be given at fully understanding existing conditions. While this research did not directly look at alternatives of IWRM as a concept, its findings support Lankford and Hepworth (2010) ‘polycentric river basin management’ approach which advocates for local informal and reflexive legal institutions and norms. With ‘polycentric river basin management’ which is decentralised in nature, local communities have more chance to agree on their own rules and regulations including forming institutions which can be considered legitimate.

Finally, this study has also unveiled some misfits between policy and practice. While participation of local community is considered essential, this study has further noted that effective catchment management goes beyond mere involvement. Land tenure system and property rights greatly affect catchment management. In most areas particularly forests, land ownership or land tenure system are not very clear and hence local community were not obliged to protect it. In some catchments land unavailability forced local communities to farm in protected forests. Catchment conservation practices such as preserving buffer zones along riverbanks and tree planting were not done because of land unavailability. Water policy and other related regulation formulation should

therefore consider incorporating issues of land tenure system, property rights which are rarely considered.

8.2 Main insights generated from the study

The following section highlights the achievement of the individual research objectives as explained mainly in Chapters Four to Seven.

8.2.1 Objective 1: To critically review the formulation process of water policy and legislation with respect to stakeholder engagement

This study found that stakeholders were superficially engaged in water policy and legislation processes. The level of engagement varied among different stakeholder groups. There was some engagement among most stakeholder groups except the rural community who were rarely involved. The findings contrast with the recommendations of the relevant Malawian water policy and legislation which support participatory approaches following reforms informed by regional and international trends. The findings support previous literature which highlighted failures of policy implementation. Policy and legislation were only reformed to conform to international and regional standards, but there has been less commitment by the national government to implement it.

8.2.2 Objective 2: To identify the stakeholders in rural water supply and management and determine their roles in water policy formulation, development, and implementation

Water policy processes were evaluated in how engagement took place, i.e. who were the stakeholders? How were they identified and categorised? Why were they particularly identified? What were the criteria? Informed by stakeholder theory and tools on stakeholder engagement government officers and service providers narrated the practice of engagement. The study established that stakeholders were identified but without following any standard procedure.

Government officers were choosing stakeholders for various meetings and activities. Their choices were not objective as were mostly affected by personal interests and experience. The identification procedure employed resulted in the omission of critical stakeholder groups such as rural community. Government officers stationed at ministry headquarters omitted rural community as a stakeholder group more than those stationed at lower levels like regional and district offices. NGOs and other service providers on the other hand often identified the rural community as a stakeholder group.

Nonetheless, government officers at ministry headquarters managed policy processes activities. Hence, their choice of stakeholders mattered most. Regarding stakeholders' role in policy processes, NGOs, civil society organisations and service providers were regarded as co-financiers. Members of the community were perceived as helping with implementation activities and not formulation exercises. Thus how stakeholders were initially assigned the roles determined their involvement levels. This study, however, supports the involvement of key stakeholders throughout the policy process.

8.2.3 Objective 3: To assess factors influencing rural stakeholder participation in water policy formulation and implementation

Twenty-four factors were identified that influenced participation of rural stakeholders. These were thematically grouped based on how they affected participation. Themes included factors relating to corruption, socio-cultural factors, inadequate resources, lack of commitment, poor coordination, resistance to change and a weak regulatory framework. A cause-effect analysis was also used. Three groups were identified: primary, secondary and tertiary. In the primary group, factors were considered to be the first in influencing participation, and if not resolved, the effect of other factors (secondary and then tertiary) was noticed. Further analysis of the factors considered whether they either directly affected the individual member of the community national government or its impacts were at an national scale. Through analysis , the interlinkages between

factors was explored . The analysis offered several options on how the impacts of the factors might be minimised.

8.2.4 Objective 4: To evaluate the links between policy formulation and implementation

Policy makers and service providers generally expected rural stakeholders to be essential in policy implementation. Members of the community were only meant to be involved in implementing activities and not define rules which guide or govern it. However, this study established that members of the rural community had different expectations. They required to be fully involved or be made aware of the creation of rules to its implementation. The expectation is in line with a policy recommendation. Rural stakeholders in most cases only requested for general awareness of what policymakers have agreed.

8.2.5 Objective 5: To develop a framework that ensures the appropriate participation of rural stakeholders in water policy formulation and implementation

The critical challenge that results in low participation from rural stakeholders was the way policy makers and service providers engaged them. There was no appropriate procedure for rural stakeholder engagement. The local institutions for engagement were not adequately evaluated for their capacity to manage the engagement process effectively. A framework was developed aimed to improve rural stakeholder engagement. A Theory of Change approach was used to inform the development of the framework. As a participatory approach, it was jointly developed by all stakeholders including the rural community, government officers, NGOs representatives. The framework thus reflects the needs of the stakeholders.

REFERENCES

Adams, E. A. (2018) 'Intra-urban inequalities in water access among households in Malawi's informal settlements: Toward pro-poor urban water policies in Africa', *Environmental Development*, 26, pp. 34–42. doi: 10.1016/j.envdev.2018.03.004.

Adams, E. A., Juran, L. and Ajibade, I. (2018) '"Spaces of Exclusion" in community water governance: A Feminist Political Ecology of gender and participation in Malawi's Urban Water User Associations', *Geoforum*, pp. 1–10. doi: 10.1016/j.geoforum.2018.06.016.

Adams, E. A. and Zulu, L. C. (2015) 'Participants or customers in water governance? Community-public partnerships for peri-urban water supply', *Geoforum*, 65, pp. 112–124. doi: 10.1016/j.geoforum.2015.07.017.

Aguilera, R. V. and Cuervo-Cazurra, A. (2004) 'Codes of Good Governance Worldwide: What is the Trigger?', *Organization Studies*, 25(3), pp. 417–446. doi: 10.1177/0170840604040669.

Agyenim, J. B. and Gupta, J. (2012) 'IWRM and developing countries: Implementation challenges in Ghana', *Physics and Chemistry of the Earth*, 47–48, pp. 46–57. doi: 10.1016/j.pce.2011.06.007.

Ahmed, J. U. (2010) 'Documentary Research Method: New Dimensions', *Indus Journal of Management & Social Sciences*, 4(1), pp. 1–14.

Aiafi, P. R. (2017) 'The Nature of Public Policy Processes in the Pacific Islands', *Asia & the Pacific Policy Studies*, 4(3), pp. 451–466. doi: 10.1002/app5.196.

Akhmouch, A. and Clavreul, D. (2016) 'Stakeholder Engagement for Inclusive Water Governance: "Practicing What We Preach" with the OECD Water Governance Initiative', *Water (Switzerland)*, 8(5), pp. 1–17. doi: 10.3390/w8050204.

Akhmouch, A. and Correia, F. N. (2016) 'The 12 OECD principles on water governance – When science meets policy', *Utilities Policy*, 43, pp. 14–20. doi: 10.1016/j.jup.2016.06.004.

Alcamo, J., Döll, P., Henrichs, T., Kaspar, F., Lehner, B., Rösch, T. and Siebert, S. (2003) 'Global estimates of water withdrawals and availability under current and future "business-as-usual" conditions', *Hydrological Sciences Journal*, 48(3), pp. 339–348. doi: 10.1623/hysj.48.3.339.45278.

Alfredo, K., Montalto, F. A., Bartrand, T., Wolde-Georgis, T. and Lall, U. (2016) 'Using a participatory stakeholder process to plan water development in Koraro, Ethiopia', *Water (Switzerland)*, 8(7), pp. 1–20. doi: 10.3390/w8070275.

Allan, J. A. (2003) 'Integrated Water Resources Management is more a Political than a Technical Challenge', *Developments in Water Science*, Volume 50, pp. 9–23. doi: 10.1016/S0167-5648(03)80004-7.

Allen, W., Fenemor, A., Kilvington, M., Harmsworth, G., Young, R. G., Deans, N., Horn, C., Phillips, C., Montes De Oca, O., Ataria, J. and Smith, R. (2011) 'Building collaboration and learning in integrated catchment management: The importance of social process and multiple engagement approaches', *New Zealand Journal of Marine and Freshwater Research*, 45(3), pp. 525–539. doi: 10.1080/00288330.2011.592197.

Amundsen, H., Berglund, F. and Westskogh, H. (2010) 'Overcoming barriers to climate change adaptation-a question of multilevel governance?', *Environment and Planning C: Government and Policy*, 28(2), pp. 276–289. doi: 10.1068/c0941.

Anokye, N. A. (2013) *Stakeholder Participation in Water Resources Management: The Case of Densu Basin in Ghana*. PhD Thesis. Vrije University.

Antolak, M., Pawelec, P., Jaszczak, A. and Zukovskis, J. (2017) 'The impact of European funds on changing landscape of Polish villages', *Management Theory & Studies for Rural Business & Infrastructure Development*, 39(2), pp. 203–214. doi: 10.15544/mts.2017.

Arnstein, S. R. (1969) 'A Ladder of Citizen Participation', *Journal of the American Institute of Planners*, 35(4), pp. 216–224. doi: 10.1080/01944366908977225.

Atkinson, R. and Flint, J. (2001) 'Accessing Hard To Reach Populations for

Research: Snowball Research Strategies', *Social Research Update*, pp. 1–4. doi: Available at: http://sru.soc.surrey.ac.uk/SRU33.html (Accessed: December 2014).

Aylward, B., Bandyopadhyay, J., Belausteguigotia, J.-C., Börkey, P., Cassar, A., Meadors, L., Saade, L., Siebentritt, M., Stein, R., Tognetti, S. and Tortajada, C. (2005) 'Freshwater Ecosystem Services', in Constanza, R., Jacobi, P., and Rijsberman, F. R. (eds) *Ecosystems and Human Well-being: Current State and Trends*, pp. 213–255.

Azhoni, A., Holman, I. and Jude, S. (2017) 'Adapting water management to climate change: Institutional involvement, inter-institutional networks and barriers in India', *Global Environmental Change*, 44, pp. 144–157. doi: 10.1016/j.gloenvcha.2017.04.005.

Baker, I., Peterson, A., Brown, G. and McAlpine, C. (2012) 'Local government response to the impacts of climate change: An evaluation of local climate adaptation plans', *Landscape and Urban Planning*, 107(2), pp. 127–136. doi: 10.1016/j.landurbplan.2012.05.009.

Ballester, A. and Mott Lacroix, K. (2016) 'Public Participation in Water Planning in the Ebro River Basin (Spain) and Tucson Basin (U.S., Arizona): Impact on Water Policy and Adaptive Capacity Building', *Water*, 8(7), p. 273. doi: 10.3390/w8070273.

Bandaragoda, D. J. (2006) *Institutional Adaptation for Integrated Water Resources Management : An Effective Strategy for Managing Asian River Basins. Working paper 107*. 107. Colombo, Sri Lanka: International Water Management Institute. Available at: http://www.iwmi.cgiar.org/publications/Working_Papers/working /WOR107.pdf.

Barnett, J., Evans, L. S., Gross, C., Kiem, A. S., Kingsford, R. T., Palutikof, J. P. and Catherine, M. (2015) 'From barriers to limits to climate change adaptation: path dependency and the speed of change', *Ecology and Society*, 20(3). doi: 10.5751/ES-07698-200305.

Batchelor, C. (2009) 'Water governance literature assessment', *International Institute for Environment and Development*. London: International Institute for Environment and Development.

Baxter, P. and Jack, S. (2008) 'The Qualitative Report Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers', *The Qualitative Report*, 13(4), pp. 544–559. doi: citeulike-article-id:6670384.

Baxter, S. K., Blank, L., Woods, H. B., Payne, N., Rimmer, M. and Goyder, E. (2014) 'Using logic model methods in systematic review synthesis: Describing complex pathways in referral management interventions', *BMC Medical Research Methodology*, 14(1), pp. 1–9. doi: 10.1186/1471-2288-14-62.

Bealer, R. C., Willits, F. K. and Kuvlesky, W. P. (1965) 'The meaning of "rurality" in American society: Some implications of alternative definitions', *Rural Sociology*, 30(3), pp. 255–266.

Beck, L. and Bernauer, T. (2011) 'How will combined changes in water demand and climate affect water availability in the Zambezi river basin?', *Global Environmental Change*, 21(3), pp. 1061–1072. doi: 10.1016/j.gloenvcha.2011.04.001.

Beierle, T. C. (2002) 'The Quality of Stakeholder-Based Decisions', *Risk Analysis*, 22(4), pp. 739–749. doi: 10.1111/0272-4332.00065.

Berkhout, F. (2012) 'Adaptation to climate change by organizations', *Wiley Interdisciplinary Reviews: Climate Change*, 3(1), pp. 91–106. doi: 10.1002/wcc.154.

Berry, K. A., Markee, N. L., Fowler, N. and Giewat, G. R. (2010) 'Interpreting What is Rural and Urban for Western U.S. Counties', *Professional Geographer*, 52(1), pp. 93–105. doi: 10.1111/0033-0124.00208.

Bingham, L. B., Nabatchi, T. and O'Leary, R. (2004) 'The New Governance : Practices and Processes for Stakeholder and Citizen Participation in the Work of Government', *The New Governance*, pp. 547–558.

Birkland, T. (2016) *An Introduction to the Policy Process: Theories, Concepts, and Models of Public Policy Making*. 4th Ed. New York: Routledge.

Birol, E., Karousakis, K. and Koundouri, P. (2006) 'Using economic valuation techniques to inform water resources management: A survey and critical appraisal of available techniques and an application', *Science of the Total Environment*, 365(1–3), pp. 105–122. doi: 10.1016/j.scitotenv.2006.02.032.

Biswas, A. K. (2004) 'Integrated Water Resources Management: A Reassessment', *Water International*, 29(2), pp. 248–256. doi: 10.1080/02508060408691775.

Biswas, A. K. (2008) 'Integrated water resources management: Is it working?', *International Journal of Water Resources Development*, 24(1), pp. 5–22. doi: 10.1080/07900620701871718.

Blaikie, P. (2006) 'Is Small Really Beautiful? Community-based Natural Resource Management in Malawi and Botswana', *World Development*, 34(11), pp. 1942–1957. doi: 10.1016/j.worlddev.2005.11.023.

Bourne, L. and Walker, D. H. T. (2006) 'Visualizing stakeholder influence—two Australian examples', *Project Management Journal*, 37(1), pp. 5–21.

Bovaird, T. (2007) 'Beyond Engagement and Participation: User and Community Coproduction of Public Services', *Public Administration Review*, pp. 846–860.

Bowen, G. A. (2009) 'Document analysis as a qualitative research method', *Qualitative research journal*, 9(2), pp. 27–40. doi: http://dx.doi.org/10.3316/QRJ0902027.

Braun, V. and Clarke, V. (2006) 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, 3(2), pp. 77–101.

Braun, V. and Clarke, V. (2012) 'Thematic analysis', in Cooper, H. (ed.) *The Handbook of Research Methods in Psychology*. Washington, DC: American Psychological Association.

Braun, V. and Clarke, V. (2013) *Successful qualitative research: A practical guide*

for beginners. London: Sage.

Breuer, E., Lee, L., De Silva, M. and Lund, C. (2016) 'Using theory of change to design and evaluate public health interventions: A systematic review', *Implementation Science*. Implementation Science, 11(1). doi: 10.1186/s13012-016-0422-6.

Brody, S. (2003) 'Measuring the Effects of Stakeholder Participation on the Quality of Local Plan Based on the Principles of Collaborative Ecosystem Management', *Journal of Planning Education and Research*, pp. 407–419. doi: 10.1177/0739456X03253022.

Brooks, D. B. (2006) 'An operational definition of water demand management', *International Journal of Water Resources Development*, 22(4), pp. 521–528. doi: 10.1080/07900620600779699.

Brown, G., Strickland-Munro, J., Kobryn, H. and Moore, S. A. (2016) 'Stakeholder analysis for marine conservation planning using public participation GIS', *Applied Geography*, 67, pp. 77–93. doi: 10.1016/j.apgeog.2015.12.004.

Brown, P. A. (2008) 'A Review of the Literature on Case Study Research', *Canadian Journal for New Scholars in Education*, 1(1), pp. 1–13. doi: citeulike-article-id:6670384.

Brugha, R. and Varvasovszky, Z. (2000) 'Stakeholder analysis: a review', *Health Policy and Planning*, 15(3), pp. 239–246. doi: 10.1093/heapol/15.3.239.

Brugnach, M., van der Keur, P. and Mysiak, J. (2010) 'Uncertainity and Policy making', in Mysiak, J., Henrikson, H. J., Sullivan, C., Bromely, J., and Pahl-Wostl, C. (eds) *The Adaptive Water Resource Management Handbook*. London and Sterling, VA: Earthscan, pp. 43–47.

Bryman, A., Becker, S. and Sempik, J. (2008) 'Quality criteria for quantitative, qualitative and mixed methods research: A view from social policy', *International Journal of Social Research Methodology*, 11(4), pp. 261–276. doi: 10.1080/13645570701401644.

De Buck, E., Hannes, K., Cargo, M., Van Remoortel, H., Vande veegaete, A., Mosler, H. J., Govender, T., Vandekerckhove, P. and Young, T. (2018) 'Engagement of stakeholders in the development of a Theory of Change for handwashing and sanitation behaviour change', *International Journal of Environmental Health Research*, 28(1), pp. 8–22. doi: 10.1080/09603123.2017.1415306.

Burt, L., McMaster, A., Rowntree, K. and Berold, R. (2007) *Local Institutions for Water Governance: The Development of a Water User Association and Catchment Forum in the Kat River Valley, Eastern Cape.* Pretoria, South Africa.

Butler, C. and Adamowski, J. (2015) 'Empowering marginalized communities in water resources management: Addressing inequitable practices in Participatory Model Building', *Journal of Environmental Management*, 153, pp. 153–162. doi: 10.1016/j.jenvman.2015.02.010.

Cammack, D., Kanyongolo, E. and O'Neil, T. (2009) 'Town Chiefs in Malawi'. London: Overseas Development Institute.

Capano, G., Howlett, M. and Ramesh, M. (2015) 'Bringing Governments Back in: Governance and Governing in Comparative Policy Analysis', *Journal of Comparative Policy Analysis: Research and Practice*, 17(4), pp. 311–321. doi: 10.1080/13876988.2015.1031977.

Carley-Baxter, L. (2008) 'Respondent-interviewer rapport', in Lavrakas, P. J. (ed.) *Encyclopedia of Survey Research Methods*. London: Sage Publications Limited.

Center for Theory of Change (2018) *Theory of Change*, *Resources*. Available at: https://www.theoryofchange.org/library/publications/.

Chidammodzi, C. L. and Muhandiki, V. S. (2015) 'Determination of the status of stakeholder participation in the management of the Lake Malawi basin through application of Integrated Lake Basin Management', *Lakes & Reservoirs: Research & Management*, 20(3), pp. 166–181. doi: 10.1111/lre.12097.

Chidya, R. C. G., Sajidu, S. M. I., Mwatseteza, J. F. and Masamba, W. R. L. (2011) 'Evaluation and assessment of water quality in Likangala River and its

catchment area', *Physics and Chemistry of the Earth*, 36(14–15), pp. 865–871. doi: 10.1016/j.pce.2011.07.070.

Chiluwe, Q. W. and Nkhata, B. (2014) 'Analysis of water governance in Malawi: towards a favourable enabling environment?', *Journal of Water, Sanitation and Hygiene for Development*, 4(2), pp. 313–323. doi: 10.2166/washdev.2014.087.

Chimtengo, M., Ngongondo, C., Tumbare, M. and Monjerezi, M. (2014) 'Analysing changes in water availability to assess environmental water requirements in the Rivirivi River basin, Southern Malawi', *Physics and Chemistry of the Earth*, 67–69, pp. 202–213. doi: 10.1016/j.pce.2013.10.007.

Chinsinga, B. (2009) 'Ministries of Agriculture : Structures , Capacity and Coordination at District Level in Malawi', *Future Agricultures*. Future Agricultures Consortium.

Chipofya, V., Kainja, S. and Bota, S. (2009) 'Policy harmonisation and collaboration amongst institutions – A strategy towards sustainable development, management and utilisation of water resources: Case of Malawi', *Desalination*, 248(1–3), pp. 678–683. doi: 10.1016/j.desal.2008.05.119.

Chiweza, L. (2007) 'The Ambivalent Role of Chiefs: Rural Decentralization Initiatives in Malawi', in Buur, L. and Kyed, H. . (eds) *State Recognition and Democratization in Sub-Saharan Africa. Palgrave Studies in Governance, Security, and Development*. New York: Palgrave Macmillan.

Chowns, E. (2015) 'Is community management an efficient and effective model of public service deliver? Lessons from the rural water supply sector in Malawi', *Public Administration and Development*, 35, pp. 263–276. doi: 10.1002/pad.

Cleaver, F. (1999) 'Paradoxes of participation: Questioning participatory approaches to development', *Journal of International Development*, 11, pp. 597–612.

Cleaver, F. (2000) 'Moral Ecological Rationality, Institutions and the Management of Communal Resources.', *Development and Change*, 31, pp. 361–383. Available at:

http://bscw.ihe.nl/pub/bscw.cgi/S494148d3/d2220075/CleaverMoralEcologicalRationality.pdf.

Cleaver, F. (2002) ‘Reinventing Institutions : Bricolage and the Social Embeddedness of Natural Resource Management’, *The European Journal of Development Research*, 14(2), pp. 11–30.

Clement, F. and Amezaga, J. M. (2009) ‘Afforestation and forestry land allocation in northern Vietnam: Analysing the gap between policy intentions and outcomes’, *Land Use Policy*, 26(2), pp. 458–470. doi: 10.1016/j.landusepol.2008.06.003.

Cloke, P. and Thrift, N. (1994) ‘Introduction: Refiguring the “rural”’, in Cloke, P., Doel, M., Matless, D., Phillips, D., and Thrifts, N. (eds) *Writing the Ruiral: Five Cultural Geographies*. London: Paul Chapman Publishing, pp. 1–5.

Collins, K., Onwuegbuzie, A. J. and Jiao, Q. (2007) ‘A mixed methods investigation of mixed methods sampling designs in social and health science research’, *Journal of Mixed Methods Research*, 1(3), pp. 267–294. doi: 10.1177/1558689807299526.

Conde, C. and Lonsdale, K. (2004) ‘Engaging stakeholders in the adaptations process’, in *Adaptation Policy Frameworks for Climate Change: Developing Strategies, Policies and Measures*. Cambridge UK: Cambridge University Press, pp. 47–66.

Constanza, R., Andrade, F., Antunes, P., van den Belt, M., Boesch, D., Boersma, D., Catarino, F., Hanna, S., Limburg, K., Low, B., Molitor, M., Pereira, J. G., Rayner, S., Santos, R., Wilson, J. and Young, M. (1999) ‘Ecological economics and sustainable governance of the oceans’, *Ecological Economics*, (31), pp. 171–187.

Correljé, A., François, D. and Verbeke, T. (2007) ‘Integrating water management and principles of policy: towards an EU framework?’, *Journal of Cleaner Production*, 15(16), pp. 1499–1506. doi: 10.1016/j.jclepro.2006.07.034.

Costanza, R., de Groot, R., Braat, L., Kubiszewski, I., Fioramonti, L., Sutton, P., Farber, S. and Grasso, M. (2017) ‘Twenty years of ecosystem services: How far

have we come and how far do we still need to go?', *Ecosystem Services*, 28, pp. 1–16. doi: 10.1016/j.ecoser.2017.09.008.

Council of the European Communities (2000) 'Directive 2000/60/EG of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy'. Official Journal of the European Communities, 12 December, L327/1.

Cox, M., Arnold, G. and Tomas, S. V. (2010) 'A Review of Design Principles for Community-based Natural Resource Management', *Ecology and Society*, 15(4), p. 38. doi: 38.

Creswell, J. (2009) *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 3rd ed. London: Sage Publications.

Cundy, A. B., Bardos, R. P., Church, A., Puschenreiter, M., Friesl-Hanl, W., Müller, I., Neu, S., Mench, M., Witters, N. and Vangronsveld, J. (2013) 'Developing principles of sustainability and stakeholder engagement for "gentle" remediation approaches: The European context', *Journal of Environmental Management*, 129, pp. 283–291. doi: 10.1016/j.jenvman.2013.07.032.

Dangi, M. B., Schoenberger, E. and Boland, J. J. (2017) 'Assessment of environmental policy implementation in solid waste management in Kathmandu, Nepal', *Waste Management & Research*, 35(6), pp. 618–626. doi: 10.1177/0734242X17699683.

Dasgupta, A. and Beard, V. A. (2007) 'Community driven development, collective action and elite capture in Indonesia', *Development and Change*, 38(2), pp. 229–249. doi: 10.1111/j.1467-7660.2007.00410.x.

David, A. and Sara, C. (1996) *Regenerated Freirean Literacy through Empowering Community Techniques. The Experiences of Three REFLECT Pilot Projects in Uganda, Bangladesh, El Salvador*. London.

Davidson, J., Lockwood, M., Curtis, A., Stratford, E. and Griffith, R. (2006) *Governance principles for regional natural resource management*. Report No.1, Land and Water Australia.

Davis, B., Winters, P., Carletto, G., Covarrubias, K., Quiñones, E. J., Zezza, A., Stamoulis, K., Azzarri, C. and DiGiuseppe, S. (2010) 'A Cross-Country Comparison of Rural Income Generating Activities', *World Development*, 38(1), pp. 48–63. doi: 10.1016/j.worlddev.2009.01.003.

Denscombe, M. (2007) *The Good Research Guide: for small-scale social research projects*. 3rd Ed. Maidenhead: Open University Press.

Denzin, N. K. and Lincoln, Y. S. (2003) 'Introduction: the discipline and practice of qualitative research', in Denzin, N. K. and Lincoln, Y. S. (eds) *The landscape of qualitative research: theories and issues*. 2nd Edn. Thousand Oaks, CA: Sage Publications Limited.

Deverka, P., Lavallee, D., Desai, P., Esmail, L., Ramsey, S., Veenstra, D. and Tunis, S. (2012) 'Stakeholder participation in comparative effectiveness research: defining a framework for effective engagement', *Journal of Comparative Effectiveness Research*, 1(2).

Devine-Wright, P. (2011) 'Public engagement with large-scale renewable energy technologies: Breaking the cycle of NIMBYism', *Wiley Interdisciplinary Reviews: Climate Change*, 2(1), pp. 19–26. doi: 10.1002/wcc.89.

DiCicco-Bloom, B. and Crabtree, B. F. (2006) 'The qualitative research interview', *Medical Education*, 40(4), pp. 314–321. doi: 10.1111/j.1365-2929.2006.02418.x.

Dkamela, G. P., Brockhaus, M., Djiegni, F. K., Schure, J. and Mvondo, S. A. (2014) 'Lessons for REDD + from Cameroon ' s past forestry law reform : a political economy analysis', *Ecology and Society*, 19(3). doi: 10.5751/ES-06839-190330.

Doornbos, M. (2003) 'Good governance: The metamorphisis of a Policy Metaphor', *Journal of International Affairs*, 57(1), pp. 3–17. Available at: http://elibrary.ru/item.asp?id=8164843.

Dorussen, H., Lenz, H. and Blavoukos, S. (2005) 'Assessing the reliability and validity of expert interviews', *European Union Politics*, 6(3), pp. 315–337. doi: 10.1177/1465116505054835.

Duit, A. and Galaz, V. (2008) ‘Governance and Complexity—Emerging Issues for Governance Theory’, *Governance*, 21(3), pp. 311–335. doi: 10.1111/j.1468-0491.2008.00402.x.

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*, 28(20–27), pp. 1009–1014. doi: 10.1016/j.pce.2003.08.042.

Durant, R. F., Fiorino, D. J. and O’Leary, R. (2004) *Environmental Governance Reconsidered: Challenges, Choices and Opportunities.* MIT Press, Cambridge, MA.

Eden, S., Megdal, S. B., Shamir, E., Chief, K. and Lacroix, K. M. (2016) ‘Opening the black box: Using a hydrological model to link stakeholder engagement with groundwater management’, *Water*, 8(5). doi: 10.3390/w8050216.

Engle, N. L. (2012) ‘Adaptation Bridges and Barriers in Water Planning and Management: Insight from Recent Extreme Droughts in Arizona and Georgia’, *Journal of the American Water Resources Association*, 48(6), pp. 1139–1150. doi: 10.1111/j.1752-1688.2012.00676.x.

Erasmus, Y., Lötter, D., Tannous, N. and Stewart, R. (2017) *Reflections on per diems in international development projects: Barriers to and enablers of the project cycle*, *Development Southern Africa*. doi: 10.1080/0376835X.2017.1384364.

Van Es, M., Guijt, I. and Vogel, I. (2015) *Theory of Change Thinking In Practice*. The Hague: Hivos. Available at: http://www.theoryofchange.nl/sites/default/files/resource/hivos_toc_guidelines_final_nov_2015.pdf.

Escott, H., Beavis, S. and Reeves, A. (2015) ‘Incentives and constraints to Indigenous engagement in water management’, *Land Use Policy*. Elsevier Ltd, 49, pp. 382–393. doi: 10.1016/j.landusepol.2015.08.003.

European Commission (2001) *European governance: A white paper*. Brussels. doi: 10.1504/IJPP.2010.032300.

European Community (2000) ‘Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy’, *Official Journal of the European Parliament*, 327, pp. 1–72. doi: 10.1039/ap9842100196.

Evans, M. and Reid, R. (2013) *Public Participation in an Era of Governance: Lessons from Europe for Australian Local Government*. Sydney. Available at: http://www.acelg.org.au/news/participation-lessons-europe.

Falkenmark, M. (1990) ‘Rapid Population Growth and Water Scarcity: The Predicament of Tomorrow’s Africa’, *Population and Development Review*, 16, pp. 81–94.

Falkenmark, M. (2004) ‘Towards integrated catchment management: opening the paradigm locks between hydrology, ecology and policy-making’, *International Journal of Water Resources Development*, 20(3), pp. 275–281. doi: 10.1080/0790062042000248637.

FAO (2017) *Country Fact Sheet: Malawi*, *Fao Aquastat*. Available at: http://www.fao.org/nr/water/aquastat/data/cf/readPdf.html?f=MWI-CF_eng.pdf (Accessed: 20 June 2018).

Faruqui, N. I., Biswas, A. K. and Bino, M. J. (2001) *Water Demand Management in Islam*, *Water Resources Management in Islam*. Tokyo: United Nations University Press.

Fenemor, A., Phillips, C., Allen, W., Young, R. G., Harmsworth, G., Bowden, B., Basher, L., Gillespie, P. A., Kilvington, M., Davies-Colley, R., Dymond, J., Cole, A., Lauder, G., Davie, T., Smith, R., Markham, S., Deans, N., Stuart, B., Atkinson, M. and Collins, A. (2011) ‘Integrated catchment management-interweaving social process and science knowledge’, *New Zealand Journal of Marine and Freshwater Research*, 45(3), pp. 313–331. doi: 10.1080/00288330.2011.593529.

Ferguson, A. E. and Mulwafu, W. O. (2001) ‘Decentralization, Participation and Access to Water Resources in Malawi’, *Broadening Access and Strengthening Input Market Systems*, pp. 1–28. Available at:

http://www.uneca.org/awich/Reports/Malawi Water Resources decentralization and participation.pdf.

Finch, H. and Lewis, J. (2003) ‘Focus Groups’, in Ritchie, J. and Lewis, J. (eds) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London.

Fink, J. and Gober, P. (2009) ‘Using Stakeholder Engagement and Visualization to Aid Decision-Making About Water Use in The Middle East’, in Lipchin, C., Sandler, D., and Cushman, E. (eds) *The Jordan River and Dead Sea Basin: NATO Science for Peace and Security Series C*. Dordrecht, The Netherlands: Springer.

Flyvbjerg, B. (2006) ‘Five Misunderstandings about Case-Study Research’, *Qualitative Inquiry*, 12(2), pp. 219–245. doi: 10.1177/1077800405284363.

Franks, T. R. and Cleaver, F. D. (2007) ‘Water governance and poverty: a framework for analysis’, *Progress in Development Studies*, 7(4), pp. 291–306. Available at: http://pdj.sagepub.com/content/vol7/issue4/.

Freeman, R. E. (1984) *Strategic management: A stakeholder approach*, *Freeman Edward*. London: Pitman Publishing. Available at: http://www.mendeley.com/research/strategic-management-a-stakeholder-approach-2/.

Friedman, A. and Miles, S. (2006) *Stakeholders: Theory and Practice*. 1st edn. Oxford: Oxford University Press.

Furber, A., Medema, W., Adamowski, J., Clamen, M. and Vijay, M. (2016) ‘Conflict Management in Participatory Approaches to Water Management: A Case Study of Lake Ontario and the St. Lawrence River Regulation’, *Water*, 8(7), p. 280. doi: 10.3390/w8070280.

Fusch, P. I. and Ness, L. R. (2015) ‘Are we there yet? Data saturation in qualitative research’, *The Qualitative Report*, 20(9), pp. 1408–1416. doi: 1, 1408-1416.

Gilissen, J., Pivodic, L., Gastmans, C., Vander Stichele, R., Deliens, L., Breuer, E. and Van Den Block, L. (2018) 'How to achieve the desired outcomes of advance care planning in nursing homes: A theory of change', *BMC Geriatrics*. BMC Geriatrics, 18(1), pp. 1–14. doi: 10.1186/s12877-018-0723-5.

Gill, R. (2011) 'The shadow in organizational ethnography: Moving beyond shadowing to spect-acting', *Qualitative Research in Organizations and Management: An International Journal*, 6(2), pp. 115–133. doi: 10.1108/17465641111159116.

Gleick, P. H. (1998) 'Water in crisis: Paths to sustainable water use', *Ecological Applications*, 8(3), pp. 571–579. doi: 10.1890/1051-0761(1998)008[0571:WICPTS]2.0.CO;2.

Glicken, J. (2000) 'Getting stakeholder participation "right": A discussion of participatory processes and possible pitfalls', *Environmental Science and Policy*, 3(6), pp. 305–310. doi: 10.1016/S1462-9011(00)00105-2.

Global Water Partnership (1999) *The Dublin Principles for Water as Reflected in a Comparative Assessment of Institutional and Legal Arrangements for Integrated Water Resources Management*, *Global Water Partnership*. Stockholm, Sweden.

Global Water Partnership (2012) *Social Equity: The need for an integrated approach*. Stockholm.

Graversgaard, M., Jacobsen, B. H., Kjeldsen, C. and Dalgaard, T. (2017) 'Stakeholder engagement and knowledge co-creation in water planning: Can public participation increase cost-effectiveness?', *Water (Switzerland)*, 9(3), pp. 1–29. doi: 10.3390/w9030191.

Green, J., Willis, K., Hughes, E., Small, R., Welch, N., Gibbs, L. and Daly, J. (2007) 'Generating best evidence from qualitative research: The role of data analysis', *Australian and New Zealand Journal of Public Health*, 31(6), pp. 545–550. doi: 10.1111/j.1753-6405.2007.00141.x.

Greene, J. C. (2008) 'Is Mixed Methods Social Inquiry a Distinctive

Methodology?', *Journal of Mixed Methods Research*, 2(1), pp. 7–22. doi: 10.1177/1558689807309969.

Greenwood, M. (2007) 'Stakeholder engagement: Beyond the myth of corporate responsibility', *Journal of Business Ethics*, 74(4), pp. 315–327. doi: 10.1007/s10551-007-9509-y.

van Griensven, H., Moore, A. P. and Hall, V. (2014) 'Mixed methods research - the best of both worlds?', *Manual therapy*, 19(5), pp. 367–371. doi: 10.1016/j.math.2014.05.005; 10.1016/j.math.2014.05.005.

Grigg, N. S. (2014) 'Integrated water resources management: unified process or debate forum?', *International Journal of Water Resources Development*, 30(3), pp. 409–422. doi: 10.1080/07900627.2013.877338.

Grimble, R. and Chan, M. (1995) 'Stakeholder analysis for natural resources management in developing countries', *Natural Resources Forum*, 19(2), pp. 113–124.

Grimble, R. and Wellard, K. (1997) 'Stakeholder methodologies in natural resource management: a review of concepts, contexts, experiences and opportunities', *Agricultural Systems*, (55), pp. 173–193.

Grimble, R. and Wellard, K. (1997) 'Stakeholder methodologies in natural resource management: A review of principles, contexts, experiences and opportunities', *Agricultural Systems*, 55(2), pp. 173–193. doi: 10.1016/S0308-521X(97)00006-1.

Grizzetti, B., Lanzanova, D., Liquete, C., Reynaud, A. and Cardoso, A. C. (2016) 'Assessing water ecosystem services for water resource management', *Environmental Science and Policy*, 61, pp. 194–203. doi: 10.1016/j.envsci.2016.04.008.

Guba, E. and Lincoln, Y. S. (1981) *Effective Evaluation: Improving the Usefulness of Evaluation Results through Responsive and Naturalistic Approaches*. San Francisco: Jossey-Bass Publishers.

Gutierrez, E. (2007) 'Delivering pro-poor water and sanitation services: The technical and political challenges in Malawi and Zambia', *Geoforum*, 38(5), pp. 886–900. doi: 10.1016/j.geoforum.2005.09.010.

Hailu, R., Tolossa, D. and Alemu, G. (2018) 'IWRM as a System Approach to Water Security : Evidence from the Awash River Basin of Ethiopia'. doi: 10.20944/preprints201803.0086.v1.

Hammersley, M. (1992) *What's Wrong with Ethnography?* London: Routledge.

Hardin, G. (1968) 'The Tragedy of the Commons', *Science*, 162, pp. 1243–1248. doi: 10.1126/science.162.3859.1243.

Hare, M. and Pahl-Wostl, C. (2002) 'Stakeholder categorization in participatory integrated assessment processes', *Integrated Assessment*, 3(1), pp. 50–62.

Hart, S. and Sharma, S. (2004) 'Engaging fringe stakeholders for competitive imagination', *Academy of Management Executive*, 18, pp. 7–18.

Hassing, J., Ipsen, N., Jønch-Clausen, T., Larsen, H. and Lindgaard-Jorgensen, P. (2009a) *Integrated Water Resources Management in Action*. Paris, France. UNESCO.

Hassing, J., Ipsen, N., Jønch-Clausen, T., Larsen, H. and Lindgaard-Jorgensen, P. (2009b) *Integrated Water Resources Management in Action*, *The United Nations World Water Assessment Programme*. doi: 10.1016/j.pce.2008.02.002.

Hawkins, J. and Jill, W. (2006) 'Modifying infrastrucure procurement to enhance social development', *ATDF*, pp. 55–63.

Head, B. W. (2008) 'Community Engagement : Participation on Whose Terms?', *Australian Journal of Political Science*, 42(3), pp. 441–454. doi: 10.1080/10361140701513570.

Heckathorn, D. D. (2011) 'Comment: Snowball versus respondent-driven sampling', *Sociological Methodology*, 41(1), pp. 355–366. doi: 10.1111/j.1467-9531.2011.01244.x.

Henisz, W. J., Dorobantu, S. and Nartey, L. J. (2014) 'Spinning Gold: The

financial returns to stakeholder engagement', *Strategic Management Journal*, 35, pp. 1727–1748. doi: 10.1002/smj.

Hering, D., Borja, A., Carstensen, J., Carvalho, L., Elliott, M., Feld, C. K., Heiskanen, A. S., Johnson, R. K., Moe, J., Pont, D., Solheim, A. L. and de Bund, W. van (2010) 'The European Water Framework Directive at the age of 10: A critical review of the achievements with recommendations for the future', *Science of the Total Environment*, 408(19), pp. 4007–4019. doi: 10.1016/j.scitotenv.2010.05.031.

Hesse-Biber, S. N. (2010) *Mixed-Methods Research: Merging Theory with Practice*. Guilford Press.

Higgins, O. and Shackleton, C. M. (2015) 'The benefits from and barriers to participation in civic environmental organisations in South Africa', *Biodiversity and Conservation*. Springer Netherlands, 24(8), pp. 2031–2046. doi: 10.1007/s10531-015-0924-6.

Hirsch, P. (2006) 'Water Governance Reform and Catchment Management in the Mekong Region', *The Journal of Environment & Development*, 15(2), pp. 184–201. doi: 10.1177/1070496506288221.

Holm, R., Singini, W. and Gwayi, S. (2016) 'Comparative evaluation of the cost of water in northern Malawi: from rural water wells to science education', *Applied Economics*. Routledge, 48(47), pp. 4573–4583. doi: 10.1080/00036846.2016.1161719.

Holm, R., Stroud, R., Msilimba, G. and Gwayi, S. (2015) 'Functionality and water quality of Elephant pumps: Implications for sustainable drinking water supplies in rural Malawi', *Groundwater for Sustainable Development*, 1(1–2), pp. 129–134. doi: 10.1016/j.gsd.2016.02.001.

Hope, R. (2015) 'Is community water management the community's choice? Implications for water and development policy in Africa', *Water Policy*, 17(4), pp. 664–678. doi: 10.2166/wp.2014.170.

Howes, M., Wortley, L., Potts, R., Dedekorkut-Howes, A., Serrao-Neumann, S.,

Davidson, J., Smith, T. and Nunn, P. (2017) 'Environmental Sustainability: A Case of Policy Implementation Failure?', *Sustainability*, 9(2), p. 165. doi: 10.3390/su9020165.

Huang, X., Zhao, D., Brown, C. G., Wu, Y. and Waldron, S. A. (2010) 'Environmental Issues and Policy Priorities in China: A Content Analysis of Government Documents', *China*, 8(2), pp. 220–246.

Huesemann, M. H. (2002) 'The inherent biases in environmental research and their effects on public policy', *Futures*, 34(7), pp. 621–633. doi: 10.1016/S0016-3287(02)00004-6.

IAP2 (2017) *Spectrum of Participation*. Available at: www.iap2.org.

Iho, A., Ribaudo, M. and Hyytiäinen, K. (2015) 'Water protection in the Baltic Sea and the Chesapeake Bay: Institutions, policies and efficiency', *Marine Pollution Bulletin*, 93(1–2), pp. 81–93. doi: 10.1016/j.marpolbul.2015.02.011.

Innes, J. E. (1996) 'Planning through consensus building. A new view of the comprehensive Planning Ideal', *Journal of American Planning Association*, 62(4), pp. 460–472. doi: 10.1080/01944369608975712.

Ioris, A. (2008) 'The limits of integrated water resources management: a case study of Brazil's Paraíba do Sul River Basin', *Sustainability: Science, Practice and Policy*, 4(2), pp. 4–11. doi: 10.1080/15487733.2008.11908017.

Irvin, R. A. and Stansbury, J. (2004) 'Citizen Participation in Decision Making: Is It Worth the Effort?', *Public Administration Review*, 64(1), pp. 55–65. doi: 10.1111/j.1540-6210.2004.00346.x.

Iversen, V., Chhetry, B., Francis, P., Gurung, M., Kafle, G., Pain, A. and Seeley, J. (2006) 'High value forests, hidden economies and elite capture: Evidence from forest user groups in Nepal's Terai', *Ecological Economics*, 58(1), pp. 93–107. doi: 10.1016/j.ecolecon.2005.05.021.

Jaglin, S. (2002) 'The right to water versus cost recovery: participation, urban water supply and the poor in sub-Saharan Africa', *Environment and Urbanization*,

14(1), pp. 231–245. doi: 10.1177/095624780201400119.

Jain, S. K. and Singh, V. P. (2003) ‘Water resources systems planning and management’, in Jain, S. K. and Singh, V. P. (eds) *Developments in Water Science*. Elsevier Ltd., pp. 3–858.

James, C. (2011) *Theory of Change Review*, *Comic Relief*. doi: 10.1177/109821400302400102.

Jaspers, F. G. W. (2003) ‘Institutional arrangements for integrated river basin management’, *Water*, 5(5), pp. 77–90. Available at: http://www.environmental-expert.com/Files/5302/articles/5879/4.pdf.

Jeffrey, R. and Vira, B. (2001) *Conflict and Cooperation in Participatory Natural Resources Management*. Edited by R. Jeffrey and B. Vira. London: Palgrave.

Jensen, M. (2001) ‘Value Maximization, Stakeholder Theory, and the Corporate Objective Function’, *Journal of Applied Corporate Finance*, 14(3). doi: 10.1007/978-1-4419-9863-7.

JICA (2011) *Handbook on Climate Change Adaptation in the Water Sector: A Resilient Approach that Integrates Water Management and Community Development*. Japan International Cooperation Agency.

Johnson, R. B., Onwuegbuzie, A. J. and Turner, L. A. (2007) ‘Towards a Definition of Mixed Methods Research’, *Journal of Mixed Methiods Research*, 1(2), pp. 112–133. doi: 10.1258/135581907781543085.

Jones, B. T. B. (2004) *Synthesis of the current status of CBNRM Policy and Legislation in Botswana, Malawi, Mozambique, Namibia, Zambia and Zimbabwe*. WWF SARPO Regional Project.

Jonsson, A. (2005) ‘Public Participation in Water Resources Management: Stakeholder Voices on Degree, Scale, Potenbtial, and Methods in Future Water Management’, *Ambio*, 34(7), pp. 495–500.

Jordan, A. (1999) ‘The implementation of EU environmental policy: a policy problem without a political solution?’, *Environment and Planning C-Government*

and Policy, 17(1), pp. 69–90. doi: 10.1068/c170069.

Jury, W. A. and Vaux, H. (2005) 'The role ofscience in solving the world's emerging water problems', *Proceedings of the National Academy of Sciences*, 102(44), pp. 15715–15720.

Kafatia, K. (2010) 'Strategic Sanitation Plan for Mzuzu City, Rumphi Boma and Chintheche Centre for 2010 to 2025'. Lilongwe, Malawi: WETTS Consulting.

Kalaba, F. K. (2016) 'Barriers to policy implementation and implications for Zambia's forest ecosystems', *Forest Policy and Economics*, 69, pp. 40–44. doi: 10.1016/j.forpol.2016.04.004.

Kamanula, J. F., Zambasa, O. J. and Masamba, W. R. L. (2014) 'Quality of drinking water and cholera prevalence in Ndirande Township, City of Blantyre, Malawi', *Physics and Chemistry of the Earth, Parts A/B/C*, 72–75, pp. 61–67. doi: 10.1016/j.pce.2014.09.001.

Kambwiri, A. M., Changadeya, W., Chimphamba, J. and Tandwe, T. (2014) 'Land Use Impacts on Water Quality of Rivers draining from Mulanje Mountain: A Case of Ruo River in the Southern Malawi', *Malawi Journal of Science and Technology*, 10(1), pp. 15–31. Available at: http://www.cc.ac.mw/localwebs/mjst/Downloads/volume10/Changadeya.pdf.

Kamoto, J., Clarkson, G., Dorward, P. and Shepherd, D. (2013) 'Doing more harm than good? Community based natural resource management and the neglect of local institutions in policy development', *Land Use Policy*, 35, pp. 293–301. doi: 10.1016/j.landusepol.2013.06.002.

Kamwamba-Mtethiwa, J. T. (2016) *Sustainable irrigation development: The adoption of small-scale pumped irrigation in Malawi*. PhD Thesis. Cranfield University. doi: 10.1017/CBO9781107415324.004.

Karar, E. and Jacobs-Mata, I. (2016) 'Inclusive Governance: The Role of Knowledge in Fulfilling the Obligations of Citizens', *Aquatic Procedia*, 6, pp. 15–22. doi: 10.1016/j.aqpro.2016.06.003.

Kaufmann, D., Kraay, A. and Mastruzzi, M. (2003) *Government Matters III: Governance Indicators for 1996-2002*, *Washington DC: The World Bank*. Washington DC, World Bank Group. doi: 10.1093/wber/lhh041.

Kayambazinthu, D. (2000) 'Empowering communities to manage natural resources: where does the power lie?: the case of Malawi', in Shackleton, S. and Campbell, B. . (eds) *Empowering communities to manage natural resources: case studies from South Africa*. Lilongwe, Malawi,: SADC Wildlife Sector-Natural Resources Management Programme and CSIR, pp. 37–58. Available at: https://www.cifor.org/library/812/ (Accessed: 24 October 2018).

Keijser, X., Ripken, M., Mayer, I., Warmelink, H., Abspoel, L., Fairgrieve, R. and Paris, C. (2018) 'Stakeholder engagement in Maritime Spatial Planning: The efficacy of a serious game approach', *Water (Switzerland)*, 10(6), pp. 1–16. doi: 10.3390/w10060724.

Kelsall, T. (2011) 'Giong with the grain in African Development?', *Development Policy Review*, 29(1), pp. 223–251.

Ker Rault, P. A. and Jeffrey, P. J. (2008) 'Deconstructing public participation in the Water Framework Directive: Implementation and compliance with the letter or with the spirit of the law?', *Water and Environment Journal*, 22(4), pp. 241–249. doi: 10.1111/j.1747-6593.2008.00125.x.

Kidd, M. and Quinn, N. W. (2005) 'Public Participation in Southern Africa watercourses', in Bruch, C. E., Jansky, L., Nakayama, M., and Salewicz, K. A. (eds) *Public Participation in the Governance of International Freshwater Resources*. United Nations University Press, pp. 156–169.

Kleemeier, E. (2000) 'The impact of participation on sustainability: An analysis of the Malawi rural piped scheme program', *World Development*, 28(5), pp. 929–944. doi: 10.1016/S0305-750X(99)00155-2.

Kneale, D., Thomas, J. and Harris, K. (2015) 'Developing and optimising the use of logic models in systematic reviews: Exploring practice and good practice in the use of programme theory in reviews', *PLoS ONE*, 10(11), pp. 1–26. doi:

10.1371/journal.pone.0142187.

Knifton, L., Gervais, M., Newbigging, K., Mirza, N., Quinn, N., Wilson, N. and Hunkins-Hutchison, E. (2010) 'Community conversation: Addressing mental health stigma with ethnic minority communities', *Social Psychiatry and Psychiatric Epidemiology*, 45(4), pp. 497–504. doi: 10.1007/s00127-009-0095-4.

Kooiman, J. (1999) 'Social-Political Governance', *Public Management Review*, 1(1), pp. 67–92. doi: 10.1080/14719037800000005.

van Koppen, B., Giordano, M. and Butterworth, J. A. (2007) *Community-based Water Law and Resource Management Reform in Developing Countries*, *Comprehensive Assessment of Water Management in Agriculture Series*. Wallingford: UK: CABI Publishing.

Van Koppen, B., Rojas, V. C. and Skielboe, T. (2012) 'Project Politics, Priorities and Participation in Rural Water Schemes', 5(1), pp. 1–15. Available at: www.water-alternatives.org.

Krueger, T., Page, T., Hubacek, K., Smith, L. and Hiscock, K. (2012) 'The role of expert opinion in environmental modelling', *Environmental Modelling and Software*, 36, pp. 4–18. doi: 10.1016/j.envsoft.2012.01.011.

Krupa, M. B. (2016) 'Who's who in the Kenai River Fishery SES: A streamlined method for stakeholder identification and investment analysis', *Marine Policy*, 71, pp. 194–200. doi: 10.1016/j.marpol.2016.06.001.

Kummu, M., Ward, P. J., de Moel, H. and Varis, O. (2010) 'Is physical water scarcity a new phenomenon? Global assessment of water shortage over the last two millennia', *Environmental Research Letters*, 5, pp. 1–10. doi: 10.1088/1748-9326/5/3/034006.

Kummu, M., Ward, P. J., De Moel, H. and Varis, O. (2010) 'Is physical water scarcity a new phenomenon? Global assessment of water shortage over the last two millennia', *Environmental Research Letters*, 5(3). doi: 10.1088/1748-9326/5/3/034006.

Laisi, E. (2009) *IWRM survey and status report: Malawi*. Lilongwe, Malawi.

Lalika, M. C. S., Meire, P. and Ngaga, Y. M. (2015) 'Exploring watershed conservation and water governance along Pangani River Basin, Tanzania', *Land Use Policy*, 48, pp. 351–361. doi: 10.1016/j.landusepol.2015.06.010.

Lankford, B. and Hepworth, N. (2010) 'The cathedral and the bazaar: Monocentric and polycentric river basin management', *Water Alternatives*, 3(1), pp. 82–101.

Lautze, J., Silva, S. De, Giordano, M., Sanford, L. and De Silva, S. (2011) 'Putting the cart before the horse:Water governance and IWRM', *Natural Resources Forum*, 35(1), pp. 1–8. doi: 10.1111/j.1477-8947.2010.01339.x.

Lawrence, R. and Deagen, D. (2001) 'Choosing Public Participation Methods for Natural Resources: A Context-Specific Guide', *Society & Natural Resources*, 14(10), pp. 857–872. doi: 10.1080/089419201753242779.

Legard, R., Keegan, J. and Ward, K. (2003) 'In-depth interviews', in Ritchie, J. and Lewis, J. (eds) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: Sage Publications, pp. 138–169.

Leite, L. and Pita, C. (2016) 'Review of participatory fisheries management arrangements in the European Union', *Marine Policy*, 74, pp. 268–278.

Lerner, D. N. and Zheng, C. (2011) 'Integrated catchment management: Path to enlightenment', *Hydrological Processes*, 25(16), pp. 2635–2640. doi: 10.1002/hyp.8064.

Lewis, J. and Ritchie, J. (2003a) 'Generalising from qualitative research', in Ritchie, J. and Lewis, J. (eds) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: Sage Publications, pp. 263–286.

Lewis, J. and Ritchie, J. (2003b) 'Generalising from Qualitative Research', in Ritchie, J. and Lewis, J. (eds) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: Sage Publications, pp. 263–286.

Libanio, P. A. C. (2018) 'Two decades of Brazil's participatory model for water resources management: from enthusiasm to frustration', *Water International*,

43(4), pp. 494–511. doi: 10.1080/02508060.2018.1451695.

Lilongwe City Council (2013) *The Urban Structure Plan of Lilongwe City, Draft*. Lilongwe, Malawi.

Lilongwe Water Board (2013) *Performance Management Plans and Budgets 2013/2014*. Lilongwe, Malawi.

Lim, S. S., Vos, T., Flaxman, A. D., Danaei, G., Shibuya, K., Adair-Rohani, H., Amann, M., Anderson, H. R., Andrews, K. G., Aryee, M., Atkinson, C., Bacchus, L. J., Bahalim, A. N., Balakrishnan, K., Balmes, J., Barker-Collo, S., Baxter, A., Bell, M. L., Blore, J. D., Blyth, F., Bonner, C., Borges, G., Bourne, R., Boussinesq, M., Brauer, M., Brooks, P., Bruce, N. G., Brunekreef, B., Bryan-Hancock, C., Bucello, C., Buchbinder, R., Bull, F., Burnett, R. T., Byers, T. E., Calabria, B., Carapetis, J., Carnahan, E., Chafe, Z., Charlson, F., Chen, H., Chen, J. S., Cheng, A. T. A., Child, J. C., Cohen, A., Colson, K. E., Cowie, B. C., Darby, S., Darling, S., Davis, A., Degenhardt, L., Dentener, F., Des Jarlais, D. C., Devries, K., Dherani, M., Ding, E. L., Dorsey, E. R., Driscoll, T., Edmond, K., Ali, S. E., Engell, R. E., Erwin, P. J., Fahimi, S., Falder, G., Farzadfar, F., Ferrari, A., Finucane, M. M., Flaxman, S., Fowkes, F. G. R., Freedman, G., Freeman, M. K., Gakidou, E., Ghosh, S., Giovannucci, E., Gmel, G., Graham, K., Grainger, R., Grant, B., Gunnell, D., Gutierrez, H. R., Hall, W., Hoek, H. W., Hogan, A., Hosgood, H. D., Hoy, D., Hu, H., Hubbell, B. J., Hutchings, S. J., Ibeanusi, S. E., Jacklyn, G. L., Jasrasaria, R., Jonas, J. B., Kan, H., Kanis, J. A., Kassebaum, N., Kawakami, N., Khang, Y. H., Khatibzadeh, S., Khoo, J. P., Kok, C., Laden, F., Lalloo, R., Lan, Q., Lathlean, T., Leasher, J. L., Leigh, J., Li, Y., Lin, J. K., Lipshultz, S. E., London, S., Lozano, R., Lu, Y., Mak, J., Malekzadeh, R., Mallinger, L., Marcenes, W., March, L., Marks, R., Martin, R., McGale, P., McGrath, J., Mehta, S., Mensah, G. A., Merriman, T. R., Micha, R., Michaud, C., Mishra, V., Hanafiah, K. M., Mokdad, A. A., Morawska, L., Mozaffarian, D., Murphy, T., Naghavi, M., Neal, B., Nelson, P. K., Nolla, J. M., Norman, R., Olives, C., Omer, S. B., Orchard, J., Osborne, R., Ostro, B., Page, A., Pandey, K. D., Parry, C. D. H., Passmore, E., Patra, J., Pearce, N., Pelizzari, P. M., Petzold, M., Phillips, M. R., Pope, D., Pope, C. A., Powles, J., Rao, M., Razavi, H., Rehfuess,

E. A., Rehm, J. T., Ritz, B., Rivara, F. P., Roberts, T., Robinson, C., Rodriguez-Portales, J. A., Romieu, I., Room, R., Rosenfeld, L. C., Roy, A., Rushton, L., Salomon, J. A., Sampson, U., Sanchez-Riera, L., Sanman, E., Sapkota, A., Seedat, S., Shi, P., Shield, K., Shivakoti, R., Singh, G. M., Sleet, D. A., Smith, E., Smith, K. R., Stapelberg, N. J. C., Steenland, K., Stöckl, H., Stovner, L. J., Straif, K., Straney, L., Thurston, G. D., Tran, J. H., Van Dingenen, R., Van Donkelaar, A., Veerman, J. L., Vijayakumar, L., Weintraub, R., Weissman, M. M., White, R. A., Whiteford, H., Wiersma, S. T., Wilkinson, J. D., Williams, H. C., Williams, W., Wilson, N., Woolf, A. D., Yip, P., Zielinski, J. M., Lopez, A. D., Murray, C. J. L. and Ezzati, M. (2012) 'A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010', *The Lancet*, 380(9859), pp. 2224–2260. doi: 10.1016/S0140-6736(12)61766-8.

Lincoln, Y. S. and Guba, G. . (1985) *Naturalistic Inquiry*. Beverly Hills, CA: Sage.

Lockwood, M., Davidson, J., Curtis, A., Stratford, E. and Griffith, R. (2010) 'Governance Principles for Natural Resource Management', *Society & Natural Resources*, 23(10), pp. 986–1001. doi: 10.1080/08941920802178214.

De Lopez, T. T. (2001) 'Stakeholder management for conservation projects: A case study of Ream National Park, Cambodia', *Environmental Management*, 28(1), pp. 47–60. doi: 10.1007/s002670010206.

Loux, J. (2011) 'Collaboration and stakeholder engagement', in Grafton, R. Q. and Hussey, K. (eds) *Water Resources Planning and Management*. Cambridge University Press, pp. 251–273.

LTS International (2010) *Malawi Catchment Areas*. Available at: http://ltsi.co.uk/malawi-land-use/S_Rukuru N_Rumph.html.

Luyet, V., Schlaepfer, R., Parlange, M. B. and Buttler, A. (2012) 'A framework to implement Stakeholder participation in environmental projects', *Journal of Environmental Management*, 111, pp. 213–219. doi: 10.1016/j.jenvman.2012.06.026.

Malawi Government (1995) *Waterworks Act 1995*. Lilongwe, Malawi.

Malawi Government (1998a) *Local Government Act*. Lilongwe, Malawi.

Malawi Government (1998b) *The National Decentralisation Policy 1998*.

Malawi Government (2005a) *National Water Policy*. Lilongwe, Malawi. doi: 10.1093/chemse/bjt099.

Malawi Government (2005b) *National Water Policy*. Lilongwe, Malawi.

Malawi Government (2008a) *2008 Population and Housing Census Results*. Zomba, Malawi.

Malawi Government (2008b) 'IWRM and Water Efficiency Plan'. doi: 10.1017/CBO9781107415324.004.

Malawi Government (2008c) *Malawi Population Projections 2008-2030*. Zomba, Malawi. Available at: http://www.nsomalawi.mw/images/stories/data_on_line/demography/census_2008/Main Report/ThematicReports/Population Projections Malawi.pdf.

Malawi Government (2010) *Malawi State of Environment and Outlook Report Environment for Sustainable Economic Growth*. Lilongwe.

Malawi Government (2011a) *Water Resources Investment Strategy: Component 1-Water Resources Assessment, Annex I (i)*. Lilongwe.

Malawi Government (2011b) 'Water Resources Investment Strategy Component 1 – Water Resources Assessment: Annex 1(i)-Water Resources Assessments for WRAs 1-4'. Lilongwe, Malawi.

Malawi Government (2012) *Malawi Growth and Development Strategy II*. Lilongwe, Malawi.

Malawi Government (2013a) *Harmonised Daily Subsistence, Fuel and Transport Allowances Financed under Development Partner Programmes in Malawi*. Lilongwe, Malawi.

Malawi Government (2013b) *Water Resources Act*. Lilongwe, Malawi.

Malawi Government (2015a) *Development of catchment management strategies for selected river basins in Malawi: Catchment management strategy for the Lake Chilwa Catchment*. Lilongwe, Malawi.

Malawi Government (2015b) *Development of catchment management strategies for selected river basins in Malawi: Catchment management strategy for the Linthipe Catchment*. Lilongwe, Malawi.

Malawi Government (2015c) *Development of catchment management strategies for selected river basins in Malawi: Catchment management strategy for the North-Rukuru and Lufilya Catchments*. Lilongwe, Malawi.

Malawi Government (2015d) *Ministry National Guidelines: Integrated Catchment Management and Rural Infrastructure: Vol 1: Theory and Procedural Catchment Management Guidelines*. Lilongwe, Malawi.

Malawi Government (2016) 'National Forest Policy'. Malawi, pp. 1–60.

Malawi National Statistical Office (2018) *2018 Malawi Population and Hosuing Census: Preliminary report*.

Manetti, G. (2011) 'The quality of stakeholder engagement in sustainability reporting: Empirical evidence and critical points', *Corporate Social Responsibility and Environmental Management*, 18(2), pp. 110–122. doi: 10.1002/csr.255.

Mangadze, T., Bere, T. and Mwedzi, T. (2016) 'Choice of biota in stream assessment and monitoring programs in tropical streams: A comparison of diatoms, macroinvertebrates and fish', *Ecological Indicators*, 63, pp. 128–143. doi: 10.1016/j.ecolind.2015.11.029.

Manzungu, E. (2002) 'More than a headcount: Towards strategic stakeholder representation in catchment management in South Africa and Zimbabwe', *Physics and Chemistry of the Earth*, 27(11–22), pp. 927–933. doi: 10.1016/S1474-7065(02)00095-5.

Maryring, P. (2004) 'Qualitative Content Analysis', in Flick, U., von Kardorff, E., and Steinke, I. (eds) *A companion to qualitative research*. London: Sage

Publications.

Massoud, M. A., Fayad, R., El-Fadel, M. and Kamleh, R. (2010) 'Drivers, barriers and incentives to implementing environmental management systems in the food industry: A case of Lebanon', *Journal of Cleaner Production*, 18(3), pp. 200–209. doi: 10.1016/j.jclepro.2009.09.022.

Masters, L. and Duff, L. (2011) *Overcoming barriers to climate change adaptation implementation in Southern Africa*. Pretoria: Africa Institute of South Africa.

Mayne, J. (2008) *Contribution analysis: An approach to exploring cause and effect*. ILAC Brief 16 p.4. doi: 10.1007/11907381.

Mazzi, A., Toniolo, S., Mason, M., Aguiari, F. and Scipioni, A. (2016) 'What are the benefits and difficulties in adopting an environmental management system? The opinion of Italian organizations', *Journal of Cleaner Production*, 139, pp. 873–885. doi: 10.1016/j.jclepro.2016.08.053.

MCA (2010) *Concept Paper for the Energy Sector*. Lilongwe, Malawi.

Mcdonald, S. (2005) 'Studying actions in context: a qualitative shadowing method for organizational research', *Qualitative Research*, 5(4), pp. 455–473.

McGarry, M., Mugisha, S., Hoang-Gia, L., Unheim, P. and Myles, M. (2010) *Water Sector Governance in Africa (Volume 1): Theory and Practice*. African Development Bank. doi: ISBN 9789973071484.

McLeod, S. A. (2008) *Case study method*. Available at: https://www.simplypsychology.org/case-study.html (Accessed: 18 October 2018).

McTigue, C., Monios, J. and Rye, T. (2018) 'Identifying barriers to implementation of local transport policy: An analysis of bus policy in Great Britain', *Utilities Policy*, 50, pp. 133–143. doi: 10.1016/j.jup.2017.12.002.

Megdal, S., Eden, S. and Shamir, E. (2017) 'Water Governance, Stakeholder Engagement, and Sustainable Water Resources Management', *Water*, 9(3), p. 190. doi: 10.3390/w9030190.

Mehta, L., Alba, R., Bolding, A., Denby, K., Derman, B., Hove, T., Manzungu, E., Movik, S., Prabhakaran, P. and Koppen, B. Van (2014) 'The politics of IWRM in Southern Africa', *International Journal of Water Resources Development*, 30(3), pp. 528–542. doi: 10.1080/07900627.2014.916200.

Mersha, A. N., De Fraiture, C., Mehari, A., Masih, I. and Alamirew, T. (2016) 'Integrated Water Resources Management: Contrasting principles, policy, and practice, Awash River Basin, Ethiopia', *Water Policy*, 18(2), pp. 335–354. doi: 10.2166/wp.2015.049.

Mertens, D. M. (2010) 'Divergence and Mixed Methods', *Journal of Mixed Methods Research*, 4(1), pp. 3–5. doi: 10.1177/1558689809358406.

Milly, P. C. D., Betancourt, J., Falkenmark, M., Hirsch, R. M., Kundzewicz, Z. W., Lettenmaier, D. P. and Stouffer, R. J. (2008) 'Stationarity Is Dead: Whither Water Management?', *Science*, 319(5863), pp. 573–574. doi: 10.1126/science.1151915.

Missonier, S. and Loufrani-Fedida, S. (2014) 'Stakeholder analysis and engagement in projects: From stakeholder relational perspective to stakeholder relational ontology', *International Journal of Project Management*, 32(7), pp. 1108–1122. doi: 10.1016/j.ijproman.2014.02.010.

Mitchell, B. (2005) 'Integrated water resource management, institutional arrangements, and land-use planning', *Environment and Planning A*, 37(8), pp. 1335–1352. doi: 10.1068/a37224.

Mitchell, R. K., Agle, B. R. and Wood, D. J. (1997) 'Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts', *Academy of Management Review*, 22(4), pp. 853–886. doi: 10.5465/AMR.1997.9711022105.

Mkandawire, T. W. and Mulwafu, W. O. (2006) 'An analysis of IWRM capacity needs in Malawi', *Physics and Chemistry of the Earth, Parts A/B/C*, 31(15–16), pp. 738–744. doi: 10.1016/j.pce.2006.08.034.

Mogalakwe, M. (2006) 'The Use of Documentary Research Methods', *African*

Sociological Review, (1), pp. 221–230. doi: 10.1353/eas.0.0006.

Mollinga, P. P. (2008) 'Water, politics and development: Framing a political sociology of water resources management', *Water Alternatives*, 1(1), pp. 7–23.

Moser, S. C. and Ekstrom, J. A. (2010) 'A framework to diagnose barriers to climate change adaptation', *Proceedings of the National Academy of Sciences*, 107(51), pp. 22026–22031. doi: 10.1073/pnas.1007887107.

Mostert, E. (2003) 'The challenge of public participation', *Water Policy*, (5), pp. 179–197.

Mostert, E., Pahl-Wostl, C., Rees, Y., Searle, B., Tàbara, D. and Tippett, J. (2007) 'Social learning in European river-basin management: Barriers and fostering mechanisms from 10 river basins', *Ecology and Society*, 12(1). doi: 10.5751/ES-01960-120119.

Mott Lacroix, K. E. and Megdal, S. B. (2016) 'Explore, synthesize, and repeat: Unraveling complex water management issues through the stakeholder engagement wheel', *Water (Switzerland)*, 8(4). doi: 10.3390/w8040118.

Mott MacDonald and Malawi Government (2003) *Strengthening of the Water Resources Board in Malawi*. Lilongwe, Malawi. doi: 10.1115/1.802915.ch1.

Mouratiadou, I. and Moran, D. (2007) 'Mapping public participation in the Water Framework Directive: A case study of the Pinios River Basin, Greece', *Ecological Economics*, 62(1), pp. 66–76. doi: 10.1016/j.ecolecon.2007.01.009.

Mphande, F. A. (2016) *Infectious diseases and rural livelihood in developing countries*, *Infectious Diseases and Rural Livelihood in Developing Countries*. Singapore: Springer. doi: 10.1007/978-981-10-0428-5.

Mulwafu, W., Chipeta, C., Chavula, G., Ferguson, A., Nkhoma, B. . G. and Chilima, G. (2003) 'Water demand management in Malawi: problems and prospects for its promotion', *Physics and Chemistry of the Earth, Parts A/B/C*, 28(20–27), pp. 787–796. doi: 10.1016/j.pce.2003.08.003.

Nare, L., Odiyo, J. O., Francis, J. and Potgieter, N. (2011) 'Framework for

effective community participation in water quality management in Luvuvhu Catchment of South Africa', *Physics and Chemistry of the Earth*, 36(14–15), pp. 1063–1070. doi: 10.1016/j.pce.2011.08.006.

Nascimento, A. L., Alves-Martins, F. and Jacobucci, G. B. (2018) 'Assessment of Ecological Water Quality Along a Rural To Urban Land Use Gradient Using Benthic Macroinvertebrate- Based Indexes', *Bioscience Journal*, 34(1), pp. 194–209.

Neef, A. (2009) 'Transforming rural water governance: Towards deliberative and polycentric models?', *Water Alternatives*, 2(1), pp. 53–60.

Neil, T. O., Cammack, D., Kanyongolo, E., Mkandawire, M. ., Mwalyambwire, T., Welham, B. and Wild, L. (2014) *Fragmented governance and local service delivery in Malawi*.

Neysmith, J. and Dent, M. (2010) 'Non-statutory barriers and incentives to stakeholder participation in reducing water pollution: A South African case study', *Water SA*, 36(5), pp. 577–588. doi: 10.4314/wsa.v36i5.61991.

Niedziałkowski, K., Komar, E., Pietrzyk-Kaszyńska, A., Olszańska, A. and Grodzińska-Jurczak, M. (2018) 'Discourses on Public Participation in Protected Areas Governance: Application of Q Methodology in Poland', *Ecological Economics*, 145, pp. 401–409. doi: 10.1016/j.ecolecon.2017.11.018.

Nikkhah, H. A. and Redzuan, M. (2009) 'Participation as a Medium of Empowerment in Community Development', *European Journal of Social Sciences*, 11(1), pp. 170–176.

Nikoo, M. R., Pourshahabi, S., Rezazadeh, N. and Shafiee, M. E. (2016) 'Stakeholder engagement in multi-objective optimization of water quality monitoring network, case study: Karkheh Dam reservoir', *Water Science and Technology: Water Supply*, (October), pp. 966–974. doi: 10.2166/ws.2016.196.

Nita, A., Ciocanea, C. M., Manolache, S. and Rozylowicz, L. (2018) 'A network approach for understanding opportunities and barriers to effective public participation in the management of protected areas', *Social Network Analysis and*

Mining, 8(1), pp. 1–11. doi: 10.1007/s13278-018-0509-y.

Nkamleu, G. B. and Kamgnia, B. D. (2014) *Uses and Abuses of Per-diems in Africa : A Political Economy of Travel Allowances*. doi: 10.1016/j.jhin.2014.11.013.

Noor, K. B. M. (2008) 'Case study: A strategic research methodology', *American Journal of Applied Sciences*, 5(11), pp. 1602–1604. doi: 10.3844/ajassp.2008.1602.1604.

Nutters, H. M. and Pinto da Silva, P. (2012) 'Fishery stakeholder engagement and marine spatial planning: Lessons from the Rhode Island Ocean SAMP and the Massachusetts Ocean Management Plan', *Ocean and Coastal Management*, 67, pp. 9–18. doi: 10.1016/j.ocecoaman.2012.05.020.

O'Reilly, M. and Parker, N. (2013) '"Unsatisfactory Saturation": A critical exploration of the notion of saturated sample sizes in qualitative research', *Qualitative Research*, 13(2), pp. 190–197. doi: 10.1177/1468794112446106.

Ockwell, D. G. (2008) '"Opening up" policy to reflexive appraisal: A role for Q Methodology? A case study of fire management in Cape York, Australia', *Policy Sciences*, 41(4), pp. 263–292. doi: 10.1007/s11077-008-9066-y.

OECD (2015) 'OECD Principles on Water Governance', *OECD Principles on Water Governance*, p. 24. doi: 10.1017/CBO9781107415324.004.

Ohlsson, L. (2000) 'Water conflicts and social resource scarcity', *Physics and Chemistry of the Earth, Part B: Hydrology, Oceans and Atmosphere*, 25(3), pp. 213–220. doi: 10.1016/S1464-1909(00)00006-X.

Ohlsson, L. and Turton, A. R. (2000) *The Turning of a Screw: Social Resource Scarcity as a bottle-neck adaptation to water scarcity. Stockholm Water Front—Forum for Global Water Issues*, *Stockholm: Stockholm International Water Institute (SIWI)*.

Oki, T. and Kanae, S. (2006) 'Global Hydrological Cycles and World Water Resources', *Science*, 313(5790), pp. 1068–1072. doi: 10.1126/science.1128845.

Olinto, P. and Uematsu, H. (2013) *The State of the Poor: Where are the Poor and where are they Poorest?* New York. Available at: http://www.worldbank.org/content/dam/Worldbank/document/State_of_the_poor_paper_April17.pdf.

Ong'or, D. O. (2005) *Community participation in integrated water resources management: The case of the Lake Victoria Basin. Department of Agriculture, Moi Institute of Technology*.

Ongolo, S. (2015) 'On the banality of forest governance fragmentation: Exploring "'gecko politics'" as a bureaucratic behaviour in limited statehood', *Forest Policy and Economics*, 53, pp. 12–20. doi: 10.1016/j.forpol.2015.01.005.

Onwuegbuzie, A. J. and Collins, K. M. . (2007) 'A typology of mixed methods sampling designs in social science research', *The Qualitative Report*, 12(2), pp. 474–498.

Opdenakker, R. (2006) 'Advantages and disadvantages of four interview techniques in qualitative research', *Forum Qualitative Sozialforschung*, 7(4). doi: 10.1177/1468794107085298.

Ostrom, E. (1990) *Governing the commons: the evolution of institutions for collective action*. Cambridge UK: Cambridge University Press.

Øyvind, E. (2011) 'Chiefs and everyday governance: Parallel state organisations in Malawi', *Journal of Southern African Studies*, 37(2), pp. 313–331. doi: 10.1080/03057070.2011.579436.

Pahl-Wostl, C., Tàbara, D., Bouwen, R., Craps, M., Dewulf, A., Mostert, E., Ridder, D. and Taillieu, T. (2008) 'The importance of social learning and culture for sustainable water management', *Ecological Economics*, 64(3), pp. 484–495. doi: 10.1016/j.ecolecon.2007.08.007.

Palamuleni, L. G., Ndomba, P. M. and Annegarn, H. J. (2011) 'Evaluating land cover change and its impact on hydrological regime in Upper Shire river catchment, Malawi', *Regional Environmental Change*, 11(4), pp. 845–855. doi: 10.1007/s10113-011-0220-2.

Patel, M. X. (2003) ‘Challenges in recruitment of research participants’, *Advances in Psychiatric Treatment*, 9(3), pp. 229–238. doi: 10.1192/apt.9.3.229.

Patton, M. Q. (2002) *Qualitative Research and Evaluation Methods*. Thousand Oaks, CA: Sage.

Petts, J. (2004) ‘Barriers to participation and deliberation in risk decisions: Evidence from waste management’, *Journal of Risk Research*, 7(2), pp. 115–133. doi: 10.1080/1366987042000158695.

Petty, N. J., Thomson, O. P. and Stew, G. (2012) ‘Ready for a paradigm shift? Part 1: Introducing the philosophy of qualitative research’, *Manual Therapy*, 17(4), pp. 267–274. doi: 10.1016/j.math.2012.03.006.

Pinyopusarerk, K., Tran, T. T. H. and Tran, V. D. (2014) ‘Making community forest management work in northern Vietnam by pioneering participatory action’, *Land Use Policy*, 38, pp. 257–263. doi: 10.1016/j.landusepol.2013.11.019.

Platteau, J. P. (2004) ‘Monitoring elite capture in community-driven development’, *Development and Change*, 35(2), pp. 223–246. doi: 10.1111/j.1467-7660.2004.00350.x.

Plummer, J. and Slaymaker, T. (2007) *Rethinking governance in water services*. Overseas Development Institute, London, UK. Available at: http://mercury.ethz.ch/serviceengine/Files/ISN/45986/ipublicationdocument_singledocument/b7a2dcac-2e4f-4ed2-a765-5f5f4bb104d2/en/wp284.pdf.

Prayitno, G., Matsushima, K. and Kobayashi, K. (2018) ‘Temporal Migrant Decision and Rural Area Development in Indonesia’, *Advance Science Letters*, 24(4), p. 2353–2357(5).

Pretty, J. N. (1995) ‘Participatory learning for sustainable agriculture’, *World Development*, 23(8), pp. 1247–1263. doi: 10.1016/0305-750X(95)00046-F.

Prutsch, A., Steurer, R. and Stickler, T. (2017) ‘Is the participatory formulation of policy strategies worth the effort? The case of climate change adaptation in Austria’, *Regional Environmental Change*, pp. 1–15. doi: 10.1007/s10113-017-

1204-7.

Pullanikkatil, D., Palamuleni, L. and Ruhiiga, T. (2015) 'Impact of land use on water quality in the Likangala catchment, southern Malawi', *African Journal of Aquatic Science*, 40(3), pp. 277–286. doi: 10.2989/16085914.2015.1077777.

Pullanikkatil, D., Palamuleni, L. and Ruhiiga, T. (2016) 'Assessment of land use change in Likangala River catchment, Malawi: A remote sensing and DPSIR approach', *Applied Geography*, 71, pp. 9–23. doi: 10.1016/j.apgeog.2016.04.005.

Reed, M. S. (2008) 'Stakeholder participation for environmental management: A literature review', *Biological Conservation*, 141(10), pp. 2417–2431. doi: 10.1016/j.biocon.2008.07.014.

Reed, M. S. and Curzon, R. (2015) 'Stakeholder mapping for the governance of biosecurity: a literature review', *Journal of Integrative Environmental Sciences*, 12(1), pp. 15–38. doi: 10.1080/1943815X.2014.975723.

Reed, M. S., Dougill, A. J. and Baker, T. R. (2008) 'Participatory indicator development: What can ecologists and local communities learn from each other?', *Ecological Applications*, 18(5), pp. 1253–1269. doi: 10.1890/07-0519.1.

Reed, M. S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., Prell, C., Quinn, C. H. and Stringer, L. C. (2009) 'Who's in and why? A typology of stakeholder analysis methods for natural resource management', *Journal of Environmental Management*, 90(5), pp. 1933–1949. doi: 10.1016/j.jenvman.2009.01.001.

Reilly, K., O'Hagan, A. M. and Dalton, G. (2016) 'Moving from consultation to participation: A case study of the involvement of fishermen in decisions relating to marine renewable energy projects on the island of Ireland', *Ocean and Coastal Management*, 134, pp. 30–40. doi: 10.1016/j.ocecoaman.2016.09.030.

Revenga, C., Murray, S., Abramovitz, J. and Hammond, A. (1998) *Watersheds of the World: Ecological Value and Vulnerability*. Washington DC: World Resources Institute and Worldwatch Institute.

Ridde, V. (2010) ‘Per diems undermine health interventions, systems and research in Africa: burying our heads in the sand’, *Tropical Medicine & International Health*, 00(00), pp. 1–4. doi: 10.1111/j.1365-3156.2010.02607.x.

Riessman, C. K. (1993) *Narrative Analysis*. Newbury Park, CA: Sage.

Ritchie, J. and Elam, G. (2003) ‘Designing and Selecting Samples’, in Ritchie, J. and Lewis, J. (eds) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: Sage Publications, pp. 77–108.

Ritchie, J. and Spencer, L. (1994) ‘Qualitative data analysis for applied policy research’, in Bryman, A. and Burgess, R. G. (eds) *Analyzing qualitative data*, pp. 173–194.

Robson, C. (2011) *Real World Research*. 3rd Edn. John Wiley & Sons, Ltd.

Robson, C. and McCartan, K. (2016) *Real World Research*. 4th Edn. John Wiley & Sons, Ltd.

Rogers, P. and Hall, A. W. (2003) *Effective Water Governance: Global Water Partnership Committee (TEC) Background Papers No. 7*, *Global Water Partnership*. Global Water Partnership. doi: 10.1016/j.gloenvcha.2011.04.003.

Rollason, E., Bracken, L. J., Hardy, R. J. and Large, A. R. G. (2018) ‘Evaluating the success of public participation in integrated catchment management’, *Journal of Environmental Management*, 228, pp. 267–278. doi: 10.1016/j.jenvman.2018.09.024.

Rose, S., Spinks, N. and Canhoto, A. I. (2015) *Management Research*. London: Routledge.

Ross, H., Grant, C., Robinson, C. J., Izurieta, A., Smyth, D. and Rist, P. (2009) ‘Co-management and indigenous protected areas in Australia: Achievements and ways forward’, *Australasian Journal of Environmental Management*, 16(4), pp. 242–252. doi: 10.1080/14486563.2009.9725240.

Ruf, B. M., Krishnamurty, M., Brown, R. M., Janney, J. J. and Paul, K. (2001) ‘An empirical investigation of the relationship between change in corporate social

performance and financial performance: a stakeholder theory perspective', *Journal of Business Ethics*, 32, pp. 143–156. doi: 10.1023/A:1010786912118.

Rusca, M. and Schwartz, K. (2014a) '"Going with the grain": Accommodating local institutions in water governance', *Current Opinion in Environmental Sustainability*, 11, pp. 34–38. doi: 10.1016/j.cosust.2014.09.010.

Rusca, M. and Schwartz, K. (2014b) '"Going with the grain": Accommodating local institutions in water governance', *Current Opinion in Environmental Sustainability*, 11, pp. 34–38. doi: 10.1016/j.cosust.2014.09.010.

Rusca, M., Schwartz, K., Hadzovic, L. and Ahlers, R. (2015) 'Adapting Generic Models through Bricolage: Elite Capture of Water Users Associations in Peri-urban Lilongwe', *European Journal of Development Research*, 27(5), pp. 777–792. doi: 10.1057/ejdr.2014.58.

Saito-Jensen, M. and Nathan, I. (2011) 'Exploring the potentials of community-based natural resource management for benefiting local communities: Policies and practice in four communities in Andhra Pradesh, India', *Society and Natural Resources*, 24(11), pp. 1142–1156. doi: 10.1080/08941920.2010.516062.

Sanner, T. A. and Sæbø, J. I. (2014) 'Paying Per Diems for ICT4D Project Participation : A Sustainability Challenge', *Information Technologies and International Development*, 10(2), pp. 33–47.

Sayce, K., Shuman, C., Connor, D., Reisewitz, A., Pope, E., Miller-Henson, M., Poncelet, E., Monié, D. and Owens, B. (2013) 'Beyond traditional stakeholder engagement: Public participation roles in California's statewide marine protected area planning process', *Ocean and Coastal Management*, 74, pp. 57–66. doi: 10.1016/j.ocecoaman.2012.06.012.

Scherr, S. J. (2000) 'A downward spiral? Research evidence on the relationship between poverty and natural resource degradation', *Food Policy*, 25(4), pp. 479–498. doi: 10.1016/S0306-9192(00)00022-1.

Schnegg, M. (2016) 'Lost in Translation: State Policies and Micro-politics of Water Governance in Namibia', *Human Ecology*, 44(2), pp. 245–255. doi:

10.1007/s10745-016-9820-2.

Schouten, T. and Moriarty, P. (2003) *Community Water, Community Management: From system to service in rural areas*. Rugby.

Scotland, J. (2012) 'Exploring the philosophical underpinnings of research: Relating ontology and epistemology to the methodology and methods of the scientific, interpretive, and critical research paradigms', *English Language Teaching*, 5(9), pp. 9–16. doi: 10.5539/elt.v5n9p9.

Seckler, D., Barker, R. and Amarasinghe, U. (1999) 'Water Scarcity in the Twenty-first Century', *International Journal of Water Resources Development*, 15(1–2), pp. 29–42. doi: 10.1080/07900629948916.

Seckler, D., Molden, D. and Barker, R. (1998) 'Water Scarcity in the Twenty-First Century', in *'Sustainable rice production.' World water demand and supply 1990-2025: Scenarios and issues*. Colombo, Sri Lanka: IWMI.

Sheng, S., Kumaraguru, P., Acquisti, A., Cranor, L. and Hong, J. (2009) 'Improving phishing countermeasures: An analysis of expert interviews', *2009 eCrime Researchers Summit, eCRIME '09*. doi: 10.1109/ECRIME.2009.5342608.

De Silva, M. and Lee, L. (2014) 'Using Theory of Change in the development, implementation and evaluation of complex health interventions. A practical guide.' London: London School of Hygiene and Tropical Medicine, pp. 1–14.

Silverman, D. (2006) *Interpreting qualitative data: methods for analysing talk, text and interaction*. 3rd Edn. London: Sage Publications.

Skage, I. A., Søreide, T. and Tostensen, A. (2015) 'Carpe per Diem: The Uses and Abuses of Travel Compensation in Developing Countries', *Forum for Development Studies*, 42(3), pp. 387–414. doi: 10.1080/08039410.2015.1081980.

Smith, D. J. (2003) 'Patronage, Per Diems and the "Workshop Mentality": The practice of family planning programs in Southeastern Nigeria', *World*

Development, 31(4), pp. 703–715. doi: 10.1016/S0305-750X(03)00006-8.

Snape, D. and Spencer, L. (2003) 'The Foundations of Qualitative Research', in Ritchie, J. and Lewis, J. (eds) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. London: Sage Publications.

Soubliere, J.-F. and Cloutier, C. (2015) 'Explaining levels of local government involvement in service delivery: The dynamics of cross-sector partnerships in Malawi', *Public Administration and Development*, 35, pp. 192–205. doi: 10.1002/pad.

Spalding-Fecher, R., Joyce, B. and Winkler, H. (2017) 'Climate change and hydropower in the Southern African Power Pool and Zambezi River Basin: System-wide impacts and policy implications', *Energy Policy*, 103, pp. 84–97. doi: 10.1016/j.enpol.2016.12.009.

Spangenberg, J. H., Heong, K. L., Klotzbücher, A., Klotzbücher, T., Nguyen, Q. A., Tekken, V., Truong, D. T., Türke, M. and Settele, J. (2018) 'Doing what with whom? Stakeholder analysis in a large transdisciplinary research project in South-East Asia', *Paddy and Water Environment*. Springer Japan, 16(2), pp. 321–337. doi: 10.1007/s10333-018-0634-2.

Srivastava, A. and Thomson, S. B. (2009) 'Framework Analysis: A Qualitative Methodology for Applied Policy Research', *Joaag*, 4(2), pp. 72–79. Available at: http://ssrn.com/abstract=2760705.

Starkl, M., Brunner, N. and Stenström, T. A. (2013) 'Why do water and sanitation systems for the poor still fail? Policy analysis in economically advanced developing countries', *Environmental Science and Technology*, 47(12), pp. 6102–6110. doi: 10.1021/es3048416.

De Stefano, L., Svendsen, M., Giordano, M., Steel, B. S., Brown, B. and Wolf, A. T. (2014) 'Water governance benchmarking: Concepts and approach framework as applied to Middle East and North Africa countries', *Water Policy*, 16(6), pp. 1121–1139. doi: 10.2166/wp.2014.305.

Stirling, A. (2005) 'Opening up or closing down ? Analysis , participation and

power in the social appraisal of technology', in Leach, M., Scoones, I., and Wynne, B. (eds) *Science and Citizen: Globalization and the Challenge of Engagement*. London: Zed.

Stoker, G. (1998) 'Governance as theory: five propositions', *International Social Science Journal*, 50(155), pp. 17–28. doi: 10.1111/1468-2451.00106.

Suhardiman, D., Clement, F. and Bharati, L. (2015) 'Integrated water resources management in Nepal: key stakeholders' perceptions and lessons learned', *International Journal of Water Resources Development*, 31(2), pp. 284–300. doi: 10.1080/07900627.2015.1020999.

Swanson, K. E., Kuhn, R. G. and Xu, W. (2001) 'Environmental policy implementation in rural China: A case study of Yuhang, Zhejiang', *Environmental Management*, 27(4), pp. 481–491. doi: 10.1007/s002670010164.

Swatuk, L. a. (2005) 'Political challenges to implementing IWRM in Southern Africa', *Physics and Chemistry of the Earth*, 30(11–16 SPEC. ISS.), pp. 872–880. doi: 10.1016/j.pce.2005.08.033.

Tanaka, M. O., de Souza, A. L. T., Moschini, L. E. and de Oliveira, A. K. (2016) 'Influence of watershed land use and riparian characteristics on biological indicators of stream water quality in southeastern Brazil', *Agriculture, Ecosystems and Environment*, 216, pp. 333–339. doi: 10.1016/j.agee.2015.10.016.

Taplin, D. H., Clark, H., Collins, E. and Colby, D. C. (2013) *Theory of Change Technical papers: a series of papers to support development of theories of change based on practice in the field*. New York. Available at: http://www.theoryofchange.org/wp-content/uploads/toco_library/pdf/ToC-Tech-Papers.pdf.

Tashakkori, A. and Creswell, J. W. (2007) 'The New Era of Mixed Methods', *Journal of Mixed Methods Research*, 1(1), pp. 3–7. doi: 10.1177/2345678906293042.

Taulo, J. L., Gondwe, K. J. and Sebitosi, A. Ben (2015) 'Energy supply in Malawi: Options and issues', *of Energy in Southern Africa*, 26(2), pp. 19–32. Available at:

http://www.erc.uct.ac.za/jesa/Volume26/26-2-jesa-taulo-etal.pdf.

Taylor-Powell, E. and Steele, S. (1996) ‘Collecting Evaluation Data : Direct Observation’, *Cooperative Extension Publications*, p. 8.

Teddlie, C. and Yu, F. (2007) ‘Mixed Methods Sampling: A Typology With Examples’, *Journal of Mixed Methods Research*, 1(1), pp. 77–100. doi: 10.1177/2345678906292430.

Thale, T. and Priest, S. (2016) ‘Partnership Funding in flood risk management: multi-level stakeholder engagement – a question of roles and power’, *E3S Web of Conferences*, 7, p. 20009. doi: 10.1051/e3sconf/20160720009.

Du Toit, D. and Pollard, S. (2008) ‘Updating public participation in IWRM : A proposal for a focused and structured engagement with Catchment Management Strategies’, *Water SA*, 34(6), pp. 707–713. Available at: http://www.scopus.com/inward/record.url?eid=2-s2.0-64549163619&partnerID=40&md5=7f42bd2f8c3a0a9907a1ea83b0be7773%5Cnhttp://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S1816-79502008000600007&lng=en&nrm=iso&tlng=es.

Tongco, M. D. C. (2007) ‘Purposive Sampling as a Tool for Informant Selection’, 5, pp. 147–158. doi: http://hdl.handle.net/10125/227.

Tseng, C. P. and Penning-Rowsell, E. C. (2012) ‘Micro-political and related barriers to stakeholder engagement in flood risk management’, *Geographical Journal*, 178(3), pp. 253–269. doi: 10.1111/j.1475-4959.2012.00464.x.

UN-Water (2018) *Sustainable Development Goal 6 Synthesis Report on Water and Sanitation*.

UN-Water and Global Water Partnership (2007) *UN-Water and Global Water Partnership (GWP) Roadmapping for Advancing Integrated Water Resources Management (IWRM) Processes*. Copenhagen.

UN (1992) *Rio Declaration on Environment and Development*, *Environmental Conservation*. doi: 10.1017/S037689290003157X.

UN (2005) *Health, dignity and development: what will it take? UN Millennium Project Task Force on Water and Sanitation*. New York: Swedish Water House/SIWI and UN Millennium Project. doi: 1-84407-219-3.

UN (2006) *Water: A Shared Responsibility*, *The United Nations World Water Development Report 2. World Water Assessment Programme*.

UN (2015) *The Millennium Development Goals Report 2015*, *United Nations*. New York. doi: 978-92-1-101320-7.

UN (2017) *World population prospects: Data booklet 2017 Revision*, *Population Division*.

UNDP (1997) *Governance for Sustainable Human Development-a UNDP Policy Document*. New York.

UNDP (2004) *Water Governance for Poverty Reduction: Key Issues and the UNDP Response to Millenium Development Goals*.

UNECE (1998) *Convention on Access To Information , Public Participation in Decision-Making and Access To Justice in Environmental Matters*, *Aarus Convention*. doi: 10.1017/CBO9780511494345.010.

United Nations (2016) *The sustainable development goals report 2016*. Available at: http://www.un.org/sustainabledevelopment/sustainable-development-goals/.

Vaismoradi, M., Turunen, H. and Bondas, T. (2013) 'Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study', *Nursing and Health Sciences*, 15(3), pp. 398–405. doi: 10.1111/nhs.12048.

Varis, O., Enckell, K. and Keskinen, M. (2014) 'Integrated water resources management: horizontal and vertical explorations and the "water in all policies" approach', *International Journal of Water Resources Development*, 30(3), pp. 433–444. doi: 10.1080/07900627.2014.912130.

Vente, J. De, Reed, M. S., Stringer, L. C., Valente, S. and Newig, J. (2016) 'How does the context and design of participatory decision making processes affect their outcomes ? Evidence from sustainable land management in global

drylands', *Ecology and Society*, 21(2).

Vian, T., Miller, C., Themba, Z. and Bukuluki, P. (2013) 'Perceptions of per diems in the health sector: Evidence and implications', *Health Policy and Planning*, 28(3), pp. 237–246. doi: 10.1093/heapol/czs056.

Videira, N., Antunes, P., Santos, R. and Lobo, G. (2006) 'Public and Stakeholder Participation in European Water Policy: a Critical Review of Project Evaluation Processes', *European Environment Eur. Env*, 16, pp. 19–31. doi: 10.1002/eet.401.

Vogel, I. (2012) *Review of the use of 'Theory of Change' in international development*, *DFID Research paper*. doi: 10.1177/109821400302400102.

Vogel, I. (2013) 'ESPA guide to working with Theory of Change for research projects'.

Vörösmarty, C. J. J., Green, P., Salisbury, J. and Lammers, R. B. B. (2000) 'Global Water Resources: Vulnerability from Climate Change and Population Growth', *Science*, 289(5477), pp. 284–288. doi: 10.1126/science.289.5477.284.

Vörösmarty, C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, A., Green, P., Glidden, S., Bunn, S. E., Sullivan, C. A., Liermann, C. R. and Davies, P. M. (2010a) 'Global threats to human water security and river biodiversity', *Nature*, 468(7321), pp. 334–334. doi: 10.1038/nature09549.

Vörösmarty, C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, A., Green, P., Glidden, S., Bunn, S. E., Sullivan, C. A., Liermann, C. R. and Davies, P. M. (2010b) 'Global threats to human water security and river biodiversity', *Nature*, 467(7315), pp. 555–561. doi: 10.1038/nature09440.

Wanda, E. M. M., Gulula, L. C. and Kushe, J. (2014) 'An assessment of effectiveness of the Lunyangwa River catchment co-management model in Mzuzu City, Northern Malawi', *Physics and Chemistry of the Earth, Parts A/B/C*, 72–75, pp. 96–103. doi: 10.1016/j.pce.2014.10.003.

Wanda, E. M. M., Mamba, B. B., Msagati, T. A. M. and Msilimba, G. (2015)

‘Determination of the health of Lunyangwa wetland using Wetland Classification and Risk Assessment Index’, *Physics and Chemistry of the Earth*. doi: 10.1016/j.pce.2015.09.010.

Warner, J. F. (2006) ‘More sustainable participation? Multi-Stakeholder Platforms for integrated catchment management’, *International Journal of Water Resources Development*, 22(1), pp. 15–35. doi: 10.1080/07900620500404992.

Wasambo, J. (2011) *Water governance and sustainable rural livelihoods: the case of irrigation reform at Wovwe, Malawi*. PhD Thesis. Central European University, Budapest.

Watson, N. and Howe, J. (2006) ‘Implementing the EU Water Framework Directive: Experiences of participatory planning in the Ribble basin, North West England’, *Water International*, 31(4), pp. 472–487. doi: 10.1080/02508060608691951.

Wehn, U., Collins, K., Anema, K., Basco-Carrera, L. and Lerebours, A. (2018) ‘Stakeholder engagement in water governance as social learning: lessons from practice’, *Water International*, 43(1), pp. 34–59. doi: 10.1080/02508060.2018.1403083.

Wengraf, T. (2004) *Qualitative Research Interviewing*. London: Sage Publications Limited.

Wesley, J. J. (2010) *Qualitative document analysis in political science*, *T2PP Workshop, Vrije Universiteit Amstardam*. Available at: http://www2.let.vu.nl/oz/cltl/t2pp/docs/ws2010/papers/P2-Wesley.pdf.

WHO (2009) *Promoting sport and enhancing health in European Union countries: a policy content analysis*.

WHO and UNICEF (2015) *Progress drinking water and sanitation: Update and MDG Assessment*, *Joint Monitoring Programme*. Geneva. doi: 978 92 4 150724 0.

Wood, L. (2008) *Community-Based Natural Resource Management : Case*

Studies from Community Forest Management Projects in Ghana , Mexico , and United States of America.

World Bank (1996) *The World Bank participation sourcebook*. Washington DC, USA: World Bank. doi: 10.1596/0-8213-3558-8.

World Bank (2014) 'World Development Indicators: Rural environment and land use Land area', p. 6. Available at: http://wdi.worldbank.org/table/3.1.

Xavier, R., Komendantova, N., Jarbandhan, V. and Nel, D. (2017) 'Participatory governance in the transformation of the South African energy sector: Critical success factors for environmental leadership', *Journal of Cleaner Production*, 154, pp. 621–632. doi: 10.1016/j.jclepro.2017.03.146.

Xerri, F., Jeffrey, P. and Smith, H. M. (2016) 'Unpacking organizational capacity in the context of the Water Framework Directive', *International Journal of River Basin Management*, 14(3), pp. 317–327. doi: 10.1080/15715124.2016.1193508.

Yin, R. K. (2009) *Case Study Research: Design and Methods*. 4th Ed. California: SAGE Inc.

Yiran, G. A. B. and Stringer, L. C. (2017) 'Adaptation to Climatic Hazards in the Savannah Ecosystem: Improving Adaptation Policy and Action', *Environmental Management*, 60(4), pp. 665–678. doi: 10.1007/s00267-017-0901-9.

Young, J. (2005) *Research, policy and practice: Why developing countries are different*, *Journal of International Development*. doi: 10.1002/jid.1235.

Van der Zaag, P. (2005) 'Integrated Water Resources Management: Relevant concept or irrelevant buzzword? A capacity building and research agenda for Southern Africa', *Physics and Chemistry of the Earth, Parts A/B/C*, 30(11–16), pp. 867–871. doi: 10.1016/j.pce.2005.08.032.

Zulu, L. C. (2010) 'The forbidden fuel: Charcoal, urban woodfuel demand and supply dynamics, community forest management and woodfuel policy in Malawi', *Energy Policy*, 38(7), pp. 3717–3730. doi: 10.1016/j.enpol.2010.02.050.

Zulu, L. C. (2012) 'Neoliberalization, decentralization and community-based

natural resources management in Malawi: The first sixteen years and looking ahead', *Progress in Development Studies*, 12(2–3), pp. 193–212. doi: 10.1177/146499341101200307.

APPENDICES

Appendix A: Interview guides for policy makers and water service providers (government, water utility companies, NGOs, academics) interviews

Introduction

Hello, my name is Brighton Chunga. I am a PhD student at Cranfield University, in the UK carrying out a research on assessing the extent of rural stakeholders' inclusion in water resources management in Malawi. Target areas are based on the catchment demarcations used by the government through the Ministry of Agriculture, Irrigation and Water Development. There are 17 catchments and this research will only be conducted in South Rukuru, Linthipe, and South West Lakeshore.

You have been chosen to be interviewed because your location is within the catchments mentioned. I will, therefore, ask you questions related to stakeholder involvement in water resources management. Specifically, we will be going through few questions on the following topics:

a) formulation process of water policy, legislation, and guidelines
b) stakeholders in catchment management - emphasis on water
c) barriers and enablers to stakeholders' participation

The interview will approximately take ***50-60 minutes.*** Your participation in this interview is voluntary and you are free to participate, or indeed withdraw at any point in time during the interview. Your answers to these questions are confidential and will be anonymized in the results synthesis.

9 Consent Question

(a) Would you like to take part? ☐Yes ☐ No, - Thank you and sorry to bother you.
If yes, sign the consent below.
I, ---------- confirm to have read and completely understand the information provided on this form and therefore give my consent to taking part in this research.

(b) In this interview, in addition to taking notes I will also use a voice recorder to record the conversation so that I capture the information I may miss with note taking. Do you agree the use of voice recorder?
☐Agree ☐ Disagree Signature: _____

Section A-General Attributes
Objective: To characterize the participants in terms of demography and location

Age and education level: _____

Catchment: _____ Sub-catchment: _____District/Village: _____

Gender of the respondent: _____

Section B-Process of policy, legislation and guidelines formulation
Objective: To establish whether policy and legislation formulation and review process conform to the principles of governance and how it compares with processes in other countries

1. When did you join the organisation and please explain to me what is your role in catchment management or water resources management?

2. Is there any official document that guides your organisation in the role you have indicated above? Mention the document (if there is a copy, would you share with me?)

3. Indicate the review period for the following policy, legislation and guidelines? Answer only those applicable to your organisation.

☐National Water Policy: _____year(s)
☐Water Resources Regulations: _____year(s)
☐Water Resources Act: _____year(s)
☐Bye-laws on water and environment: _____year(s)
☐Catchment Management Plans: _____year(s)
☐National Water Resources Master Plan: _____year(s)
☐Other, specify: _____

4. Has the review period of your choices in (3) above been regular? and if not maintained, why do you suggest are the reasons?

☐Yes ☐ No, if no, why? _____

5. In formulating or reviewing the policy, legislation and guidelines, mention any organisation or individuals you involve outside your organisation and why do you involve them?

6. Would you please describe how you exactly involve the stakeholders mentioned in (5) above?

Section C-Defining stakeholders for catchment management
Objective: To understand how the decision makers define stakeholders for water resources management. This will also tell whom they involve and gaps between policy, legislation, and implementation can be established

7. In your own understanding who are key stakeholders in water resources management especially in ensuring water security (quantity and quality) within a catchment? And why the mentioned are key stakeholders in your opinion?

8. Of the following selected key catchment conservation practices, name the key stakeholders against each and indicate their levels of influence and interest.

Conservation practice	Stakeholder(s)	Levels of influence	Levels of interest
Crop rotation			
Conservation farming			
Irrigation land levelling			
Mulching			
Nutrient management			
Riparian forest buffer			
Streambank protection			
Tree planting			
Waste utilisation			
Wind/fire break			
Controlled grazing			
Others (specify)			

9. Explain examples of how stakeholders exercise influence and why do you think are the reasons for the low levels of influence (if mentioned in 8 above- low influence and interest levels, in this case, 4 and below).

10. Are you aware of the impact of land management has on water resources? Has your organisation any system in place to ensure sustainable land management is carried out by both contractors and rural communities?

Section D-Limits for stakeholders' participation in water resources management

Objective: To solicit views from the decision makers on barriers they meet and most importantly to highlight how can barriers to participation be removed.

11. What do you think are the main barriers to stakeholders' participation in water resources management?

12. To what extent are the factors mentioned in 11 above are barriers to participation?

13. Explain what should be done to remove or change the barriers to become enablers and who is responsible for the change? Is your organization doing anything on this or any organization/individual you are aware of?

Appendix B: Interview guides for rural communities interviews

Introduction: (same as Appendix A)

Section A: General attributes

Age and education level: _____
Catchment:_____Sub-catchment:_____District/Village: _____
Gender of the respondent: _____

Section B: Socioeconomic attributes
Objective: To characterize rural community members
1. Which level does your household income fall into on average per month?
☐ Less than MK500 ☐ MK500-MK1,000 ☐ MK 1,000-MK5,000
☐MK5,000-MK10,000 ☐ MK10,000-MK20,000 ☐ MK20,000-MK50,000
☐Over MK50,000

2. What are your sources of income? And tell me what is your occupation?

☐ Family members ☐ Farming ☐ Employment ☐ Own a grocery or any other business
☐ Other, please specify: _____

3. If the source of your income in 2 above is farming, which of the following describe the type of farming you are using? And if you practice irrigation farming, what is the source of water?

Type of farming	**Tick ✓**	**Source of water for irrigation**	**Tick ✓**
Subsistence rain-fed		Borehole	
Subsistence irrigation		Shallow well	
Commercial rain-fed		Dam	
Commercial irrigation		River/River diversion	

Section C. Conservation awareness
Objective: To establish information flow from decision makers to implementers of activities on the ground and those who can potentially affect the decisions made in the policy or legislation

4. Which of the following water-related conservation practices are you aware of? From whom did you learn about the practices? Tick which practices are applicable to you.

Conservation practice	**Tick**	**Source of information**
Crop rotation		
Contour farming		
Conservation cover		
Irrigation land leveling		
Mulching		
Nutrient management		

Riparian forest buffer		
Streambank protection		
Tree planting/establishment		
Waste utilization		
Wind/fire break		
Prescribed grazing		
Soil management/minimum tillage		
Others-specify:		

5. Which of the above (in 4) practices take place in your area (catchment)? Do you take part in such activities? If not, why not?

6. What is your exact role in conservation activities in 4 above and how often are practices implemented in your area in a year?

Section D. Catchment management institutions and legislation
Objective: To establish the current practice by the community towards conservation. Also, to establish the commitment by both rural community and government towards catchment management

7. Does any institution exist which organizes land and water conservation practices in your area?
☐Yes ☐ No ☐ No idea

8. Who facilitated the formation of the institution in 7 above? Were you involved and how?

☐ Local authority (village chief)
☐ Government
☐ Water Utility Company
☐ No idea

9. Does an extension worker come to visit and give advice? If so how often and what type of advice?

10. Are you aware of the impact of land management on water resources?
☐Yes ☐No

If Yes please explain where you got the information; if No, in your opinion what is the best method for education to reach farmers and adults.

11. Are you aware of any policy, legislation and guidelines related to catchment management or water resources management? Mention them.
☐ Yes ☐ No

_____

12. How did you know of the policy, legislation, and guidelines in 10 above?
☐Was part of the formulation team
☐Radio/TV Jingles
☐Road signpost/placard
☐Extension officer
☐Awareness campaign/workshop
☐Other (specify:

13. Have you ever participated in the formulation or review of the policy, legislation, and guidelines for water resources? If ever participated, can you remember how many times in the past 5 years?

14. If you participated in the review or formulation, how exactly you were involved and where did the review or formulation exercise took place?

15. Were your views considered during the formulation or review meetings?
☐Yes ☐ No, why do you think it was not considered? _____

16. Is government doing enough in terms of sensitizing and engaging rural stakeholders around catchments on water resources management especially regarding conservation, water quality, water quantity, water scarcity etc.?

☐Yes, give examples: _____
☐No

17. If No, what would you expect to see government doing which seems not being done at present? And any idea as to the failures of government in sensitizing the public?

Appendix C: Fieldwork plan showing key tasks conducted for the development of the Theory of Change and rural stakeholder engagement framework

Time and Activity	Objective	Responsible person	Comment
09:00-09:05 Welcome and self-introductions	To build up a degree of familiarity among participants and the researcher	Researcher/Participants	
09:05-09:15 Research introduction	To generally introduce the overall research objectives and the particular topic of discussion and also to promote discussion and participant engagement	Researcher	
09:15-09:45 Theory of Change discussion	To critique the first draft of the Theory of Change and to further improve it	All	
09:45-10:00 Tea Break			
10:00-10:30 Theory of Change plenary discussion	To summarise the draft of the Theory of Change and establish consensus	All	
10:30-11:15 Plenary discussion on rural stakeholder engagement	To discuss and develop the engagement framework		
11:15-12:00 Summary of the engagement framework	To synthesise the engagement framework		
12:00-13:00 Conclusion and lunch	To finalise the workshop		

Appendix D Guide questions for the focus group discussion

Hello, my name is Brighton Chunga. I am a PhD student at Cranfield University, in the UK carrying out a research on assessing the extent of rural stakeholders' inclusion in water resources management in Malawi. Target areas are based on the catchment demarcations used by the government through the Ministry of Agriculture, Irrigation and Water Development. There are 17 catchments and this research will only be conducted in South Rukuru, Linthipe, and South West Lakeshore.

Thank you all for agreeing to take part in this research, particularly as we go through the following few questions. Your participation in this research is voluntary, so if you would like to withdraw now or amidst the discussion please just let me know.

Your input will be helpful in enhancing rural community involvement in water resources management particularly at catchment level.

Questions for discussion

Q1) What are the aims or goals of water catchment management? Please rank them in order of their importance or in-order of achieving them.

Q2) What are the roles of rural community in achieving the goals mentioned in (1) at a catchment level?

Q3) How do you evaluate the current involvement of rural community in water management at catchment level with respect to policy processes (formulation, implementation)?

Q4) List the main challenges affecting the participation of rural community?

Q5) How can rural communities be effectively engaged?

Appendix E: Example interview transcript

The following text is a verbatim transcript of a research interview with a government officer based at the regional forestry office. It is only provided here to illustrate the structure and content of a typical interview.

Start audio

Interviewer: When did you join the organisation?

Respondent: [Ummh] I joined the organisation in 1996

Interviewer: Where was that?

Respondent: Thus in Rumphi

Interviewer: What is your role in terms of catchment management?

Respondent: In terms of catchment management, as you know I am in forestry and we mainly deal with trees and we make sure that the catchment is intact in terms of forest cover. We are there to protect, we don't allow people to go in cut trees or do some illegal activities like charcoal burning. Yeah, so our role is to protect, to conserve so that the catchment is intact so that it provides what we need in terms of say, water.

Interviewer: So since you joined in 1996 these have been your roles? And you worked in Rumphi and transferred to Mzuzu? Or you worked somewhere else?

Respondent: No I worked in Rumphi, Karonga, Chitipa, Mzimba, and Nkhatabay and then transferred here in Mzuzu.

Interviewer: I see so you have worked the whole northern region apart from Likoma! Ok. Is there any official document guiding you in the roles you have mentioned; to protect, to conserve forests?

Respondent: Yeah the official documents are there. We have the forest policy, we have the forestry act and we have these other supporting documents such the (NFP) national forestry program.

Interviewer: What does it (NFP) do?

Respondent: That one is just to operationalise the Policy

Interviewer: What does the NFP have in operationalising the policy?

Respondent: Some actions of what you need to do in order to manage the forests.

Interviewer: You have any other documents apart from the NFP

Respondent: Of course other documents are there but these (the one mentioned) are the main ones.

Interviewer: Do you know them (main ones)? Do you have them? Can you share?

Respondent: Yeah we have and I can share them with you.

Interviewer: As you rightly said about guiding documents in forestry, in water there are also guiding documents, do you know any?

Respondent: In water? Of course, I have not read much, so I can say [aaaaah] No.

Interviewer: Why don't you know about this?

Respondent: This water regulation? I think what I see mainly is I don't know if its government departments, the collaboration issue. The collaboration issue is the one which is a challenge. Because when you collaborate you share a lot.

Interviewer: So you think the reason is that there is no collaboration?

Respondent: Yes. Because when you work together in most cases you share the experience, you share the materials but when I work as forestry I would mainly focus on what forestry does.

Interviewer: But you have clearly explained to me that your role is to protect and conserve forests but making sure water is protected (as another goal in conserving forests), the land is not degraded. So much as you protect forests you can't forgot other resources such as water or land. How can we remove the collaboration gap?

Respondent: The only thing to remove is that we plan together administratively — especially those sectors which are interrelated in terms of some certain things.

Interviewer: What do you mean by planning together? Like what?

Respondent: What I mean, let's say the forestry people, the water people somewhere they meet in terms of natural resources management. They need to collaborate with each other. We forestry we are going to plant trees; we are going to protect existing trees and now in these areas, there is water we need also to protect the water, we need then the water people, and thus the water people come in. So ok, we are focussing on trees but we are also focussing on water so we need to merge our activities to that both resources are managed properly.

Interviewer: Ok so planning is an issue to be sorted, what else?

Respondent: Yeah definitely when you are plan together, you can't stop there; you need to implement that plan. When talking of implementation, we are talking about those meetings: review

meetings, what?..when?...there are there, the supervision you need to be together, they are in the implementation.

Interviewer: Thus interesting, so whom do you involve in implementation? Is it the water people?

Respondent: No it's not only the two. I just gave an example because I focussed on the water thus why I mentioned the two departments. But when we go to the natural resources management it's too general, we have to involve the agriculture people as well because they need water, they need land, we are talking of land people.

Interviewer: Who else?

Respondent: Aaaa mainly at district we have what we call DESC team. There are the forestry people, irrigation people, land resources people, water people, environment people, and fisheries.

Interviewer: Once again, so what do you call this working group at a district level?

Respondent: We call “DESC”, D.E.S.C for District Environmental Sub-Committee. It is a subcommittee to DEC. You know DEC? District Executive Committee.

Interviewer: In terms of implementation, do you involve the rural people?

Respondent: Very much. Yeah, in terms of planning I said the major sectors are those but when we go down to the implementation we need to involve the communities.

Interviewer: How do you do that? Or do you do that? As forestry?

Respondent: Exactly we do engage the rural communities. In terms of management, there are two systems in forestry when we go out there in terms of land that belongs to the chiefs we call customary land. When we sensitise the communities to manage these natural resources, the forests we encourage them to form committees which we call “VNRMC” I don’t know if you have heard of this? It’s the Village Natural Resources Management Committees.

Interviewer: You form these?

Respondent: We facilitate, we don’t form but we facilitate the formation. Yeah in that way we encourage a village if it has natural trees somewhere we encourage them to form a Village Natural Resources Area in short VNFRA. In terms of the management of the committee itself, they need to have a constitution and in terms of the management of the trees, the VNFRA need to have a management plan for the proper management. Now we go to tree planting as well, we even encourage where there is bare land they need to plant trees.

Interviewer: Do you have this arrangement in Chigwere catchment area

Respondent: The committees are there. Only that I cannot mention because I have just come here I am three months old, they are there, committees are there. Now I started with the customary land now I go to the other when it’s the forest reserve. Unfortunately, this one is not co-managed. Co-managed in terms of we can work together.

Interviewer: But I heard that there is co-management?

Respondent: It's there but not Kaning’ina Forest Reserve.

Interviewer: Oh but I read a paper on co-management of this area. When I went to a water utility official, he too mentioned that there is nothing on the ground and he said they are just talking about this.

Respondent: Of that co-management, I even heard so. But not the whole Kaning’a. It was a certain portion where there was a roadblock somewhere. That portion was co-managed with the people but there is no document. When? In forestry when we say co-management you need to have a document that document is signed by the director and should authorise to say yes ok go and implement. I also just heard but on the ground, it's not there.

Interviewer: Have you worked in an area (since you have worked in different places whether in Rumphi, Karonga, Chitipa, Mzimba, Nkhatabay, or Mzuzu) where you have this (co-management) system working?

Respondent: Yes. In Chitipa we have got ?Muyese? Forest Reserve and ?Wilindi? Forest Reserve. These two reserves are co-managed. People and together with the forest office are working together to protect, to conserve the catchment.

Interviewer: Alright, so we had diverted a little and let's continue with the next question. Has the review periods for the guiding documents been regular? Both forestry documents and those of water?

Respondent: The policy as of now, we have a new policy. The old policy was from 1996 and it had been reviewed 2016.

Interviewer: Why?

Respondent: Because of some shortfalls

Interviewer: Why do you think this is the case reviewing in 2016? was the period is too long (1996-2016)?

Respondent: Oh yeah. It is almost 20 years. But ummmh you know this Malawi government with issues of money. So in Malawi let's say in the Department of Forestry with the resources we get, it's not possible to review these documents every five years.

Interviewer: In formulating and reviewing of these policy documents, have you been involved before?

Respondent: Yeah not in the formulation, but in the reviewing sometimes because I was down, down to the ground, so they came to ask. Thus how I was involved.

Interviewer: So you were only consulted? What were you consulted on?

Respondent: Yes only consulted. They were looking at some of the sections which were not matching with the present situations.

Interviewer: Ok. Can you trace in the new policy that this and this I contributed and has changed in the way you suggested? Or not? Or they just asked your views but didn't take it on?

Respondent: Aaah of course, it was just a discussion. But I would say that some of those have changed.

Interviewer: Ok. So you were not involved per se but just consulted? What other organisations do you think were involved?

Respondent: There a number of them, for example, Ministry of Agriculture, Lands, Environment, Water. These are major sectors much attached to or related to forestry…. [And then he speaks as if trying to recall for 3 seconds]

Interviewer: Why do you involve these? In your opinion.

Respondent: We involve them because somewhere ummmh we are connected in terms of the management of these natural resources.

Interviewer: "Somewhere", what do you mean by somewhere?

Respondent: Eeeeh yeah I can say we are supposed to have a common understanding in terms of the management of the natural resources.

Interviewer: Tell me how do you involve the stakeholders you have mentioned; water, agriculture. How do you exactly involve them when you are formulating the policy? Do you call them for a meeting/workshop and you share them the draft policy and let them comment? Or do you really do it?

Respondent: In terms of formulation its done upper there.

Interviewer: Who are they when you say “upper there”?

Respondent: The Director and his team, urrrh the PS (Principal Secretary)

Interviewer: In your own understanding who are the key stakeholders in managing water resources/catchment management?

Respondent: The key stakeholders are: forestry department, Communities themselves surrounding that catchment area, Lands department, Environment Department, Irrigation department.

Interviewer: Why do you think are key?

Respondent: If you can see those sectors I have mentioned there, as I said before they need to have a common understanding so that those resources may be water, land, trees are well managed. Because they seem to be supporting each other these things, these natural resources you can say. Without trees, we can have no water. We need to manage trees to have water.

Interviewer: Do you think this is working? In your opinion.

Respondent: Of course a bit. As I said before because of poor planning. Agriculture people are doing things on their own, forestry on their own as a result somewhere we seem to be contradicting.

Interviewer: Who are key stakeholders for the following conservation activities, and rate it by influence and interest

Conservation Activity	**Key Stakeholder**	**Influence (1-12)**	**Interest (1-12)**
Crop rotation	Crops dept/forestry	10/4	11/7 (because want people not to cut down trees)
Contour farming	Land Resources/Forestry	11/8	10/6
Irrigation land levelling	Irrigation	10 (low in influence)	11
Mulching	Agri/Forestry	7/4	11/6
Conservation farming	Land Resources	8	10
Nutrient management	Agriculture/Forestry	6/4	10/6
Riparian forest buffer	Forestry/Agriculture/Env	9/7/8	11/8/9
Stream bank protection	Forestry/Agriculture/Water	6/6/7	12/10 because they want people to farm close to the river/12
Tree planting	Forestry/Agriculture	10/7	12/10
Fire/wind break	Forestry/Agriculture	10/9	11/9
Waste utilization	Environment/Water	9/8	12/11
Prescribed grazing/rotational grazing	Agriculture/Forestry	6/7	11/10

Interviewer: How stakeholders exercise influence and why some of these have low influence? For instance, forestry has low levels of influence on crop rotation

Respondent: Because forestry is about trees only and crop rotation you are talking of agricultural crops. So the forestry is not much into in agricultural crops but the interest is there so that people don’t go out and cut down trees.

Interviewer: You have given rich information on influence/interest matrix. Is this a reflection on the ground?

Respondent: Yeah the reflection on the ground is that. If you can see how I have done it there, the influence is always on the lower side and the interest is high. I will give you a reason. For

example, we are very much interested in protecting the river bank but in terms of capacity or implementation it can be in terms of resources. Because if you don't have enough resources say field to take you to the catchment then you won't do it.

Interviewer: Does this translate to what is really happening on the ground?

Respondent: Yeah exactly.

Interviewer: You would think if I go to Chigwere catchment today, people are practising mulching?

Respondent: Mulching is at a lower level. It is not everybody.

Interviewer: Does your organisation have the system in place to ensure sustainable land management?

Respondent: Yes. Thus why we have like tree planting, the system is there. We encourage agroforestry.

Interviewer: Do you do this with the communities?

Respondent: Yes, all these things we talking here we do with the communities. We just facilitate.

Interviewer: In terms of stakeholder participation and I am interested in rural communities, what do you think is their involvement in water resources management?

Respondent: The main barriers especially with this time is with democracy, with handouts by some NGOs it's making barriers to those departments which do not have resources to implement its activities.

Interviewer: So what do you mean by democracy, NGO handouts?

Respondent: In terms of democracy, you know these days as opposed to the past when the village headman calls for a meeting whether an environmental meeting or any other meeting, people these days have the right to say I am not going to attend your meeting I am busy. In that case, that person will miss what others have learnt. So at the end in terms of implementation, not everybody would be involved.

Interviewer: So because they can easily say they have other things to do?

Respondent: Yes they will say I have other things to do that can benefit me that those meetings.

Interviewer: Do you think this was different 10 years ago?

Respondent: Yeah, in the past when the village headman called for a meeting nobody would refuse, everybody would attend. Everybody would go because they were afraid to pay something, you know in terms of fine. But these days if you pay a fine, they will pay a fine for what? You know these days.

Interviewer: Do you think democracy is bad?

Respondent: Democracy is not bad as such but I think the way how people interpret it

Interviewer: You also mentioned of the NGO, what happens, why are they barriers?

Respondent: Yeah they are barriers because actually when they were just coming in our country after democracy, they were giving the people actually communities either money or food after participating in their activities. So when the government sectors go there and don't have anything, they will even complain saying "*we got something yesterday for attending a meeting and you are coming with nothing? Gone are the days when you attend a meeting for free*" and yet those things will help themselves.

Interviewer: But what can be done to NGOs so that they follow what is supposed to be done or rather they have to follow the policies of the government in countries they operate?

Respondent: Of course I will mention this first before I answer your question; NGOs are doing these because an NGO is mainly focussed on the results. And to achieve those results if they

find a community is difficult is to introduce incentive system so their results can be achieved. Thus a very big thing. But to answer your question, I think to sit down with them tell them what the policy is saying in terms of how to handle the communities. If they insist they need to come in a different way for example if there are 10 farmers they should say we are going to pay the one who done very well so that will be an encouragement and not just for attending.

Interviewer: But the government wants results as well? So why are you saying NGO needs results as if the government does not need results?

Respondent: I can say those people; of course, they have a donor who would want results immediately while the government works at (slower) pace. Of course, the pace is to make sure that everybody benefits or the results are achieved so at that pace with the pace of others who would want to achieve results immediately.

Interviewer: Who is responsible for this change? Talk to NGOs; sensitize the community on democracy, and etc?

Respondent: The change can be carried by implementing sectors.

Interviewer: How should they do this?

Respondent: First of all, discuss with them. Sometimes you can come to sit and plan together in certain activities in which you think they are similar.

Appendix F: Example of data analysis sheet

What limits stakeholder participation in water resources management?

ID	Stakeholder group	Responses	Major theme identified	Other emerging themes	Summarised findings
01-L	Government	I think it is the approach we take. It's always top-down approach instead of taking the bottom-up approach. Unlike when we were doing environmental management at district level; at district level when we were doing environmental management plans we used to start from the bottom. We would organise meetings at ADC level try to find out what are their problems and come up with solutions and consolidate at district level and come at the national level.	Engagement mechanism (top-down approach)		Of the 11 interviewees a number of factors were reported to limit participation of various stakeholders in water resources management. It includes limited awareness/sensitization (2), demand of allowances (2), enforcement (3), engagement mechanisms (1), harmonisation of activities (2), ownership (1), poverty (1), priority setting (1), and still one interviewee mentioned that people especially community members are not just interested and another cited a problem of low level of representation by the organisation (NWRA) which is supposed to champion catchment water resources management. As can be seen lack of enforcement of the policy and regulations; demand for allowances for stakeholders who are invited to attend meetings or activities aimed at water resources management; limited awareness and sensitization; and un-harmonised activities were the most common barriers for stakeholder participation in general. Further, it was found that lack of resources was cited by a local NGO and water utility company perhaps because they have been involved or asked to fund some of the activities in catchment management. One government interviewee however also noted that one of the problem the country is suffering from a culture of where most of the activities carried out by government are project-driven. This points to an issue of sustainability. His argument was as long a particular project is completed then issues are never carried on even if such particular activities are vital such as catchment protection and conservation. *"But you know that these catchment management activities in our*
01-L#2	Government	Ummmmh there could be gaps in our policies, thus what I am thinking I am not quite sure but I think there could be gaps in formulating some of these policies	Gaps in the policy in addressing participation		
02-L	Government	May be time will come when we are going to involve them, I don't know. May be when we become autonomous we will be [represented] at the regional level and at district level may be that time around its when we are going to involve local communities, I am just thinking.	Capacity		
03-L	Water utility company	We need to intensify awareness. We do provide resources to them to carry out campaigns but I think we are not doing enough in terms of awareness. The other thing is the CBOs and field officers from the department of Forestry should champion this awareness because LWB just provides the resources. But when we go for audit these are things we see that in some areas the right things are done. Also enforcement is not done	Awareness and enforcement		

What limits stakeholder participation in water resources management?					
ID	**Stakeholder group**	**Responses**	**Major theme identified**	**Other emerging themes**	**Summarised findings**
04-L	Government	Indeed enforcement is an issue in government. There are several factors that contribute to the low levels of enforcement. One of them we are looking at staffing levels. You find that the vacancy rates in these ministries/departments that are supposed to enforce these rules is very high in such a case that one officer may not adequately enforce. But we are also looking at issues to do with corruption because some officers may not enforce these laws because they are corrupt they are getting something from doing that. Especially those cutting down trees for charcoal some of them they bribe the officers. But there are issues also to do with political will. It depends on what the current governing party is advocating and sometimes they think if they are pushing too much they are losing some votes.	enforcement		*country are program-based. It's either there is a project in that area and people will be involved"....*
04-L#2	Government	I think indeed thus the area we need to work on. As a ministry we have policies in place but I don't think most of the rural communities what we are advocating for apart from may be just taking the interventions to the communities and tell them do A, B, C, D but we need to go a step further to sensitize and conduct awareness meetings on the policies that we have so that the communities are aware.	Awareness (sensitization)		
05-L	Government	There is no harmonisation of activities. Everyone does their own way. You find three or four NGOs are doing the same thing in a particular area.	harmonisation of activities		

What limits stakeholder participation in water resources management?					
ID	**Stakeholder group**	**Responses**	**Major theme identified**	**Other emerging themes**	**Summarised findings**
06-L	NWRA	Economical barriers-people are poor. Over dependence on natural resources. I would that is the biggest challenge. For example if you say don't cut down trees and a person knows for sure that for him to survive he will have to cut the tree then he will surely cut. And if you talk of that particular person to tell him that don't cut trees then you know participation will be zero. Because he is looking at immediate economic gain for him to just eat and forget about tomorrow. There are inadequate awareness programs. Resources allocation is a problem in water. There is inadequate funding for water resources programs. It's the same traditional mindset. The priorities of government – they have other priorities even if we understand that food production is water, health is water, this one is water but what is appealing to the political [eye] is what is playing a biggest part. We know for them water is life but for them water is drilling boreholes and any infrastructure or any other infrastructure beyond that should be a special project. So there is no political will.	Poverty (overdependence on NRM), awareness, less resources, priority setting by government		
07-L	Government	Reluctant to change – for them to change we need really to convince them. If we want them not to cut trees we need to convince them and perhaps give then other [livelihood] options. Level of knowledge – some can just understand and not know why they are doing that. Culture – if it's contrary to what they believe in then it requires a lot to convince the community on catchment management. May be there are other trees that may be they believe it provides herbs to them if you let them they shouldn't be cutting those types of trees according to their belief they will not take it. Or if there water resources which they believe it provide rituals they have their own ways of protecting them.	Mindset (reluctant to change), Cultural beliefs, Lack of knowledge		

What limits stakeholder participation in water resources management?					
ID	**Stakeholder group**	**Responses**	**Major theme identified**	**Other emerging themes**	**Summarised findings**
12-L	Government-extension	People don't really care and are not interested. Because you see in the village here there are some who would really be interested and some not. In fact some think that whenever they are invited for a meeting they thought they will receive something. And should that someone go and attend that meeting and at the end of the day he gets nothing, he is the one taking the message of discouragement to his friends saying despite they invite you to these meetings they don't give out anything and once other people get convinced with that then everyone is discouraged.	Not interested Demand for allowances [handouts]		
14-L	Academic	Communities are participating; the policy has provided a conducive environment for people to participate whether it's the water act, forestry act, agriculture act is giving a favourable enabling environment for people to participate but barrier to participation may be its resources, we are not reaching out and enforcement/implementation	[limited] resources, Enforcement		
15-L	Government	Ownership-most communities don't feel that it's their forest-they don't get benefits from it so they can't participate.	Ownership		
16-L	Local NGO	Information-limited circulation of information of interventions amongst stakeholders-there is no harmonisation-they don't know to what extent they are to do their work. I made a presentation on the land resources-people didn't know about the policy-there is a disconnection. Even water people don't know about catchment guidelines-between the ministries and within. Resources for implementation [lack of]... [What about communities?] It is the same information because those mandated to be the link between government and communities lack knowledge. Communities are used to a project approach-people are not willing without being rewarded-they want some allowances.	Information among government departments and within departments and to communities, Harmonisation of activities, Resources for implementation, Project-driven and hence demand allowances		

Appendix G: Main fieldwork transcripts for in-depth interviews and focus group discussions

See details in the accompanying copy of transcripts

Appendix H: Exploratory Transcripts for in-depth interviews and focus group discussions

See details in the accompanying copy of transcripts