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IMPACT OF THE POLICY FRAMEWORK AND INSTITUTIONAL SET UP ON URBAN WATER SUPPLY IN MALAWI: THE CASE OF THE LILONGWE WATER BOARD

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IMPACT OF THE POLICY FRAMEWORK AND INSTITUTIONAL SET UP ON URBAN WATER SUPPLY IN MALAWI: THE CASE OF THE LILONGWE WATER BOARD

A Research Thesis Submitted in Partial Fulfilment of the Requirements for the Award of the Degree of Master of Science in Water Policy of Pan African University Institute of Water and Energy Science (including climate change) Tlemcen, Algeria

By
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December 2021

CERTIFICATION

I the undersigned, certifies that; I have read and hereby recommends for the acceptance by the University Of Pan African University Institute Of Water and Energy Sciences as a master thesis entitled “Impact Of The Policy Framework And Institutional Set Up On Urban Water Supply In Malawi: The Case Of The Lilongwe Water Board” for the fulfilment of the requirements for the Master of Science degree in Water Policy.

Supervisor: Prof. Wanyama Masinde
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Signature: 

Date: **22/02/22**

DEDICATION

I dedicate my Master's thesis dissertation work to my family and friends who supported and cared for me in a very special way throughout the process.

DECLARATION

I, **Edith Malemba**, hereby declare that this thesis represents my personal work, realized to the best of my knowledge. I also declare that all information, material and results from other works presented here, have been fully cited and referenced in accordance with the academic rules and ethics.

Edith Malemba **Signature:** 

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This thesis has been submitted for examination with my approval as the university supervisor

Prof. Wanyama Masinde **Signature:** 

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ACRONYMS

CG	Central Government
CS/NGO	Civil Society and NGO's
LCC	Lilongwe City Council
LG	Local Government
LWB	Lilongwe Water Board
MDG	Millennium Development Goals
NWP	National Water Policy
RA	Regulatory Authority
WRA	Water Resources Authority
WU	Water Utility
WWA	Waterworks Act

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ABSTRACT

Access to safe drinking water has been recognized as a basic human right globally time and time again by various international bodies and commissions. Sub-Saharan Africa in particular, has proven to have insufficient water access in the urban areas, due to the fact that population growth and rapid urbanization are overtaking the already inadequate infrastructure, and disparities in potable water availability are widespread. An enabling policy environment coupled with decentralisation have been highlighted to positively affect water service delivery. The study examines the policy and institutional frameworks that exists for urban water supply in Malawi, and their interactions with each other as well as with the water utility, Lilongwe Water Board. Data is collected through key informant interviews with officials from institutions involved in urban water supply and through literature review. Content analysis coupled with thematic analysis is used to analyze the data for key emerging themes. It is found that there is poor coordination between the board and the Lilongwe City Council which is exacerbated by the existing conflicting policies on institutional roles and jurisdictions in urban water supply. Low participation in joint activities as well as the long bureaucratic process affect Lilongwe Water Boards efforts of service delivery. There is a need for both a separate water supply policy and a regulatory body for water service delivery to ensure good water supply. Recommendations for future work on the set up of the water utility itself and the impact on urban water supply have also been made.

Keywords: water supply, urban, policy framework, institutional setup

1.0 INTRODUCTION

1.1. BACKGROUND

Access to safe potable water has increasingly become a key priority area over the past decades. Despite increased efforts, by 2020, 2 billion people lacked access to safely managed water services, with a 38 million increase in the urban areas from 2015 to 2020 (World Health Organisation & United Nations Children Fund, 2021). This can be attributed to rapid urbanization especially on the African continent. Sub Saharan Africa in particular, has insufficient water access in the urban areas, due to the fact that population growth and rapid urbanization are overtaking the already inadequate infrastructure, and disparities in potable water availability are widespread (Dos Santos et al., 2017). The COVID-19 pandemic has only proven to worsen the situation by affecting the regions' economic growth as governments scramble to contain the situation. The provision and financing of service delivery has suffered. Urban water supply is mostly considered a government endeavor but provisions can be made to have separate water utilities or authorities to handle service delivery (National Institute of Urban Affairs, 2015). In any case, the capacity of the institutions handling water service delivery must be high and have a strong policy framework to back it up.

In Malawi, efforts to decentralize the water sector have been made and institutions created to handle water service delivery more sustainably and efficiently, particularly in urban areas. And yet water access and availability disparities are still extensive between the formal and informal settlements in these areas. This is also despite a large proportion of the country's surface area being covered by water resources. Adams (2016) has explained the causes to include poor policies and institutions. Centralized policies have not had much success in the urban informal settlements, leaving residents resorting to unsafe water sources.

The urban areas of Malawi are served by the five water boards, that have legal backing from the Waterworks Act (1995), in as far as water supply is concerned. The capital of the country, Lilongwe, is serviced by the Lilongwe Water Board (LWB). The utility was established in 1947 and currently serves over 900,000 people in Lilongwe City and its surrounding areas (Lilongwe Water Board, 2020, 2021). There have been several projects to expand its water works and distribution systems over time but it still faces challenges such as water losses through water theft and pipe leakages,

increasing water demand, poor quality raw water due to anthropogenic activities coupled with climate change, and ageing infrastructure (Lilongwe Water Board, 2020).

The study will examine the policy and institutional frameworks that exist for urban water supply in Malawi. The case of the LWB has been chosen to critically assess how the policies and institutions as well as their interactions affect urban water supply in the capital city of the country. The paper first introduces the problem and research objectives, with particular emphasis on research significance. Then the literature is presented to highlight some of the policy and institutional background on urban water supply. Methods of data collection and analysis are then explained before finally presenting and discussing the study finding findings, leading to the concluding remarks and recommendations.

1.2 PROBLEM STATEMENT

Water is a politically sensitive resource (Hughes, 2003), whose management often times leads to an imbalance of the trade-offs between affordability and expansion of coverage to poorer communities with a water utility's need for financial viability. In Africa, problems in the water sector have been attributed to ineffective policies, linked with the noncompetitive nature of the sector and poor policy implementation (Kironde, 2020). Attempts to improve water utilities and their service delivery have had limited success as overall coverage has been almost stagnant (IEG World Bank Group, 2017).

Good water supply can be achieved in a situation where the water actors have clearly defined roles and jurisdictions, as well as an enabling policy environment. The sector in Malawi is challenged by human, infrastructural, and financial resources. It is oftentimes sporadic and unreliable, characterized by water shortages, leakages and compromised quality (Mughogho & Kosamu, 2012). There is a need to analyze how policies and institutional arrangements have impacted water supply in order to help the relevant stakeholders of the water sector in resource management planning and review.

1.3 RESEARCH OBJECTIVES

1. To review the policy framework of urban water supply in Malawi
2. To review the institutional structure of urban water supply in Malawi
3. To identify and analyse effects of policy and institutional structures on performance of Lilongwe Water Board

1.4 RESEARCH QUESTIONS

Each research question has a corresponding objective.

1. What policies affect urban water supply in Malawi?
2. Which Institutions are involved in urban water supply in Malawi and what are their roles?
3. How do the interactions of water supply policies and institutional set up affect the operations of Lilongwe Water Board?

1.5 HYPOTHESIS

1. The policy framework and institutional set up does affect urban water supply in Lilongwe, Malawi.

1.6 SIGNIFICANCE OF THE STUDY

The literature demonstrates how both the policy framework and institutional setup are vital to achieve efficient and adequate water supply. An enabling policy environment coupled with decentralisation have been highlighted to positively affect service delivery. While studies on institutional setup at a national level and others at water utility level have been conducted (Akhionbare et al., 2012; Tiroyamodimo, 2007), the policy aspect has mostly been addressed in passing and they fail to highlight the interactions of both and their impact on water supply.

The study will show how policy framework and institutional set up affect water supply. The different levels of institutional set up will be highlighted and performance analysed in the face of the policy environment of Malawi. Considering that urban water supply seems to be struggling in the country, the information can guide policy makers and water sector stakeholders in review and planning.

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents the relevant literature on the topic. It includes an overview of water supply policies in Africa and defines institutions as are used in this study. Decentralisation in the water sector is also looked at as well as current urban water supply situations in some African countries, Malawi inclusive.

2.2 POLICY AND WATER SUPPLY

Poorly formulated policies endanger systems and their existing services as well as the extension of these essential services to vulnerable populations (Dos Santos et al., 2019). They make implementation difficult, first, because of the lack of political will and commitment from governments and the scarcity of funding and skilled human resources (Seppälä, 2002). Secondly, these policies do not reflect local needs and perceptions and clash with the daily practices and culture, due, according to (Nawab & Nyborg, 2009), to lack of stakeholder consultation in the policy formulation process. Policies are therefore ineffective due to public resistance and general lack of cooperation between implementing stakeholders/actors. This is sure to have a negative impact on water supply interventions.

To ensure widespread and equal access, water supply policies must be formulated in an all-inclusive manner. Munasinghe (1990) stresses the importance of considering and analysing water supply problems in their specific socioeconomic and water sector matrix in which they are rooted. He provides general requirements for a water supply policy and planning framework that is:

- Holistic (within the context of the national economy)
- Realistic (based on the actual capacity of the government especially in terms of finances, management, human resources and infrastructure)
- Participative (ensuring maximum stakeholder participation at all levels by crosschecking the design, implementation and monitoring and evaluation of programs and projects under the policy)

The water supply policy environment is a complex one and it is worth looking into how it has evolved over time, particularly on the African continent.

2.2.1 History of Water Supply Policies in Africa

Access to safe drinking water has been recognised as a basic human right globally time and time again by various international bodies and commissions. Governments, particularly in Africa, have responded to this by incorporating into their national water policies, tools and conditions to improve access. It must be noted that these policies, especially in Sub Saharan Africa, are often influenced by global water initiatives of which the following are the most significant (Adams et al., 2018):

- The International Hydrological Decade (1965-1974). This decade focused on hydrological research and improved collaboration between nations. It initiated Africa into the global water initiatives even though participation was minimal.
- The Water Decade (1981-1990). The aim was water for all, and so the World Bank and African Development Bank invested in capital-intensive water infrastructure for African countries (Alba, 2016). It was in this decade that it was found that community-based water supply systems work best for the continent, especially in rural areas.
- The International Water for Life Decade (2005-2015). The decade focused on poverty alleviation and therefore privatisation of water utilities to deal with issues that arose from previous initiatives. Privatisation did not work, however, the results allowed for policy initiative modification to transfer only the management and not ownership of utilities from government to the private sector (Bakker, 2013).
- The Millennium Development Goals (MDG) (2000-2015). This initiative overlapped with the International Water for Life Decade and focused on increased access and poverty alleviation. Its 7th goal under Target 7c, was to halve the number of people without access to a safe source of drinking water (United Nations, 2015). Considerable progress was made on the continent to provide improved water sources despite not meeting the target.

The Sustainable Development Goals (2015-2030) are currently underway and were introduced in acknowledgement of the reality that there was more to be done in increasing water access in the

post-MDG era (Adams et al., 2018). It is the global initiative that is currently shaping water policies in line with the goal 6, “Ensure availability and sustainable management of water and sanitation for all”. Policy interventions are outlined for the various issues identified through the MDGs and research. It is now just a matter of measuring impact through the indicators to see how far these interventions have improved access to safe drinking water.

With policy interventions and reforms, comes institutional reform. The institutions reviewing, approving, implementing and monitoring the policies are an essential part of ensuring the effectiveness of the same policies.

2.3 INSTITUTIONAL SETUP AND WATER SUPPLY

2.3.1 Institutions and Organisations

Institutions have been defined widely and diversely by various authors. Bromley (1982) defined institutions as the collective conventions and guidelines that institute suitable standards of individual and group behaviour. Similarly, Young (2004) explained institutions to be a collection of rights, rules, and decision-making processes that govern human actions in specific situations. From a resource use perspective, institutions are the mechanisms that lay down the ground rules for resource use while establishing the incentives and information that direct economic outcome (Bandaragoda, 2006). Saleth (2006) goes further with the resource use narrative by defining water institutions as “rules that define action situations, delineate action sets, provide incentives and determine outcomes… in the context of water development, allocation, use and management”.

To better understand institutions, it is important to know and understand their composition. According to Saleth & Dinar (2004) institutions are composed of institutional environment and institutional arrangements, where the former “is a set of fundamental political, social, and legal rules that establish the basis for production, exchange and distribution.” This corresponds to the concept of “rules that govern society”. On the other hand, institutional arrangements are “the structure within which members of a society (individually or collectively) cooperate or compete.” This includes the social, economic and political organizations that make up society.

Bromley (1982), differentiates organisations from institutions by stating that the latter incorporate the norms and principles that define organizations while the former are those entities that operationalize the institutions. Bandaragoda (2006) reiterates by pointing out how organisations are seen as material entities with offices, personnel, equipment, budgets, and legal character. However, he realises the relationship between organisations and institutions and proposes two ways to view this link. First is to look at the creation of organisations as directed by institutional frameworks and how these organisations thereafter influence the frameworks. An example is the creation of the UN by international agreements (Agyenim, 2011). The second is to view organisations as institutions themselves. This perception is based on the fact that established organisations can be viewed as agents of institutional change (Bandaragoda, 2006).

In this study institutions and organisations are viewed as one and the same; entities with a collection of conventions and rules that define acceptable standards of water resource management. Consequently, institutional set up in this case refers to the structure and functions of organizations related to water resource management, particularly water supply, such as government departments and non-governmental organizations.

2.3.2 Decentralisation in Water Sector

The shift to decentralized management in the water sector can be seen as part of the collective effort to reduce bureaucracy and hierarchy levels in public service institutions. By definition, decentralisation is meant to make decision making and service delivery easier and more efficient. It has been defined as the transfer of responsibility, power, authority and resources to low-level government from central government to enhance efficiency and effectiveness in policymaking, financing and service delivery endeavours (Laryea-Adjei & Van Dijk, 2012). Ideally, decentralized water services should allow government to treat water as an economic good and create incentives for efficient water use while financing improved water service delivery (Tiroyamodimo, 2007).

According to Cohen & Peterson (1999), there are three types of decentralisation: deconcentration, delegation and devolution. The first refers to redistribution of power within national agencies which are still controlled by the central government, while the second involves partially

independent organisations only accountable to central government and the third have corporate quasi-independent institutions with full discretion (Mwihaki, 2018). Devolution is seen as the most advanced of the three and most preferred in terms of achieving the goal of improved service delivery. Malawi adopted this approach in its Decentralization Policy (1998) which devolves administration and political authority to the district levels in conjunction with the local levels (Government of Malawi, 1998).

Decentralisation occurs based on role distribution in the form of institutional monopoly, distributed institutional monopoly and institutional pluralism states (Cohen & Peterson, 1999). They claim that it can be achieved through strategic reorganisation of reforms to redistribute roles. Awortwi (2004) emphasises the need for a multi-actor framework that not only involves government players, indigenous institutions, non-governmental and community-based organisations but citizens as well to promote effective decentralisation. This can be evidenced by the water supply situation in a number of countries where decentralisation has been tried and either, failed, partially succeeded or fully succeeded. In Malawi, there has been some success with improved water access due to the introduction of a community based approach (Water User Associations) to water supply even in the urban areas (Adams, 2016).

2.4 URBAN WATER SUPPLY IN OTHER COUNTRIES

Several countries have gone through institutional and policy reform, particularly in the water sector, in a bid to improve all aspects of water supply. Even those in close geographic proximity to Malawi with similar water resource characteristics such as Zambia, Zimbabwe and Botswana have undergone the same.

In Zambia, the water sector reforms were influenced by the change of the economic policies in 1991 (Patole, 2015). The reforms sought to address challenges faced in the previous water management regime and so the government settled on commercialization of water utilities. As of 2016, water supply in the urban areas was intermittent and worsening to an average of 17 hours/day due to power outages and diminishing water resources (The World Bank, 2016). Simukonda et al. (2018) states that the intermittent water supply in Lusaka is as a result of poor governance,

demographic and economic dynamics, hydrologic regime change, poor system management and operation, unplanned system extensions, limited skilled manpower, poor electricity supply, lack of customer awareness. Population growth, urbanisation and poor governance in land allocation have contributed to the formation of a lot of peri-urban areas in Zambia. The institutional and legal reforms have significantly affected water supply but there is more to do for peri-urban areas which face legal and financial constraints (Patole, 2015).

Zimbabwe was one of the countries in Sub Saharan Africa with high water service level coverage due to the water sector reforms and infrastructure investments of the 1980s (Government of Zimbabwe, n.d.). It was internationally recognised as a water sector leader, however, investments in the sector declined ultimately leading to the cholera outbreak in the first decade of the 21st century. The reforms consequently failed. Musingafi & Chadamoyo (2013) explain the reasons for the poor performance of the water sector reforms to include donor withdrawal, the land reform process, financial stability, weak institutional linkages, lack of capacity within key institutions, remuneration for participants, lack of enforcement of regulations, different levels of appreciation of water, political interference. Mapfumo & Madesha (2014) reiterate that handing over of the water supply services back to local governments has only led to deteriorating services and productivity. In urban areas, water supply fails to meet demand. Population growth, economic challenges and poor infrastructure have been identified as the major challenges affecting efficient water delivery in Masvingo city (Mapfumo & Madesha, 2014).

Post-independence Botswana adopted a new Water Act (1968) and set up new water institutions (Department of Water Affairs and Water Utilities Corporation) due to the rapid population growth and emergence of water-based industries (Nyandoro, 2013). This greatly improved the water situation as compared to colonial times. However, Tiroyamodimo (2007), observed that there was no clear role demarcation and oftentimes existing water institutions were performing overlapping duties. There was minimal institutional collaboration leading to duplicated efforts. In 2009, the following reforms were implemented in the water sector to address water challenges: 1) dismantling and re-arrangement of water management institutions; and 2) Water Utilities Corporation awarded the responsibility to supply water to all settlements (Mogomotsi et al., 2018).

This was backed by existing legislature and yet the implementation of policy strategies has still been slow beyond this point. Setlhogile & Harvey (2015) emphasized the need for improved institutional arrangements in light of the draft National Water Policy (2012) that had not yet been approved and the 1968 Water Act that had not been revised.

The urban water supply situation in African countries is influenced by a number of factors, both internal and external. Malawi is no exception.

2.5 URBAN WATER SUPPLY IN MALAWI

2.5.1 Urban Water Supply Policy and Institutions in Malawi

The government of Malawi has developed and enacted a number of water policies addressing water supply over time. The main guiding policies are the Waterworks Act (WWA) (1995), National Water Policy (NWP) (2005) and the Water Resources Act (WRA) (2013). The WWA regulates water supply and sanitation services in the urban areas (Chidya et al., 2016). It is the first to do so and makes provisions for the operation of the five national water boards: the LWB, the Blantyre Water Board, the Central Region Water Board, the Southern Region Water Board, and the Northern Region Water Board, which are mandated with supplying potable water to Malawi's urban population. The boards each have their own bylaws under the same act that define the scope of their jurisdictions and responsibilities. The WWA is the main regulating legislature for these water utilities.

The NWP addresses all aspects of the water sector including water resources management, development, and service delivery with the vision "Water and Sanitation for all, always" (Ministry of Irrigation and Water Development, 2005). It was developed to be in alignment with the MDGs, the Water for Life Decade (Mulwafu, 2010). This came about after recognising the complex nature of the challenges facing the water sector of the country and the need for institutional coordination. Institutional roles, responsibilities and jurisdictions were addressed, leading to the clearly defined roles of the central and local governments, as well as the regulatory authority.

The Water Resources Act is the overall legislation on water resources management in the country and guides abstraction and supply of water. It provides for the establishment of the National Water Resources Authority and further defines its roles and jurisdictions that are mentioned earlier in the NWP. Chiluwe & Nkhata (2014) applauded the NWP for addressing the issues of good water governance but criticised the poor interlinkages with the water law. They highlighted the need for diverse water management institutions at different governance levels in light of the failing legal instruments due to lack of relevant institutions in Malawi.

2.5.2 Malawi Urban Water Supply Situation

Malawi's 2016 Demographic and Health Survey report states that only 13% of the urban population had access to piped water in their dwelling place (National Statistics Office (NSO) [Malawi} and ICF, 2017). However, access to improved water sources was estimated at 98%. Improved water sources include those drinking water facilities that are safe and free from contamination. Adams (2017) argues that the actual urban water access has only marginally improved, and in some years, it even stagnated due to urbanisation.

A large number of the urban population live in informal settlements which are sometimes called peri-urban areas. Peri urban areas can be considered as those where there is a mix of urban and rural characteristics on the outskirts of central urban areas. On the other hand, informal settlements feature unplanned construction not in line with formal planning laws regardless of their location. In Malawi, the settlements are a hybrid mix of the two which can be found either on the outskirts or within the urban areas, and they have limited access to potable water. It has been demonstrated that water supply inconsistencies are dependent on location, relative to population density and income level (Mpakati-Gama & Mkandawire, 2015). A study done by Adams (2016) found that decentralisation of Water User Associations to community-public partnerships in the low-income urban settlements of Lilongwe and Blantyre improved access to water but was undermined by infrastructural and societal issues. This is in agreement with an earlier study that showed that improving Blantyre Water Board operations through privatisation would not work due to the poor infrastructure, lack of a regulatory body and more importantly the high number of low-income residents in the city (Mughogho & Kosamu, 2012). In Lilongwe, it was discovered that informal

settlement dwellers were using unsafe water sources due to the high rates of water from the water board water kiosks (Chidya et al., 2016). There were no local institutions to govern the alternative water sources and cases of non-compliance to legislation relating to water abstraction and supply were discovered.

JICA (2020) has stated the challenges of the Malawian water sector to include poor revenue collection efficiency for the water boards, dwindling water sources due to consequences of environmental degradation, high levels of non-revenue water due to ageing infrastructures, vandalism of water supply facilities equipment, inadequate evidence based formative research to support policy formulation, increasing water demand as a result of population growth especially in urban and peri-urban areas. This is supported by evidence from Magombo & Kosamu's (2016) study in Blantyre city that established poor governance, in terms of low tariffs collection, low employee incentives and lack of performance reports, within the water utility as a root cause for water unavailability. External factors included rapid urbanisation, frequent power outages, inadequate finances, and political interference.

Urban water supply in Malawi is characterised by prolonged water shortages even in those high-income areas that seem to be favoured by the water utilities. Due to the lack of clear definition of peri-urban areas, both those and informal settlements will be considered under the umbrella term “urban” in this study.

3.0 METHODOLOGY

3.1 INTRODUCTION

This chapter outlines the methods used to gather and analyze data in the study. It includes the description of study area, research design, sampling frame and data collection methods used in the study. Data processing and analysis as well as the limitations of the study are also highlighted in this section.

3.2 DESCRIPTION OF STUDY AREA

Malawi is in the southern sub-region of the African continent lying between latitudes 9°S and 17°S and between longitudes 33°E and 36°E. The country borders 3 countries; Mozambique, Tanzania, and Zambia to the south-east and south, to the north and to the west respectively; covering an area of 118,480 km² and 28,760 km² of this is taken up by surface water resources, the majority of which is Lake Malawi (Laisi, 2009). The major terrestrial physical characteristics of the country in all three regions (northern, central, and southern) include the Nyika plateau, the Viphya plateau, the plains, and the Shire Highlands. The land is crisscrossed by numerous rivers and streams and approximately 93.2% of these can be found in the Zambezi Basin while the remaining 6.8% drains into Lake Chilwa or flows to the Indian Ocean (Chenje, 2000).

The climate is affected by the Inter-Tropical Convergence Zone (ITCZ) which is positioned over the country as well as other major systems such as the Congo Air and the South-Easterly winds. Malawi has a tropical sub-humid climate where the rains start around October and end between April and May with mean annual rainfall ranging from 600 mm at the southern tip to over 3,200 mm at the northern tip (Laisi, 2009). Relative humidity and evaporation, as components of the climate, are therefore also affected by the major wind systems as well as prevailing cloud cover. Projections showed that climate change would pose a threat to the southern African sub-region [inclusive of Malawi] by majorly influencing the water availability, people's health, natural biodiversity, agriculture, and food security as well as the ecosystems and environmental migration (Nkomo et al., 2006).

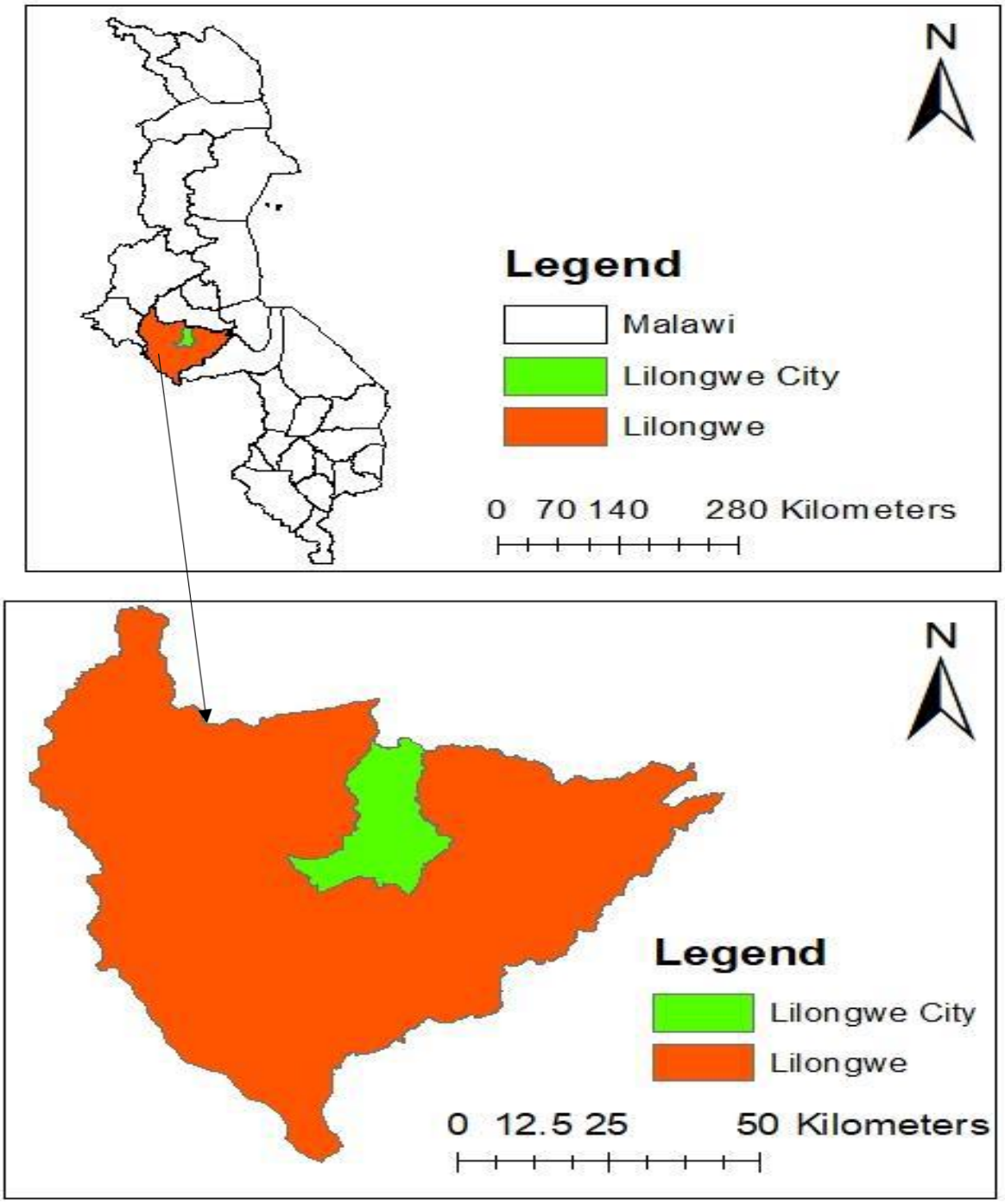


Figure 1Map of Malawi and Lilongwe City

Source: (Ngumbira, 2020)

Lilongwe is the capital city of Malawi situated between longitudes 33.5°E and 34.5° E and latitudes 14.5° and 13.5°. It is in the central region on a plateau 1050m above sea level. The district has a humid sub-tropical climate, with relatively warm summers and mild winters (Chidya et al., 2016). Water supply in the city is managed by the LWB, a water utility responsible for providing water services to the city of Lilongwe and its surrounding areas. The board produces about 125,000 cubic meters of treated water per day which is distributed to its 83,000 metered customers and more than 1000 water Kiosks in the city, enabling it to serve roughly 83% of the city population of around 1.2 million (Lilongwe Water Board, 2021).

3.3 RESEARCH DESIGN

The study employed a case study research design. The qualitative approach was adopted for both data collection and analysis. Qualitative research is used when the results are not quantifiable and because of its ability to use many different sources for data collection (Creswell, 2014). The objectives of the study are difficult to quantify hence the chosen approach. Both primary and secondary data were collected through key informant interviews, field observations and review of relevant published and unpublished documents. Purposive non-probabilistic sampling was used to allow selection of respondents based on their area of expertise and stake in urban water supply. Data was analysed through content analysis supported by elaboration analysis to identify key themes.

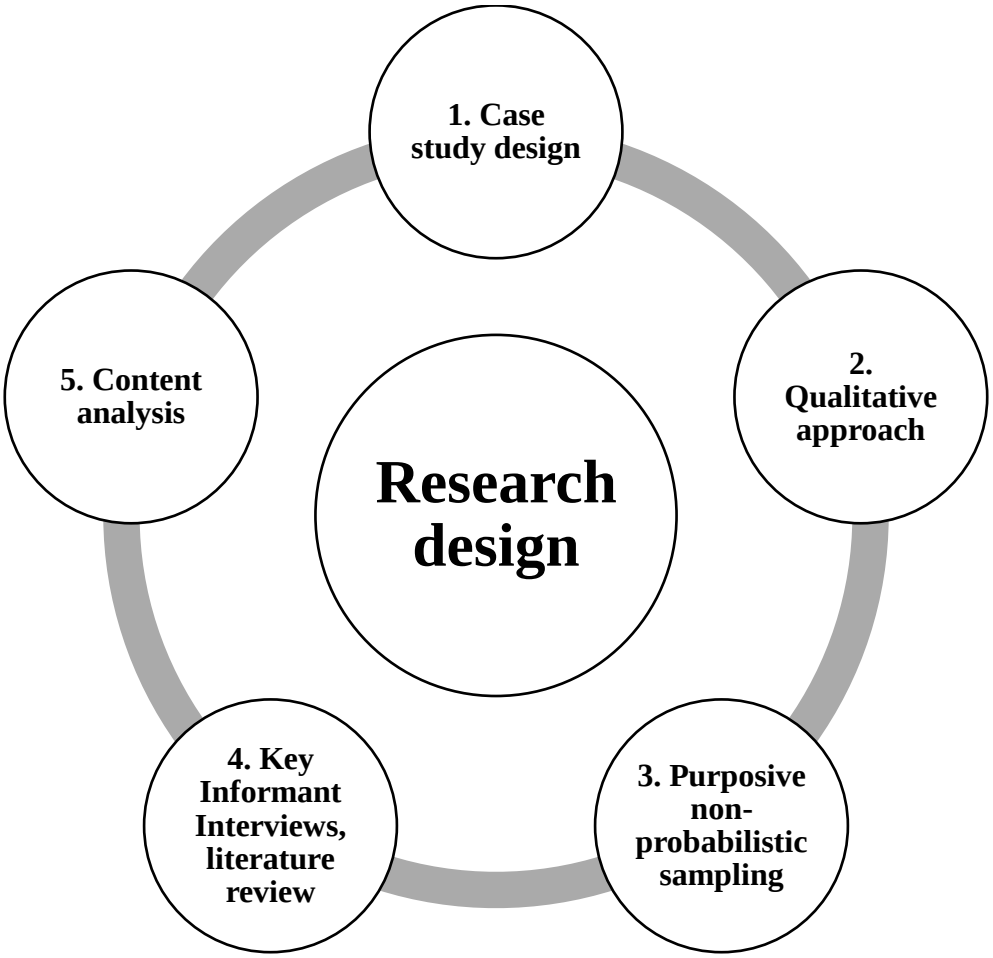


Figure 2 Study Research Design

Source: Author

3.4 TARGET POPULATION

3.4.1 Sampling and Sample Selection

The research was carried out in Lilongwe City, Malawi. The target population consists of respondents from institutions with a stake in urban water supply in the city. Purposive non-probabilistic sampling was adopted for this study, where the researcher had the choice of selecting respondents. The reasoning behind this was to be able to get a clear picture of urban water supply from the responsible officials. Seven officials were selected from the Lilongwe Water Board, and one each from the remaining institutions for the interviews due to Covid-19 restrictions. The respondents were categorized and coded as shown in Table 3.1 below. In this study, professional

staff are those considered to be in managerial positions with a direct link to policy and administrative decisions. Senior technical staff are those making day to day decisions on the technical operations of the institution.

Table 1 Study Target Population

Source: Author

Name of Institution	**Institution Category**	**Respondent Expertise Level**	**Respondent Code**
Department of Water Development	Central Government	Professional Staff	CG
Lilongwe City Council	Local Government	Senior Technical Staff	LG
National Water Resources Authority	Regulatory Authority	Professional Staff	RA
WaterAid	Civil Society and NGO's	Professional Staff	CS/NGO
Lilongwe Water Board	Water Service Provider	Senior Technical Staff Professional Staff Senior Technical Staff Senior Technical Staff Senior Technical Staff Senior Technical Staff Senior Technical Staff	WU1 WU2 WU3 WU4 WU5 WU6 WU7

3.5 METHODS AND DATA COLLECTION

3.5.1 Key Informant Interviews

Primary data was collected through Key Informant Interviews. The interview guide was divided into 4 sections for Lilongwe Water Board (role in water supply, sectoral coordination, policy and institutional coordination, and institutional performance) as seen in appendix 1, and 3 sections for the rest of the institutions (role in water supply, sectoral

coordination, and policy and institutional coordination) as seen in appendix 2. The interviews were conducted in person for 4 institutions and arrangements were made for a virtual meeting with the respondent from WaterAid due to Covid-19 restrictions. The interviews were audio recorded, and short notes taken during the course of the interview.

3.5.2 Literature Review

Secondary data was obtained from various existing literature, both published and unpublished, such as reports, journal articles, books, online sources, thesis dissertations, and policy documents. Literature was selected based on relevance to the study topic.

3.6 DATA PROCESSING AND ANALYSIS

Data collected was analyzed qualitatively. The audio recordings of the interviews were transcribed and crosschecked with the short notes for additional information. Using thematic analysis, the transcriptions were then analyzed to identify key themes surrounding policy and institutional coordination in urban water supply in relation to the checklist in appendix 3. Content analysis was used for secondary data.

3.7 ETHICAL CONSIDERATIONS

Respondents were told in advance of the purpose of the study through introductory letters and they participated on a voluntary basis. They were assured of anonymity. Both written (appendix 4) and verbal consent were obtained allowing the researcher to conduct the interview while audio recording.

3.8 LIMITATIONS OF THE STUDY

The main limitation encountered during the study was the Covid-19 pandemic as it affected both the duration of the research and the data collection and sampling methods. Due to the pandemic restrictions, a lot of institutions were either working from home or working in shifts. This prolonged the time taken to identify and meet respondents for interviews. It also limited the number of respondents due to their availability. However, data was still collected despite the constraints.

4.0 RESULTS AND DISCUSSION

4.1 INTRODUCTION

This chapter outlines the main findings of the research. The policies and institutions governing urban water supply in Malawi are thoroughly examined and discussed. The NWP, WWA and WRA are examined together with other policy documents to establish the existing policy framework for urban water supply in Malawi. 5 key institutions have been identified and their roles discussed. The interactions of these and their impact on each other as well as on the LWB are also explored.

4.2 POLICY FRAMEWORK OF URBAN WATER SUPPLY IN MALAWI

The study found that the main policies and laws governing urban water supply include the NWP (2005), WWA (1995), and the WRA (2013), which is in line with other studies (Chidya et al., 2016; Chiluwe & Nkhata, 2014; Mulwafu, 2010). This policy framework also includes supporting national plans and strategies advocating for improved urban water supply.

4.2.1 National Water Policy (2005)

The current NWP (2005) is the 3rd water policy in Malawi after government realized the need for a strong policy framework to guide the use and management of water resources. It came as a revision of the 2000 policy which was considered to be too vague and verbose (Ministry of Irrigation and Water Development, 2005) even though the latter was in fact a revision of the 1994 Water Resources Management Policy and Strategies. The first revision occurred because there was a need to strengthen the water resources management aspect. There was a lot of emphasis on water service delivery without clearly defining the institutions, roles, responsibilities and jurisdictions for water resource management.

It was found that the current policy has not been updated for some time, but it still addresses all aspects of the water sector including water resources management, development, and service delivery. It recognizes the complex nature of the challenges facing the water sector in the country and outlines strategies to combat them (Chiluwe & Nkhata, 2014). Issues of institutional roles, responsibilities and jurisdiction were also addressed, leading to the

clearly defined role of the ministry responsible for water. The main policy goal and specific goal relating to urban water supply include:

"…sustainable management and utilization of water resources, in order to provide water of acceptable quality and of sufficient quantities, and ensure availability of efficient and effective water and sanitation services that satisfy the basic requirements of every Malawian and for the enhancement of the country's natural ecosystems… To achieve sustainable, commercially viable provision of water supply and sanitation services that are equitably accessible to and used by individuals and entrepreneurs in urban, peri-urban and market centres for socio-economic development at affordable cost." (Ministry of Irrigation and Water Development, 2005)

The policy calls for a demand driven and cost-effective approach to water use from both the suppliers and consumers. It outlines strategies such as catchment protection, private sector involvement, community involvement, institutional reforms, and infrastructure development. All of this to achieve sustainability. The policy aims to create an enabling environment for water service delivery in urban areas by the major utilities, small scale service providers as well as the private sector.

4.2.2 Waterworks Act (1995)

This was found to be the first policy to make provisions for the delivery of water supply and sanitation services in Malawi. It directed the creation of the five water boards mandated with the provision of water supply services to the urban areas of Malawi. It is currently the main guiding policy for these institutions. It stipulates the water boards' role to include:

"… except for rural water supply areas, have the control and administration of all waterworks and all the water in such waterworks and the management of the supply and distribution of such water in accordance with this Act… make, construct and maintain all such works as are necessary and convenient for the purpose of creating, maintaining and extending waterworks for supplying water for domestic, public and business purposes, for

the extinction of destructive fires, for cleansing streets, lanes, gutters and sewers, and for all other purposes to which water and waterworks are supplied or are applicable." (Government of Malawi, 1995)

The act directs the waterboards on their powers and areas of jurisdiction in as far as water supply and sanitation is concerned. It was found that it also makes financial provisions whereby the utilities are enabled to collect tariffs, fines and government loans to aid in their task of supplying wholesome water to their water areas. In a way, the act limits the waterboards financial sources to revenue collection and government aid. It does not provide for external sources of funding or investment. However, through the same act, the boards are empowered to engage in research or investigation on the subject of water supply, either alone or with other parties.

4.2.3 Water Resources Act (2013)

The WRA (2013) is found to be the overall legislation on water resources management in Malawi. It is the predecessor of the WRA (1969) which had been criticised for not recognising water as a human right and being too vague (Mulwafu, 2010). It guides the abstraction, management, and rights to water in the country. Its main goal is:

"... to provide for the management, conservation, use and control of water resources; for the acquisition and regulation of rights to use water; and for matters connected therewith or incidental thereto"(Government of Malawi, 2013)

The act provides for the establishment of the National Water Resources Authority and defines its roles and responsibilities. These include control over water rights and permits, catchment protection, to take an advisory role on water policy review and amendment, and prosecution of offenders. The act also requires the Authority to keep and maintain up to date data on water resources which may be used to advise water programmes on a demand vs supply basis in a catchment area. Provisions are made for different types of water

abstraction by both the water utilities and individuals (industrial or otherwise), depending on the utility water area and justifications provided by individuals.

4.2.4 Other Policies and Strategies Relating to Urban Water Supply

Malawi Water Sector Investment Plan (2012 -2030) is a document prepared by the World Bank for the Government of Malawi which forecasted the required investment needed to improve water supply and sanitation access to over 90% of the population by 2030. The plan presents 3 possible scenarios; (i) business as usual where investments proceed as is; (ii) increased investment to achieve full coverage to achieve full water supply coverage by 2025 and 87% for sanitation by 2030; and (iii) increased investment, lower than the previous scenario, to achieve full coverage of water supply by 2030 and 40% for sanitation by 2030 (The World Bank, 2012). The plan recommends the 3rd scenario as most feasible and highlights the necessary institutional reforms to make this possible. It highlights that the water boards will have to improve staff capacity and reduce non-revenue water to at least 20% so that they are able to fund their own water development projects. Prepaid meters were also suggested as a strategy to increase revenue collection, and this has been adopted by at least three of the 5 water boards in the country so far. Other options for improvement were suggested but it was left to the utilities to decide on how they would improve performance.

The Malawi Growth and Development Strategy (MGDS) III (2017 – 2022) was prepared as an implementation strategy for the Malawi Vision 2020. It emphasizes the importance of sustainable water management to the development goals of the country. The following water development strategies can be related to water supply (Government of Malawi, 2017): Enhancing rainwater harvesting, conservation and utilization; Improving water supply in rural and urban areas; Promoting empowerment of local communities to properly develop and manage catchment areas; Institutionalizing practical operations and maintenance framework at all levels; Strengthening monitoring and evaluation system for water utilization and management; and Promoting scientific research and investigation. Detailed activities pertaining to these strategies are included in the document. The strategy

also gives brief descriptions of the water development flagship projects that were under way at the time.

The Malawi Vision 2063 is the successor to the Vision 2020, a policy document calling for the betterment of the quality of life of Malawians through environmental sustainability and economic viability. The new vision is much like the previous, but it focuses more on taking action. It recognises the significance of urbanisation and the need to have improved service delivery, water supply included. Governments role as lead in promotion of safe water and sanitation practices is highlighted and it is meant to rally all stakeholders in adoption of the same (National Planning Commission, 2020). The overall aim of the vision is to create an enabling environment for water development and investment projects.

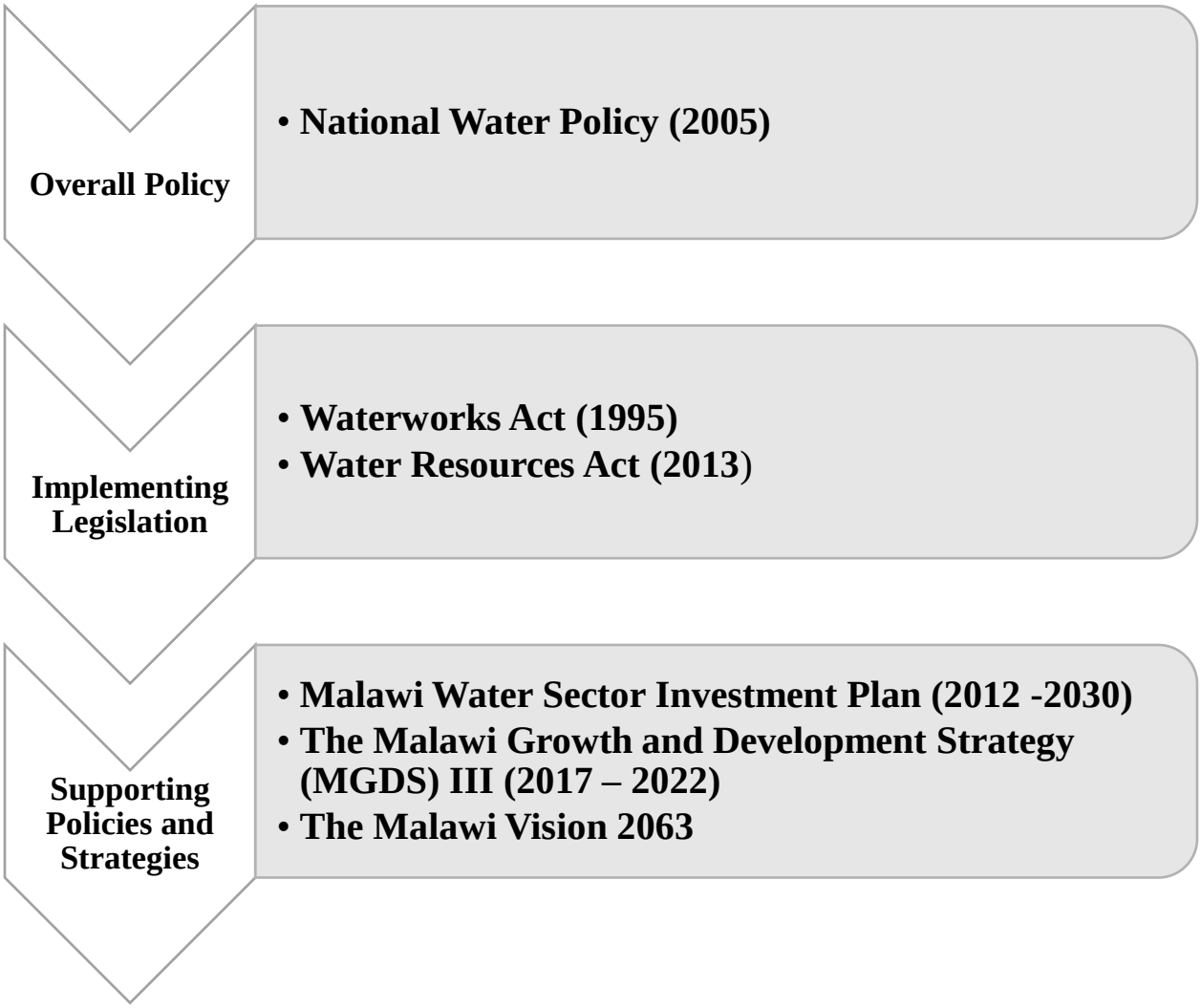


Figure 3 Malawi Urban Water Supply Policy Framework

Source: Author

The findings show that the policy framework for urban water supply in Malawi has outdated policies and acts. The respondents from the water utility have stressed that this makes implementation poor because the current issues are not adequately captured. The framework is also lacking a specific urban water supply policy or act to adequately regulate and back up the service delivery institutions. Patole (2015) demonstrates the importance of having a separate water supply and sanitation policy to improve service delivery especially for peri urban areas. Currently, the overall policy is being reviewed. It has gaps but has still managed to address some of the cross-cutting issues and its implementation so far has been fair. Respondents from various institutions agreed as follows:

"…You know the policy is a broader term that gives guidance but the implementation, the policy does not supply the resources. You understand? The policy will not supply the resources. The policy is a broader term which gives guidelines of how we are supposed to do things, but it will not give you the technical capacity, it cannot give you the financial resources. So, it now boils down to the individual organizations how to utilize the broader framework that is there… You find that the water boards across the country, they operate at different levels, some are very effective, some they have issues, but the government is the same, the policies are the same. So, the policy is adequate, now its being reviewed." (RA)

"Implementation is good for now because at least most of the issues that the policy, we said it has gaps, but most of the issues that are captured in the policy are being implemented. Regarding that, that is a plus. Issues of having National Water Resources Authority in place, yes that is being at least, we see that there are efforts to have that one fully fledged and fully functional. That one is a place and the mandate of making sure that water is being delivered, we see that yes that is being prioritised by government. As well where we see a number of projects coming in and expanding service delivery, upgrading of the infrastructure, this and that which indicates surely that the policy is being fully to the larger extent operationalised." (CS/NGO)

4.3 INSTITUTIONAL SETUP OF URBAN WATER SUPPLY IN MALAWI

The institutional set up was found to be defined by the policy framework. Both the overall policy and the implementing legislation make provisions for the institutions governing urban water supply. However, it is the NWP (2005) that, after realizing the need for an integrated approach to water management, incorporates all the relevant stakeholders and their roles. The institutions and roles pertaining to urban water supply have been summarized below:

Table 2 Malawi Institutions and Roles of Urban Water Supply

Source: Adapted from (Ministry of Irrigation and Water Development, 2005)

Institution	**Role**

Ministry Responsible for Water Affairs	• Provide policy direction and coordinate water sector programmes • Monitor (in terms of quality and quantity), assess, plan, develop, conserve, allocate and protect water resources for utilisation in the social and economic sectors of production and services • Manage and disseminate water resources and sanitation information • Invest in sectoral planning, development and construction of water infrastructure, including multi-purpose dams • Undertake policy formulation reviews, and enforcement • Establish standards, guidelines and inspectorate • Develop and regulate water utilities in terms of tariffs and financing • Undertake training and capacity building within the water and sanitation sector.
National Water Authority	• Approve any developments and/or improvements related to water resources • Ensure that water resources buffer zones are properly managed • Declare water catchments as water-controlled areas • Control and apportion water use in the country • Issue water abstraction and discharge licences

Water Utility	• Operate and manage waterworks for the delivery, distribution and management of potable water supply • Develop and implement minor waterworks infrastructures • Collect, transport, treat and dispose of or recycle and re-use wastewater and promote sanitation services • Enforce Waterworks by-laws related to the construction of delivery and connection facilities of services for water supply and sanitation in declared water areas • Implement investment programmes, tariffs and compensations related to the development and management of water supply and water borne sanitation facilities and services • Monitor water quality within the water supply systems and promote catchment management and pollution control • Collect, process, analyse and disseminate relevant data and information to all stakeholders within the water sector • Promote private sector participation in the delivery of water supply and sanitation services.
Local Government	• Plan and co-ordinate the implementation of water and sanitation programmes at local assembly level • Solicit funding for implementation of water, sanitation and environment programmes

	• Collect, process, analyse and disseminate relevant data and information to all stakeholders within the water sector • Promote private sector and NGO's participation in the delivery of water supply and sanitation services.
NGOs and Civil Society	• Assist in empowering communities to have community-based water services and water resources management in planning, implementation, operation, and maintenance • Encourage communities to manage their water supply systems, community dams and catchment protection • Assist in community sensitization on water, sanitation, catchment management and conservation • Assist in the provision of water supply and sanitation services in rural areas and to low-income groups within urban centres

All the respondents affirmed their institutions roles to be in line with the policy. Some of the responses were as follows:

"We also work with the water boards on some of their various activities which they do. We also set standards for water supply on infrastructure development. In short it is advisory. But mainly we advise them on technical issues, in terms of their operations as well as investments in new or expansion of the systems." (CG)

"The role that WaterAid plays in as far as water supply and sanitation is concerned in Lilongwe is to support service delivery. We complement the efforts that the government institutions that are mandated to deliver on the same. All we do is to support this service delivery." (CS/NGO)

"Our role is that the Lilongwe water board, it supplies water in Lilongwe. It gets water from us. They get the permit for them to be able to abstract water which they use to supply the city of Lilongwe. And our other role is also to inspect that if there is need for boreholes to be drilled in Lilongwe water supply, they need to get an authority from us and should justify why they're drilling the boreholes in their water area." (RA)

4.4 EFFECTS OF POLICY AND INSTITUTIONAL STRUCTURES ON PERFORMANCE OF LILONGWE WATER BOARD

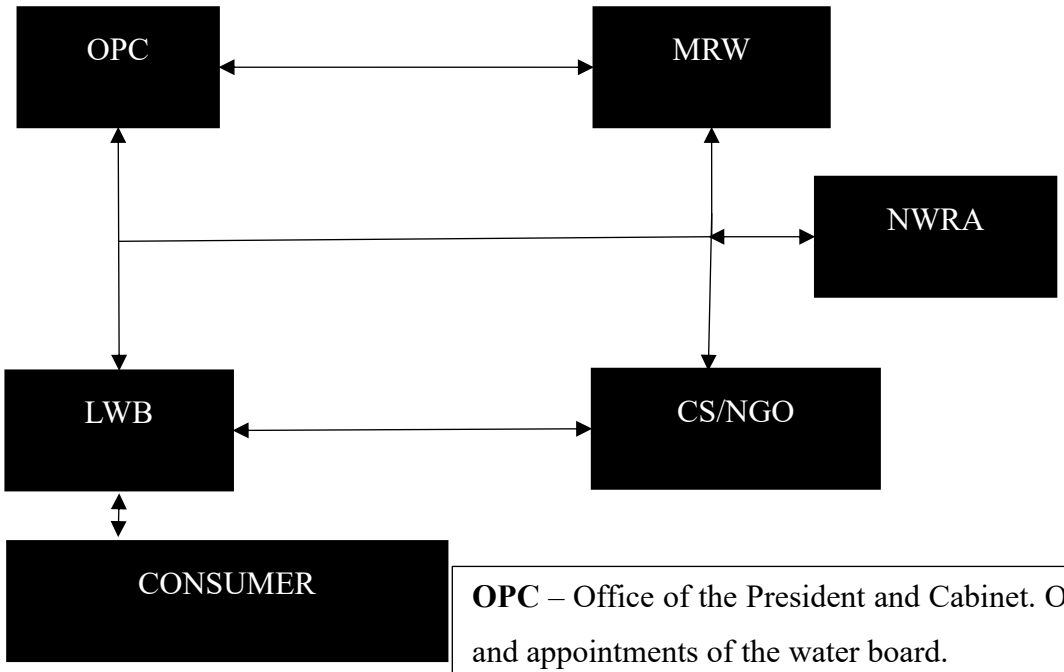
4.4.1 Conflicting Institutional Roles and Jurisdictions

Despite the water policy clearly defining institutional roles and collaboration to mandate the Lilongwe City Council (LCC) as a water service provider, the LWB is solely in charge of urban water supply without input from the LCC. This is as a result of conflicting policies. The WWA (1995) states that all urban water supply is under the water boards, but the NWP (2005) includes the local councils in planning and coordinating implementation of water projects in their locale. The respondents from local and central government also identified the Local Government Act (1998) as a guiding policy that puts water service delivery under the city councils. Adams (2016) goes further to point out that the water and health ministries, the city councils as well as the water boards, all have related roles in water supply but there are no clear jurisdictional boundaries.

"I know local government act mandates local councils to manage facilities, as well as under the decentralisation policy, that we're supposed to include the wastewater, water supply, electricity, but we already have in place independent institutions that are managing these facilities. And then though the local government act empowers the local councils, there hasn't been any additional supporting policies that now encourages/forces the other institutions to hand over these infrastructure or management of these facilities to local councils..." (LG)

"…And there are also conflicting policies, if you look at the water works act, it says that water supply and sanitation to be handled by water boards, but if you look at the local government act it's the city council. So, there are those conflicting policies which need to be harmonized. And we hope that the revision of the policy will take care of that. Of course, ideally, the water boards are supposed to fall under the city council. But still it needs to be clear who's supposed to do it. When money comes in, when resources come in, they fight…" (CG)

The city council is currently in charge of the urban sewerage systems, a function that is also put under the LWB by the WWA (1995). There are of course plans to hand over the sewer systems to the water board as per the waterworks act, but this is still in conflict with the local government act as well as the water policy itself. The LCC has no stake in the operations of the LWB, as seen in figure 4 below, even though they are operating in the council's jurisdiction. The hierarchal structure provided for by the water policy suggests the city councils are meant to directly monitor the water boards, but this is not the case. There have even been cases where the operations/maintenance of one institutions pipelines affects the operations of the other as was seen with a sewer line burst that compromised the water quality of LWB consumers in a section of the city (Nyasa Times Reporter, 2020). Respondents from the water utility agree that there is poor planning and coordination between the two institutions as they act separately. A study in Kanye Village and Molapowabojang Village, Botswana, identified issues of overlapping functions between water service institutions and attributed them to poorly defined roles and responsibilities in the policies and laws (Tiroyamodimo, 2007). Roles and jurisdictions that are not clear affect effectiveness and efficiency of water management projects when the institutions start fighting over resources (Abdinur, 2018).



OPC – Office of the President and Cabinet. Oversees tariffs and appointments of the water board.

MRW – Ministry Responsible for Water. Makes recommendations to OPC on water board tariffs and appointments. Responsible for policy review and formulation.

NWRA – National Water Resources Authority. Controls water rights and abstraction.

CS/NGO – Civil Society/ Non-Governmental Organizations. Support water service delivery of the government entities

LWB – Lilongwe Water Board. Supplies potable water to consumers in its water area

Figure 4 Institutional Hierarchy of Urban Water Supply

Source: Author

4.4.2 Low Participation of Other Government Entities

There is provision for institutional coordination in the NWP (2005) to ensure good service delivery. On its own, the LWB is limited in its roles and jurisdiction and, oftentimes, it requires the

intervention of other water stakeholders to address issues such as those to do with catchment management, urbanisation, and community sensitisation. However there seems to be low participation on the same especially from other government entities. Respondents from LWB pointed out that government entities such as the Ministry of Forestry and Natural Resources, the Ministry of Lands, Housing and Urban Development as well as the city and district councils do not do much to intervene when it comes to issues of urbanisation and construction of settlements as well as mining activities in the buffer zone. Abdinur (2018) reports a somewhat similar situation for Garowe, Somalia, in as far as participation is concerned, where water service delivery is mostly centralized with minimal involvement from local government and other community level institutions.

"*Their participation, for example like the city council and the ministry of environment. Their participation is very low. We expect much from them because they have an upper hand in conserving environment and also to look at urbanisation. There is also the district council and ministry of lands as well. All these, they have very low participation in our activities. We expect them to involve themselves in full force because no matter what we do, water is for everybody. And water is life, that why we plead if we might work with them and let them participate fully in our activities.*" (WU1)

".. and each of those partners or stakeholders, they have a role to play. But oftentimes they do not play their roles, there are always conflicts. As Lilongwe Water Board, we are saying lets conserve the environment along the Lilongwe River, but you'll find Ministry of Lands distributing land within the same river course instead of enforcing the law... National Water Resources Authority says lets leave a buffer zone of maybe 50 meters along the rivers maybe depending on their use, but you find that that enforcement is not being adhered to because of the conflict. Lands is doing its own things, Lilongwe City Council its own things..." (WU2)

"Normally it's the coordination, for example, as I mentioned of the Lilongwe City Council, you find that they issue out plots to individuals without maybe consulting us. It ends up that some of

the residents build their houses where there is a pipe underground, so we have those issues..." (WU5)

It was found that the LWB sometimes finds itself operating outside of its jurisdiction in a bid to maintain acceptable service delivery for its consumers. It engages in catchment protection activities even at the river source which is not in its jurisdiction of Lilongwe City. This is possible because of the lack of a separate water supply authority to monitor participation as well as the quality of service delivery in water supply. The respondents from central government and civil society agreed, however those from the water utility were more in favour of increasing the capacity of the Lilongwe City Council as caretaker of the city to regulate and coordinate service delivery between institutions.

"…The water boards have to be regulated in the sense that, like for instance, when they want to raise tariffs, currently, it has to come to us as the ministry and we recommend to OPC (Office of the President and Cabinet) *to say, they can raise it, looking at their operations. We need to have a separate institution. We tried to set up one, the process started, we wanted to combine the energy and the water and we wanted to call it MWERA* (Malawi Water and Energy Regulatory Authority) *but then when it went to cabinet it was rejected... But we had done a lot and if they had accepted it, it was going to parliament possibly that same year to form the new water services regulatory authority and then combine the existing MERA* (Malawi Energy Regulatory Authority) *and call it MWERA."* (CG)

"I'd recommend the availability of an institution that provides a regulatory mechanism or such services so that they will be in a position to tell which stakeholder is not delivering on their mandate and what needs to be done. So, by having that I believe we could move a mile or two in delivering these services… the availability of or the unavailability of an institution that regulates service delivery in urban areas, not just service delivery in urban set up as well as in the rural. What we have is National Water Resources Authority, an institution that is still not yet fully on board, and the mandate also seems to be limited. So there is need to either increase their mandate and at the same time to have them operationalised to be in place. That's quite critical." (CS/NGO)

4.4.3 Extensive Bureaucratic Process

To fully realize its mandate of service provision, the LWB has to implement water development projects to maintain and expand its water sources, treatment systems as well as distribution system. Financing these projects has proven to be a challenge on its own. The board is not empowered to source its own external funding without government intervention as per the WWA (1995). The Ministry of Finance has the final say on approving funding for projects, even if the LWB is able to source external donors. The respondents from the water utility and central government agree that the process is slow and may be subject to political influence, affecting the progress of the water projects.

"And the other problem is that when government is assisting or working on behalf of Water Board to source finances it becomes a political issue. So, it is not easy to say our policy is adequately serving our purpose because you find that for us to reach our goal, we need to have a lot of projects, very good infrastructure, transport, and the like, but there is too much control coming from the government. Already the Lake Malawi issue, it's not just a one-on-one business to say that Lilongwe Water Board is going to implement that one, no. It's a brainchild of Lilongwe water board but it's being facilitated by government. So, you cannot push your parents, no matter if the government doesn't take action on this one. Lilongwe water board will still cry. And somebody will come and say Lilongwe water board you're failing. And in such a way, it's not even serving all those purposes that we have in our policy." (WU1)

"The only thing is the Water Board cannot take a loan for development without us, by us I mean ministry of finance, and when they make a project proposal the ministry will put them in, PSIP, public sector investment plans. It's up to the ministry of finance to find donors, so we have a big list of projects and interventions in the PSIP, and it's for all the sectors. So, to find investors for each government project it takes time. Some projects have been there for 10/15 years, so if maybe the water boards were given the mandate to do some of these things on their own. Even if they find donors on their own, they still have to go to the ministry of finance and convince them." (CG)

Despite this, the LWB is still the highest operational water supply utility in the country, in terms of connectivity. It managed to have over 70,000 active connections out of an estimated 250,000 households in 2017/18, highest among the boards that year (Government of Malawi, 2020; National Statistical Office, 2019). These connections do not include the communal water kiosks that can cater for up to 120 households. Studies have shown that having increased connections does not necessarily mean consistent access to water as evidenced by the frequent and prolonged water shortages in the country (Adams, 2017; Mpakati-Gama & Mkandawire, 2015). This can be attributed to the focus on maintaining the operations of the already ageing existing infrastructure as opposed to replacing it and/or expanding the water sources to ensure improved access. The LWB has to prioritise these activities to ensure continued revenue collection and operation of the utility. Other activities would need external funding which has already proven hard to come by.

"The budgeting part, all the operations and maintenance are internally funded. So, we've got financial resources readily available and specially allocated for maintenance and operations just to ensure 100%, we don't require additional funding from any other organisation or the

government, in realising that the existence of Lilongwe water board depends on the continuous operation of the whole system as well as the optimal performance of the equipment we are using. So, through that we are able to maintain continuous operations and also maintenance of the system. So apart from that we've got human resources, professionally trained. These are water board employees that are, it's a standby team that quickly responds to any issues that are pertaining to maintenance. So, in this way, it's not about 3rd party, like looking for a contractor, he might be busy by the time we need him. If anything happens, they are immediately called to attend to the problem. Both the human resource and financial resource are readily available so it's easy for us to minimise the downtime and optimise on the operations." (WU7)

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter summarizes the study findings and gives recommendations based on the same as well as the study objectives. The study aimed to analyse how the policy framework and institutional set up affect urban water supply in Malawi by looking at the interactions of these with each other as well as with the water supply utility.

5.2 CONCLUSION

In terms of connectivity, the LWB is the highest operational water supply utility in the Malawi with its 83,000 metered connections and over 1000 communal kiosks that allow it to serve 83% of the population of Lilongwe City (Lilongwe Water Board, 2021). The utility is not operating at the highest level of efficiency as it still faces challenges such as losses incurred through water theft and pipe leakages, poor water quality because of harmful anthropogenic activities in the catchment area and ageing infrastructure. These challenges are exacerbated by the policy framework and institutional set up within which the utility operates.

The study found that there is no specific policy for water supply, let alone urban water supply. Rather, there is a broad policy, the NWP (2005), that addresses all aspects of water management in the country. This policy exists in the framework with the WRA (2013) and the WWA (1995) which define the roles and jurisdictions of the National Water Resources Authority and the 5 national water boards respectively. The overall policy framework includes supporting policy documents and strategies (the Malawi Water Sector Investment Plan (2012 – 2030), the Malawi Vision 2063, and the Malawi Growth and Development Strategy III (2017 – 2022) which also stress the importance of urban water supply for the development of the nation. The Malawi Water Sector Investment Plan (2012 – 2030) goes as far as suggesting ways to improve revenue collection, and therefore service delivery, for the water boards.

The institutions concerned with urban water supply are clearly defined in the NWP (2005) to include the Ministry responsible for water (currently the Ministry of Forestry and Natural

Resources through the Department of Water Development), local government (city and district councils), the National Water Resources Authority, the Water Boards and civil society. The Ministry's role includes giving policy direction, monitoring water resources as well as water utilities and investment in planning, development, and construction of infrastructure. Local government is meant to plan and co-ordinate implementation of water and sanitation projects within its locale as well as engaging the private sector and NGOs in the service delivery of the same. The National Water Resources Authority's main role is overseeing abstraction and water use in the jurisdiction of the water boards by the utilities and other independent actors. The water boards are in charge of water supply to the urban areas while the civil society and NGOs are meant to assist in community empowerment, sensitisation as well as water service delivery.

Conflicting policies have been identified as a factor affecting urban water supply, in regard to the roles and jurisdictions of the LWB and the LCC. The city council is mandated with service delivery, water inclusive, but this is under LWB as per the WWA (1995) and the council only oversees sewer system management. The council has no stake in the operations of the water board even though they are operating in the council's jurisdiction. There have even been cases where the operations/maintenance of one institutions pipelines affects the operations of the other as was seen with a sewer line burst that compromised the water quality of Lilongwe Water Board consumers in a section of the city. There is poor planning and coordination between the two institutions as they act separately.

On its own, the LWB is limited in its roles and jurisdiction, and oftentimes, it requires the intervention of other government institutions and other water stakeholders to address issues such as those to do with catchment management and urbanisation. However, there is low participation especially from government entities such as the Ministry of Forestry and Natural Resources, the Ministry of Lands as well as the city and district councils when it comes to urbanisation and construction of settlements as well as mining activities in the buffer zone. The board finds itself operating outside of its jurisdiction in a bid to maintain acceptable service delivery for its consumers, by engaging in catchment protection activities even at the river source which is not in

its jurisdiction of Lilongwe City. This is possible because of the lack of a separate water supply authority to monitor participation in as well as quality of service delivery in water supply.

The high levels of bureaucracy involved in securing and approving funding and implementation of water development projects also affect the LWB ability to expand its network and improve efficiency. It manages to maintain its operational capacity by focusing its internal investments on maintaining the existing infrastructure, and even this must be prioritised due to limited finances. Projects requiring external funding have to go through the Ministry of Finance, even if the board finds its own investment partners, and this takes time as the process may be subject to political influence.

Both an enabling policy framework and good institutional set up are essential to ensure good water supply in urban areas. The policies must make provisions for institutional roles and jurisdictions while the institutions provide the necessary implementation and regulatory framework for service delivery. The two have an undeniable relationship, impacting on each other's effectiveness in water service delivery.

5.3 POLICY RECOMMENDATIONS

1. The policy framework should be reviewed to include a separate policy on water supply with special focus on urban areas, so that the institutions have an enabling policy environment.

2. A regulatory authority must be created/empowered for water supply to monitor water service delivery as well as performance of all the institutions involved in water supply.

3. The decision-making process should be reviewed to make it more efficient to reduce delays and so as not to stall work on water development projects.

5.4 RECOMMENDATION FOR FURTHER STUDIES

Further studies to be carried out with a focus on how the organisational set up of the Lilongwe Water Board itself affects urban water supply in Lilongwe City.

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APPENDICES

APPENDIX 1: KEY INFORMANT INTERVIEW GUIDE FOR LILONGWE WATER BOARD

A. Role in Water Supply

1. What is your institution's role in urban water supply in Lilongwe?
2. How is your institution organised to realise this role in urban water supply in Lilongwe?
3. What challenges do you face in ensuring urban water supply in Lilongwe?
   How does population growth and climate change affect LWB operations?
4. What steps have been taken to mitigate these challenges?
5. What other mitigation measures would you recommend?

B. Sectoral Coordination

1. Which other institutions do you work with to ensure urban water supply?
2. What challenges do you face working with these institutions?
3. What steps have been taken to mitigate these challenges?
4. What other mitigation measures would you recommend?

C. Policy and Institutional Coordination

1. In your opinion, does the current water policy address the water supply challenges in Lilongwe urban areas?
   If so, How? If not, How?
2. In your opinion, how effective is the implementation of the water policy in Lilongwe?
3. Does the current water policy adequately aid/direct your institution?
   If so, how? If not, how?
4. In your opinion, is what is happening on the ground reflective of the policy goals regarding your institutions role in urban water supply in Lilongwe?

D. Institutional Performance

1. What is the coverage of Lilongwe Water Board (LWB)? How much of this is in high-income and low-income areas?
2. How does LWB ensure coverage in low-income areas?
3. How much Non Revenue Water (NRW) does LWB face per year? How is this NRW dealt with?
4. How is LWB able to maintain operations and maintenance?

APPENDIX 2: KEY INFORMANT INTERVIEW GUIDE FOR OTHER INSTITUTIONS

A. Role in Water Supply

1. What is your institution's role in urban water supply in Lilongwe?
2. How is your institution organised to realise this role in urban water supply in Lilongwe?
3. What challenges do you face in ensuring urban water supply in Lilongwe?
4. What steps have been taken to mitigate these challenges?
5. What other mitigation measures would you recommend?

B. Sectoral Coordination

1. Which other institutions do you work with to ensure urban water supply in Lilongwe?
2. What challenges do you face working with these institutions?
3. What steps have been taken to mitigate these challenges?
4. What other mitigation measures would you recommend?

C. Policy and Institutional Coordination

1. In your opinion, does the current water policy address the water supply challenges in Lilongwe urban areas?
   If so, How? If not, How?
2. In your opinion, how effective is the implementation of the water policy in Lilongwe?
3. Does the current water policy adequately aid/direct your institution?
   If so, how? If not, how?
4. In your opinion, is what is happening on the ground reflective of the policy goals regarding your institutions role in urban water supply in Lilongwe?

APPENDIX 3: DATA ANALYSIS CHECKLIST

Objective	Area of concern	Variables	Data sources
To review the policy framework of urban water supply in Malawi	Relevance of policy framework to urban water supply challenges	• Clarity of policy guidelines/strategies • Clarity on implementing parties	• Review of national and local development strategies and policies • Key informant interviews
To review the institutional structure of urban water supply in Malawi	• Relevance of institutional set up to urban water supply challenges • Decentralisation	• Clarity of roles and areas of jurisdiction • Monitoring and reporting structure • Empowerment of local authorities • Partnership opportunities for water supply	• Review of national and local development strategies and policies • Key informant interviews
To identify and analyse effects of policy and institutional structures on performance of Lilongwe Water Board.	Water supply efficiency	• Water supply coverage • Costs of service delivery	• Review of performance reports • Field observations • Key informant interviews

APPENDIX 4: INFORMED CONSENT FORM

Participation Information Sheet and Informed Consent Form

Title of the Master Thesis Project: **IMPACT OF THE POLICY FRAMEWORK AND INSTITUTIONAL SET UP ON URBAN WATER SUPPLY IN MALAWI: THE CASE OF THE LILONGWE WATER BOARD**

1. **Introduction**

My name is **EDITH MALEMBA** and I am carrying out key informant interviews for a research project looking at policy and institutional interactions and their impact on urban water supply in Lilongwe. This research is conducted as partial fulfilment for a Master's degree at the Pan African University Institute of Water and Energy Sciences (including Climate Change) (PAUWES), University of Tlemcen, Algeria.

2. **Aim of the study**

The study examines the interactions of policy and institutional set up and their impact on urban water supply in Lilongwe. The study aims to better understand the policy framework and institutional structures of urban water supply in Malawi, and how these affect the performance of the Lilongwe Water Board.

3. **Type of Research Intervention**

I would like to ask you a set of questions for this study. The type of information I seek includes policy interventions and implementation, as well as institutional performance and collaboration. The information will be collected either through in person interviews (observing Covid-19 regulations), virtual meeting, or phone interview. Interviews will be recorded for quality control. Your opinion is valued and there are no wrong answers to the questions I will be asking. I require about 30 minutes of your time to complete the interview.

4. **Benefits of Participation**

There will be no direct benefit to you, but your participation is likely to help shed light on the policy and institutional situation of urban water supply in Lilongwe. Your participation will be highly appreciated. Your answers will help provide information to use in policy and institutional reforms for urban water supply.

5. **Right to Refuse or Withdraw**

Your participation in this research is completely voluntary. You are free to withdraw your consent and discontinue answering these questions at any time. I will give you an opportunity at the end of the interview/discussion to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly.

6. Confidentiality

This study is conducted anonymously. That means, that any information which may lead to you will be anonymized. Thus, a researcher who uses the data will never be able to identify you, except with your explicit permission (see below). This is strictly demanded by national and international law, and PAUWES / University of Tlemcen will never infringe that law!

7. Use of the data gained from your answers

☐ Your anonymized answers will only be used for the purpose of research. In any scientific publication the data will be anonymized.

☐ You allow PAUWES to potentially make a second survey round in order to generate panel data. Should PAUWES seek to do this, the new interviewer would get only your name from me. The new interviewer would have to prove his identity to you, using an authorization signed by me.

☐ You allow members of PAUWES to use the data without anonymization in case of panel data analyses. The data will not be given to any other third party without anonymization.

CONTACT PERSON:

If you have any questions, you can ask them now or later. If you feel you have been treated unfairly, or you have questions or concerns you may contact:

Name and address of the researcher / masters student
Edith Malemba
C/O Mr CS Malemba
LUANAR
P.O. Box 219
Lilongwe
Tel: +265997748457
Email: emalemba30@gmail.com

INFORMED CONSENT:

The above statement has been read to me (or I have read it myself) and its meaning has been explained by the research staff. I agree to take part in this research. I understand that I am free to discontinue participation at any time if I so choose and that the research staff/contact person will answer any questions that arise during the survey.

____Yes, I agree to participate.

____ No, I do not wish to participate.

Print name of the participant: _____

Signature of Participant: _____ Date: _____

Signature by the researcher  14/06/2021