BINDURA UNIVESITY OF SCIENCE EDUCATION

FACULTY OF SOCIAL SCIENCES AND HUMANITIES

URBAN EXPANSION AND EMERGENT WATER SECURITY THREATS IN ZIMBABWE: CHALLENGES OF WATER GOVERNANCE DANGAMVURA, GIMBOKI TOWNSHIP IN MUTARE

MHLANGA VUSANI (B1747732)

Dissertation submitted in partial fulfillment of a Master of Science degree in Peace and Governance

Supervisor: Dr D. Makwerere

2018

ABSTRACT

The purpose of the studyis is to assess urban expansion and water challenges in particular Gimboki Township in the provision of clean and portable water. Gimboki is new residental areas in Mutare, Manicaland province. The issue of water began over years ago, but still there are countless factors hindering water services. The study included sampling of the household in Gimboki Township. The research included the use questionnaires, literature review, site observation and telephone interview as a data collection tools. In parallel with the literature survey, collection of basic background data was obtained from journals, water reports and approved thesis from internet, for site observation collection of data was done by taking photos and for telephone interviews data was collected through notes writing. The study used the combination of qualitative and quantitative approach. The study includes combining the findings of several studies and this data was critically analysed using, notes writing, tables and graphs. Through the distribution of questionnaires to members of the residents it was confirmed that there was water problem. For most people the desire was to have access to water. The community's access to water is severely limited due to their socio-economic status. Lack of participation is another socio-economic factor that deprives people from receiving water services, people in this area are poorly informed on almost aspect of water services. The literature search showed that there are also other factors contributing to water problems, which includes lack of capital and funds by the government to provide access to water. The increasing population was also causing serious depletion in water's availability and this was also causing an impact on the environment and economy.

DECLARATION

I Vusani Mhlanga declare that **URBAN EXPANSION AND EMERGENT WATER SECURITY THREATS IN ZIMBABWE: A CASE OF GIMBOKI DANGAMVURA TOWNSHIP IN MUTARE** is my own work. All other sources, used or quoted, have been indicated and acknowledged by means of complete references. This thesis has not been submitted for a degree atanother university.

Signed :_____

DEDICATION

I dedicate this work to my relatives, my wife and my kids who encouraged me through their prayers in the course of my study.

Acknowledgements

I would like to thank all the people who played a crucial role in this research and supported me throughout. Firstly, a special thanks goes to my supervisor Dr D Makwerere who dedicated his time in my research, secondly I would like to thank my siblings Ruth Dlamini and and my wife Cara for emotional and financial support. Thirdly I would like to thank my friends Kupukani Masunungure for technical support and Hardlife Zuweni for academically support, and lastly I would like to thank my long time friend Ms Charerera for assisting with academic journals and to the community members of Gimboki Township, I thank you for participating in answering research questionnaires, without your participation this study would not have been possible. To everyone else who has been there for me, I am forever grateful.

LIST OF ACRONYMS

AIDS	**Acquired Immune Deficiency Syndrome**
GDP	**Gross Domestic Product**
HDR	**Human Development Report**
HIV	**Human Immune Virus**
MDC-T	**Movement for Democratic Change-Tsvangirai**
MCC	**Mutare City Council**
NGO	**Non-Governmental Organisation**
PIP	**Population Information Programme**
SDGs	**Sustainable Development Goals**
SWM	**Solid Water Management**
UNO	**United Nations Organisation**
UNDP	**United Nation Development Programme**
WDR	**World Development Report**
WBG	**World Bank Group**
WDM	**Water Demand Management**
WHO	**World Health Organisation**
WWF	**World Water Forum**
UNEP	**United Nations Environment Programme**
UDCORP	**Urban Development Cooperation**
UNICEF	**United Nations International Children's Emergency Fund**
ZINWA	**Zimbabwe National Water Authority**
ZANU-PF	**Zimbabwe African National Union Patriotic Front**

Table of Contents

LIST OF TABLES

LIST OF FIGURES…

CHAPTER ONE

1.0 Background to the Study.

Sufficient potable water supply is one of the basic urban services, which highly affects the economic progress of towns and the health of their people. However, many urban centres around the world are facing serious problem of water supply. The problem in most of third world countries, including Zimbabwe, is particularly worst and multidimensional**.** The problems are further exacerbated by high population growth and mushrooming towns in Zimbabwe. The other issue inviting attention in water supply and sanitation sector in Zimbabwe in general and Dangamvura Township in particular is characterized by service deficiency of physical infrastructure as well as by inadequate management capacity to handle policy and regulatory issues and to plan, operate and maintain the service. Inadequate production, together with inequitable distribution system and low quality of water influence the wellbeing of people in particular and the socio-economic condition of urban areas in general Chakaipa, 2010)

Urban areas are the largest users of natural resources and produce economic value for raw material and consumption, which make urban areas the nation's economic centre. According to World Development Report (2004) urban expansion affects the increase of water demand and land requirements in the river basin level. In some areas the demand for water already exceeds natural supply and a growing number of countries are expected to face water shortages in the near future (Population Information Program 1998). The pattern of water consumption and water demand in urban areas is important issues for sustainable urban development. In Zimbabwe, government policy also emphasizes economic growth at the expense of available natural resources, especially water resources. (Mangizvo ,2013)

This study is focused on the expansion of Dangamvura Gimboki Township as the cause of increased water demand for the future and its effect on water usage in other sectors in the Watershed. Moreover, in order to establish a sustainable urban development plan in the future, urban expansion in terms of changing land use is also considered (Shah 2010). Urban expansion occurs in several dimensions, e.g. increased urban population, water consumption patterns, change of land use type that will affects spatial growth etc. Urbanization has been considered the main sector that takes advantage of natural resources, therefore the planning of urban form, urban expansion patterns, land requirements and the requirement of natural

resources are necessary to planning of urban development. Unplanned communities can cause several problems especially water shortage and the loss of suburban agricultural area and green areas due to rapid urban expansion (Yohannes 2004 :15) Global trends like desertification, urban growth, and economic restructuring are making water increasingly scarce and water access increasingly inequitable in cities around the world. At least 157 million urbanites have no access to an improved water source, and hundreds of millions more lack adequate access to safe water. The vast majority of people without safe water are concentrated in developing cities in Latin America (15 %), Africa (25%), and Asia (57 %) (UN-Habitat 2003). While much is being done to extend water provision systems to the urban poor, the roots of urban water scarcity are complex and difficult to resolve.

Today, as urban water scarcity worsens, research is needed to help mitigate its impact on the environment and human welfare. Bartram, and Cairncross (2010) say globally, water management has received much attention in recent years due to the trend of decline of the resource. Water resources are important for human survival and for most forms of economic production including agriculture, industrial production and power generation (IIED, 2007; OECD, 2005). Effective management of water resources is vital for ensuring sustainable development. However, the efforts of water resource management have demonstrated inappropriate practices, especially when compared to water consumption trends in developing countries in general and in sub-Saharan African (World Bank Group 2005)

According to Dewa et al. (2013) Theories of resource scarcity have much to contribute to interdisciplinary research on urban water scarcity. In this study, the researcher examines the effects of urban water scarcity on sociability and reciprocity and show how the findings relate to ongoing interdisciplinary research. The study is based on five months of field research conducted in an impoverished, water-scarce Township called Gimboki located on the outskirts of Dangamvura. The researcher performed participant observations, direct observations, and survey interviews. The researcher will dedicate later chapters to discussing water scarcity, sociability, and reciprocity in Gimboki. Here, the reseacher wishes to focus first on the broad practical and theoretical issues with which this study engages.

The city of Mutare city is to the east of Zimbabwe. It is the largest city of Manicaland Province. Manicaland province is well known for its perennial rivers such asPungwe, Odzi, Nyangombe and Gairezi which are found in Nyanga and Odzani which runsfrom the timber forest area of

Stapleford. Gimboki high density suburb which is my key area of study the water situation is very critically. Sometimes the water is released at night for a few hours only. Sometimes Chikanga /Dangamvura legislator uses his water tanks to supply residents with water but this has since vanished. According to Mutare City Council there is estimated population of five thousand two hundred people in Gimboki and there are only three boreholes to cater for the people. The use of house toilets has been limited and residents have also resorted to bush system. This rapid growth of the township has brought about a tremendous increase in the demand for urban infrastructural supply particularly potable water.

1.2 Statement of the Problem

Water supply to Gimboki is not reliable. Linked to water supply is poor sanitation. According to Water service report from UDCORP water and sanitation supply in Gimboki is below standard. Most households in Gimboki use pitlatrines toilets. It is apparent that the current water supply system does not have sufficient capacity to cope with the demands. The standpipes in the area do not receive water for longer period in phase one Gimboki. One of the major challenges in this area is infrastructure failure and the municipality does not have financial resources to implement such systems quickly, hence the majority of residents do not have access to safe water and sanitation services (Raab *et al*., 2008:114). The failure by the municipality to extend water and sanitation services to Gimboki residents put people at risk. The people are forced to use open sources water from rivers and hand dug wells which often has serious consequences to health and hygiene.

1.3 Objectives

1. To explore the water challenges facing Gimboki residents in Dangamvura Township, Mutare.
2. To assess the capacity of Mutare City Council relating to the provision of clean portable water to existing and new settlements in Mutare
3. To analyse the effects of poor water provision in Gimboki Dangamvura Township.
4. To propose solutions for the effective provision of water in Gimboki and other parts of the city.

1.4 Research Questions

1. What is the current water supply in Gimboki Dangamvura Township?
2.What are Sources of water to Gimboki Township
3. What are the major challenges of water supply in the Gimboki Township?

1.5 Purpose of the Study

To assess the water challenges experienced by Gimboki residents. This study is also meant to assist the Responsible Authority to find appropriate strategies to improve the flow of water supply in the affected residents.

1.6 Assumptions

The research had the following assumptions:

a. Water shortage in Gimboki has serious effects to the residents.

b. People are allocated stands in sub- serviced lands.

c. My assumption regarding poor water supply is that of health security on residents.

1.7 Significance of the Study

It is hoped that the findings of the study would provide ways to improve water and sanitation service delivery to the Gimboki Township. The findings of the study would improve the existing water management systems and suggesting ways of conducting it. It is also hoped that the findings would become a role model in conducting analogous research in other communities.

1.8 Delimitations

The study was conducted in the high density suburb of the City of Mutare in Manicaland Province. Gimboki suburb. The study period would between 2014- 2018.

1.9 Methodology.

The researcher employed a number of different data collection methods, called a "mixed methodology" (Bogdan and Biklen, 2010) or the methodological triangulation" technique the mixed method as used in this research is a method that combines the collection of quantitative and qualitative data. Even though Creswell (2003) took a strong stance against mixed methodologies because they had stood the test of time, others point out that the goals of triangulation are for convergence and completeness (Teddlie and Yu, 2007). In other words, the useful qualities of both methods could substantiate the reliability of the results. Also, by combining both qualitative and quantitative data, rigor in the research process is enhanced (Tedlie and Yu, 2007). Since the main goal of triangulation is to comprehend and confirm research results by using the strengths of both qualitative and qualitative methods, and based on the good conclusions made by Creswell et al., (2003), Morse (2003) and Newman et al (2003) on combining both methods, this study finds it appropriate to use both qualitative and

quantitative methods to gain a better insight into water management and use in the study area. Also, research methods and methodologies have changed over time and multiple methods are now being employed such as doing, hearing, seeing, recording, writing and reading in different ways in order to uncover different people's experiences. The position of this study is to use the methods that are appropriate to the problem at hand.

In this research I will use mixed methods. Mixed methods involves the collection and "mixing" or integration of both quantitative and qualitative data in a study. Mixed methods research has increased in popularity in recent years, and this chapter highlights important developments and provides an introduction in the use of this design. Mixed methods researchis an approach to inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks. The core assumption of this form of inquiry is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone. The use of both quantitative and qualitative methods is very important because some objectives require the use of qualitative research and others require quantitative research. The first and second aims of the study rely mostly on the use of primary data and interviews with relevant stakeholders.

1.10 Definition of key terms

Local Government- Local government is a management model of democratic governance. The concept of local governance has emerged due to the expansion of state functions and duties, and in order to consolidate citizens' rights to and participation in the management of their affairs. This means that citizens conduct their affairs by themselves within a particular local authority, thus achieving the purpose of creating local authorities which is in the division of responsibilities and powers between the central government and local areas.

Good Governance -Good governance denotes the best way to govern and manage the affairs of the state or institutions, at all levels, within a complementary view of political, social, economic and administrative sectors. Good governance envisages a just leadership based on rationality, recourse to law, respect for public liberties, consolidation of democracy, participation, equality, serving public interests and social development.

Community Security-Human rights are the entitlement of all people to live in dignity, and in peace, and to develop their potentials as human beings to the maximum extent possible. Human rights are "the basic rights and freedoms that all people are entitled to regardless of nationality, sex, national or ethnic origin, race, religion, language, or other status.

Water scarcity-Water scarcity is the lack of sufficient available fresh water, which can broadly be understood as the lack of access to adequate quantities of water for human and environmental uses.

1.11 Chapter Outline

Chapter one

Chapter one introduced the background of the study. It would also highlight the statement of the problem, purpose of the study, significance of the study, assumptions, research objectives, research questions and delimitations of the study, limitations of the research and definition of key terms.

Chapter two

The literature review and theoretical framework of the study explains some contemporary debates on water scarcity. It briefly traces the history and context ofwater challenges local, regional and abroad. It reviews literature that explains the origins and characteristics of water Challenges. It highlights some cases where water management measures allayed water scarcity in cities. Summary of main findings and arguments are presented in the conclusion of the chapter.

Chapter three

This chapter focuses on research design and methodology. Case study research design is explained as it is appropriate to the study. This chapter also explains the ontological and epistemological aspects of the study. Population, sample and sampling techniques are discussed. Data collection tools (interviews, Focus Group Discussions and Observation), issues of validity, reliability are discussed in this chapter. Ethical considerations are discussed which are important when doing research.

Chapter four

Chapter four present findings from the data collection process in the field, data analysis.

Chapter 5

Chapter five draws conclusions from findings discussed in Chapter four. The chapter proffers recommendations on how the city fathers can be an effective player in mitigating water challenges in Gimboki Township.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

Literature review and theoretical framework forms part of the study, this chapter posits to flag observations and arguments of scholars that help to illuminate the intentions of the present study. This chapter provides a wide exploration of the distinctions of literature that is relevant to the questions and objectives of the study, and prepares for a much detailed treatment of the topic which is provided in the chapters that follow. The chapter explains contemporary water scarcity debates and issues who are the key writers that you engaged with in the chapter? What is the theoretical/conceptual framework informing the study? It defines water demand management and reviews literature that explains and characterise water demand management. It discusses the potential benefits of Water Demand Management. It highlights some cases where water demand management mitigated water scarcity in cities. It also explains the theory of planned behaviour in terms of water use behaviour analysis.

2.2 Theoretical Framework:

Human Needs Theory

This study is going to be guided by John Burton's Human Needs Theory which posits that if one can pre-empty then one can as well pre-act. According to Burton (1990), the deprivation of individuals and communities of the available satisfiers for the basic human needs which may be physical, psychological, social or spiritual needs without which existence is impossible, is the remote source of conflict and violence. Conflicts are the direct result of some institutions and social norms being incompatible with human needs. Denial and inability by government or authorities to provide material basic needs, recognition, and identity would lead to alternative violent behaviors designed to satisfy such needs. Conflict results as a struggle between individuals or collectives over values or claims to status, power and scarce resources in which the claims are over those of others.

Conflict is a consequence of competition over scarce resources available to satisfy the basic human needs of individuals and communities.

Human security has been defined as 'freedom from fear and freedom from want' (HumanDevelopment Report 1994) to protect the vital core of all human lives in ways that enhance**.**

- Security of people from both violent and non-violent threats to lives and/or well being**.**

- Such security or peace is dependent on sustainable developmentSustainable development needs sustainable peace, and sustainable peace involves the commitment to values that reject violence as a way of settling disputes.
- Values and principles that reject violence as a way of settling disputes I favour of peaceful settlement.

There are essentially seven issues associated with human security and their threat to humanity Economic security, Food security Environmentalsecurity, Personal security, Community security and Political security.

Human needs theorists argue that conflicts and violent conflicts are caused by unmet human needs. Violence occurs when certain individuals or groups do not see any other way to meet their need, or when they need understanding, respect and consideration for their needs. Rosenberg states that violence is a tragic expression of unmet human needs, implying that all actions undertaken by human beings are attempts to satisfy their needs (Burton 1990:21)
It means using processes that build on people's strengths and aspirations. It means creating political, social, environmental, economic, military and cultural systems that together give people the building blocks of survival, livelihood and dignity." (CHS: 2003: 4). It is a prerequisite for human development, which is the goal of development cooperation.

Health is a major concern in all crises, disasters and complex emergency situations. Enhancing health security requires a sound understanding of the national context: the major hazards and risks and their impacts, institutional arrangements and health systems capacity. Priorities should be set for strengthening national capacity based on this understanding. (United Nations Development Programme. Human development report 1994) Health system preparedness planning requires thorough analysis to identify priority health threats and challenges so that appropriate preparedness measures can be identified. A continuous process of preparedness planning with a multisectoral and multihazard approach ensures the interoperability of national preparedness plans and identifies priority interventions to improve the capabilities of health systems and of national health authorities to respond to a public health emergency of international concern.

Environmental security covers such issues as prevention of water pollution, prevention of air pollution, prevention from deforestation, irrigated land conservation, prevention of natural hazards such as droughts, floods, cyclones, earthquakes etc. When we talk about environmental

health, we mean the way our health is affected by the world around us, and also how our activities affect the health of the world around us. If our food, water, and air are contaminated, they can make us sick. If we are not careful about how we use the air, water, and land, we can make ourselves and the world around us sick. (World Health Organisation, 2003). By protecting our environment, we protect our health. Improving environmental health often begins when people notice that a health problem is affecting not just one person or group, but is a problem for the whole community. When a problem is shared, people are more likely to work together to bring about change.

The aim of development is to ensure that people have the opportunity to live a long and healthy life (health), continually acquire knowledge (education) and have access to resources so that they can have a decent standard of living (material well-being) (UNDP 1994). If human development works toward expansion of opportunities then human security looks at ways of dealing with avoiding, mitigating and coping with threats. The simplest definition of security is the absence of insecurity and threats. In realism, security has usually been associated with threats to the survival of states. Human security instead poses threats to individuals and communities as its focus. (GEMI, 2016 Threats can be to their survival (physical abuse, violence, persecution, or death), to their livelihoods (unemployment, food insecurity, health threats, etc.), and to their dignity. Thus, poverty, for example, is conceptualized as a human security threat. Not only because it can induce violence which threatens the stability of the state, but because it is a threat to the dignity of individuals. Human security, in its broadest term, therefore means freedom from want, freedom from fear and a life of dignity (UNDP 2005).

Considering human security as the fundamental and inviolable right of all individuals regardless of state citizenship automatically impacts upon the question of responsibility, paving the way for an obligation incumbent upon on a wide-range of actors above within and beyond the state. However, this by no means implies a destabilization of international relations. The human security approach does not bypass the state) (UNDP 1994). The sovereign state remains the fundamental organizing unit and actor in international relations, even though its responsibilities may be altered. The state continues to play a fundamental role and cannot deny its responsibilities. Whilst accepting that the state is the primary provider of human security, a human security approach identifies three provisos to this role. First, in contrast to the realist paradigm which believes in the powerful, capable and mighty state, it considers the just, rights-based state to be the most effective and legitimate provider of human security. Second,

sovereignty is redefined in terms of responsibility, and is, therefore, conditional upon the state's willingness and ability to provide human security. Third, a human security approach recognizes that even where the state is able to provide human security, it is not the sole provider. The ideal human security approach envisages the state as part of a dynamic and seamless policy network with non-state actors, including NGOs and civil society, international and regional organizations, as well as individuals and their communities. From a human security perspective, non-state actors do not compete, but complement the state in their common objective of promoting human security (Gasper Des. 2005).

The review will define water security, provide a brief overview on existing literature on the sources of water security, introduce bureaucratic capacity as a potential determinant, and overview the existing literature on bureaucratic capacity.

Article 25 of the United Nations Universal Declaration of Human Right (1948) says: 'everyone has the right to a standard of living adequate for the health and wellbeing of himself and his family. To strengthen the accessibility of communities to urban water supply and sanitation the human right question enters into the debate. Proponents of a right – based approach argue that a rights perspective informs people of their legal rights and entitlements and empower them to achieve those rights (World Health Organisation, 2003). Rather than seeing people as passive recipients, the rights-based approach puts people at the centre of development.

The right-based approach will ensure that governments, individuals, communities, civil societies and private sectors take critical steps to respect, protect and fulfil the right to water and sanitation within their various jurisdictions (World Health Organisation, 2003). It is also premised on the principle of freedom from discrimination and equality between men and women that is closely linked with the issue of accessibility. Besides, an important feature of this approach is the notion of accountability that requires development of adequate laws, policies, institutions, administration procedures and practices, and mechanisms of redress (World Health Organisation, 2003). It is argued to have the capacity to deliver more sustainable solutions to problems of urban water-supply and sanitation as decisions are based on what communities and individuals require, understand and can manage rather than what external agencies needed (World Health Organisation, 2003).

The 2030 Agenda and its Sustainable Development Goals (SDGs) set out more ambitious and comprehensive targets for water and sanitation provision (GEMI, 2016; United Nations, 2015). The sixth SDG is dedicated to water and sanitation, and its first two targets (GEMI, 2016: 4) are currently being framed as Target 6.1 "By 2030, achieve universal and equitable access to safe and affordable drinking water for all" Target 6.2 "By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

The shift to targeting universal coverage is itself ambitious, and indications from preliminary discussions on indicators and monitoring procedures are that the criteria for coverage are also being raised. As evident in the phrasing of the new sanitation target, hygiene is being added, and at a minimum this is being taken to imply that toilets need to have handwashing facilities with soap and water (GEMI, 2016). For both water and sanitation, it also seems likely that an additional rung will be added to the top of the ladders, and they will require reaching this higher rung, which will be not be termed improved but safely managed (United Nations Economic and Social Council, 2016, Annex WHO/UNICEF, 2015b). It is also envisaged to extend the monitoring from just households to also including schools and health. (Limbumba, & Ngware, 2016) added that the criteria currently proposed for estimating the share of the population with safely managed drinking water services are that the water be an improved source located on premises, available when needed, and free from microbiological and priority chemical contamination. It is not being made clear whether or how this will be affordable as implied by the target, but this is far, far stricter than improved as used for the MDG target.

2.3 Water Governance

Water governance relates to 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 (Rogers & Hall, 2003). Or put more simply, water governance is the set of systems that control decision-making with regard to water resource development and management. Hence, water governance is much more about the way in which decisions are made (i.e. how, by whom, and under what conditions decisions are made) than the decisions themselves (Moench et al., 2003).

(Wostl 2012) posits that in recent years the concept of water governance has taken a prominent position in the water resources literature. There is now general consensus in the literature that problems emerging in water resource management are more ofteninstitutional and political thanthey arescientificand technical. The importance of water governance in the world cannot

be overstated in this time of climate uncertainty, accelerated resource development, increased awareness of land and water rights as wellas increased awareness of the proficiencies of fragmented water management regimes. Water governance intersects both the institutional and political nexus to interrogatethe decision making process necessary for watershed planning and management. In this paper the researcher identifies the requisites for more effective water governance in Zimbabwe. (Matsa, 2012) argued that, at a minimum, meaningfulconsultation with residents, public participation and engagement, adequate funding, and water quality monitoring, provincial leadership and access to informationwill provide the necessary foundation. These requisites have not been prioritized inthis study, nor are they independent of one another. Opportunities to advance watergovernance in Zimbabwe will need to be mindful of these requisites and the broader themes identified in this paper, namely improved communication, financial and technical capacity, and provincial leadership (Wekwete 2013)

2.4 Challenges of Urban Water Governance

The (WWF) World Water Forum held at The Hague in 2000 accorded high priority to water governance for action (Cooley et al., 2013) and failures in water sectors are often attributed to the failure in governance (Wostl et.al., 2012). Traditionally, urban water governance refers to technical decision making process following a fragmented departmental demand-supply cycle. Inadequacy of this approach is well documented. The emerging approach of urban water governance considers technical as well as non-technical issues and enlarges its ambit to address water security and source sustainability, reduction of impact on environment controlling human dimension of water environment change, improvement of performance of water services across socio-economic groups, and allocation and reallocation of water among resource rich and resource poor areas. Case studies across the World indicated that there are three essential roles of urban water governance: first to manage the environmental dynamics, including climate change to provide water for cities at all times; second to ensure justice and fairness in the distribution and access to water in cities; and third to ensure quality in terms of human health and environmental pollution (Olsson and Head, 2015). As there are competing demands and multiplicity in management authorities, the challenge of urban water governance is also to resolve conflicts among techno-scientific, market, policy administration, ecological and socio-political actors. The global pattern manifests that water for urban and industrial uses go up substantially and, as a result, reallocation of water between urban and rural areas is potent to create social tensions and even conflicts (TERI, 2014).

There is a need to look beyond the city boundary and take into account the broader territory, establish relationship with the surrounding rural areas, evolve reciprocity with the hinterlands and operate in the frame of management with other administrative units surrounding the city. The risk and uncertainties associated with various changes that the urban centres trigger in hydrological cycle are difficult to comprehend. However, the emerging challenges for water governance due to these changes form part of the urban water governance. The drivers of water use and abuse are location specific, so the insights on water management should arise from local level experiences. A careful analysis of the water governance system, its actors, interests, values and processes in each locality is necessary to bring out required change in the present governance practices. Going beyond the 'instrumental and idealistic' notion of governance and an attempt to depoliticisation. (TERI et al 2014) argues that it is necessary to strike a balance among different aspects of water management activities, ensure convergence between research and practice in water management science and help the society to evolve a proper governance system through democratic means of debate and stakeholder participation in policy making.

2.5 Contemporary debates and issues on urban water scarcity across regions.

Mushir (2012) carried out studies on water supply and consumption relating to home functions, in Nekemate Town, Ethiopia. In this investigation, it was found that the economic backwardness and topographical features of the land determined the supply of water for consumption in the study area. The study revealed that amount of income; working conditions and education were indicators and influenced the water consumption in the town. Mekonnen and R. Uttama (2014) studied on the assessment of potable water supply in Awaday town, Ethiopia. The study indicated that, inadequate water supply, poor standards and absence of correct allocation were caused due to high interruptions in electric power supply and administration problems. In this study, it was felt that, the causes and effects of water interruptions were necessary for a better understanding. Hence questions were posed to get the information about this issue.

Kebede (2015) studied on the urban water supply system in Hosanna town, Ethiopia. The objective of this study was to assess the household water supply problems by using descriptive survey research design. The results showed that the major factors attributed to lower supply of water were, shortage of water provision, high cost of piped water connection, rapid population growth, frequent interruption and lack of narrowing gap between communities. It was

concluded that majority of the dwellers preferred to use alternative sources, which have seriously contributed to water supply problems. (Yehuala Minwuye 2015) conducted studies on assessing the potable water supply and distribution problems in Rebugebeya town, Ethiopia. In his study, he highlighted that the source of water supply was crucial in affecting the various water requirement experiences of the respondents. The information regarding the various sources of water, availability of the sources within the residence compound of the respondents, alternate sources, distance of source and other important details were exclusively studied in this study.

An explanation of potable water scarcity is necessary for a research such as this one because it simplifies key terms of the study. The study explains potable water crisis as critical shortage or dire clean domestic water supply. Potable water crisis describes unfavourable living conditions as a result of water scarcity. The city of Mutare is experiencing perennial potable water crisis in Gimboki Township. The city is unable to supply enough water to its citizens without intermission. Valuable time for development activities is lost by citizens to attending to water shortages. (Yehuala 2015). Development financial resources are channelled to fighting diseases caused by critical shortage of water. Families are unable to complement their incomes through domestic gardening. Human waste resulting from failing sewage system and use of bush toilets is common sight on the Dangamvura Gimboki Township. It is therefore very urgent to investigate if Water Demand Management is mitigating water scarcity in Gimboki Township. However, debates on representation of water scarcity must be discussed first in order to contextualise the study and link it with other related academic outputs.
Reviewed literature gives different and at times contesting views about the meaning and representation of water crisis or critical water scarcity. The study explains these debates to help expose the nature and extent of potable water crisis in the city of Mutare Dangamvura – Gimboki Township.

Globally, most countries are not only facing political and economic challenges but also water crisis. This however has not become the burden of only governments but the citizenry who are denied with the luxury of reliable water supply (Misra and Malhotra, 2012). Notwithstanding the availability of water resources in some countries to the extent that they do not value its worth, there exist a severe scarcity of the water in some regions on the globe. Citizens of these water scarce areas normally resort to daily purchase of water for their households (Misra and Malhotra, 2012). Meanwhile, access to adequate water is a basic need. It is also very important

to both human and economic development (UNICEF, 2014). But unfortunately, water supply is not matching the demand of the people in many parts of the world. There is severe pressure on the little available water. Meanwhile, global freshwater withdrawals have increased over the last half a century as the demand for water keep rising year by year (Gleick and Palaniappan, 2010). Currently, companies which relies on water for the production of their goods or rendering of services are hugely affected (Ringler, et al, 2010). But it seems international efforts and resolutions to improve upon water supply in terms of universality of access and adequacy have produced little positive results (Jones et al., 2009). This is because, despite the effort in terms of policies and investments for many decades, several millions of people are still without adequate access to water (Onda et al., 2012, UNESCO, 2009).

More than half of the world's population lives in towns and cities (Mitlin and Satterthwaite 2013). This figure is expected to rise to 60% by 2030. Although in many cases the central areas of big cities have access to water and sanitation, the urban poor often lack such access within the poorly serviced fringes of mega-cities in developing countries. Water supply and sanitation services in poor urban areas face major constraints, such as limited financial resources, and inadequate operational or maintenance capacities. This calls for strategic water provision to sustain a healthy environment in cities, particularly in disadvantaged areas, and to meet basic human needs and rights by addressing the issues of water scarcity, water accessibility, affordability, and quality (Nastar 2014 Satterthwaite and Mitlin 2014). The voices of poor or vulnerable groups need to be adequately represented and articulated.

Alebel 2012 residents in cities depend on taped potable water. Water cannot be manufactured in a laboratory nor explained into existence through strenuous mental exercises. It falls as rain according to the precipitation cycle and is captured in catchment systems such as river basins and dams. It is abstracted from the dams as raw bulk water and pumped into water works for purification. After purification it is pumped into reservoirs for storage from where it is distributed to residential properties for use.

The literature on urban service delivery tends to focus on a subset of government services. (Kasuza, 2012) Saysparticular attention must be given to water and sanitation including water supply, waste water management, and sanitation systems and practices, solid waste management including collection, sorting and recycling or final disposal of waste and transport (including public transport, traffic management and transport management more broadly. (Matsa 2012) To a lesser extent, attention is also given to social housing and other housing-related services, as well as some consideration of urban safety and security. (Grey 2013)

positsthat urban areas are often covered by the literature on the delivery of health and education in developing countries, but no strong distinctions are made between rural and urban areas. This coverage of sectors in many cases reflects a judgement about which services are most pressing to deliver in urban areas in order to reach broader developmental goals for example, the health risks posed by water and sanitation challenges are particularly acute in urban areas, and this is increasingly also where a large proportion of the poor live (J-PAL, 2012).

The selection of urban service delivery sectors often prioritises those services over which urban governments typically have some level of control – for example, solid waste management (SWM) is devolved to the local government in a large majority of cases (Boex et al., 2014). To a lesser extent, this selection is based on an implicit assessment of the extent to which the delivery of a particular service and or the challenges faced is qualitatively different in urban areas. An example of the latter can be seen in the challenges faced in the provision of water and sanitation services. Characteristics of those services in urban areas, such as the increased use of networked rather than household level systems that often dominate in rural areas, not only create new technical challenges but also affect the types of politics generated in these sectors. In the example given here, networked systems create tendencies towards monopoly provision, which in turn shifts the balance of power in the sector and affects the ability of both users and the state to hold providers to account. The review uncovered a considerable amount of evidence that indicates that governance plays an important causal role in the effective delivery of services in urban areas, alongside financial challenges and technical concerns (Boex et al. 2014). The provision of adequate financing is an important driver of the effectiveness of urban services (Stren, 2012) for example comparative evidence suggests that levels of recurrent expenditure have a modest correlation with service delivery outputs across urban areas in South Asia (Boex et al., 2014).

This chapter explores what other people have said about the local Institutions involvement in water resources management. However, there is very few literature specifically empirical literatures which were found dealing with local institutions and water resources management in urban areas. Nevertheless, the few literatures found could suffix the purpose of this study.

Water is crucial for human survival and economic development. The provision of adequate supply of potable water in urban areas in both developed and developing countries is essential for life. In relation to this, (Alebel 2012) mentioned that in developing countries the provision of adequate potable water in addition to drinking, cleaning etc. improves health by reducing

incidence of water related illnesses such as diarrhoea, cholera, and the like. This also helps to reduce both the mortality and morbidity rates and the number of working days lost and increases the GDP. Reducing the incidence of illness will help to slash demand for improved medicine and eases balance of payment problem facing least developing countries. As such, available evidence suggests that there is a very tenuous link between improvements in health and investments in water supply and sanitation services.

The growing population of most developing countries is disproportional in urban areas. This places considerable pressure on already overburdened budgets to increase the water supply and waste water infrastructure. Moreover, little or no resources are left to supply, let alone, improve rural water supply. To add to the problems, money is spent on studies that would not be implemented. Projects are constructed, but never been implemented As a result, the water supply and sanitation in the developing world is still very inadequate. In Africa for example more than 47 % of urban households are without access to safe water. (UNICEF 2013).

Water for domestic purposes is also a problem in Zimbabwe and unreliable rainfall amounts have lowered the levels of water in the major reservoirs that supply towns and cities. The shortage has affected the normal functions of homes in the area. This has worsened the workload for women who have to fetch water from sources available. Harare suburbs of Tafara, Mabvuku and Hatcliffe have gone without water for more than a decade (Kasuza, 2012). In the southern city of Bulawayo, high density suburbs of Njube, Makokoba and Mzilikazi are facing persistent water shortages (Banda, 2011). In Gweru, areas such as Senga, Nehosho, Mkoba, Mambo, Ascot and Mtapa have gone for years without water and this has since posed health risks to residents (Matsa, 2012). Domestic water supply thus continues to be a serious challenge in Zimbabwe's towns and cities and research has lagged behind in addressing domestic water scarcity problems. The provision of houses to urban dwellers has not been matched with an increase in the number of water reservoirs. Most of the major water sources in many cities of Zimbabwe were built during colonial times when the population was far less than the current trend. Recent studies have been focusing more on the problems associated with water shortages (Manyanhaire et al, 2009 and Mangizvo, 2010); assessment of water service delivery (Hove and Tirimboi, 2011; Matsa, 2012); water demand side management (Madebwe and Madebwe, 2011). This study therefore seeks to investigate the urban domestic water challenges and the available opportunities which research has failed to address in Gimboki high density suburb of Mutare.

Water security as a concept has received greater consideration over the twenty years, in both policy and academic debates (UN –Water 2013) No single, universal definition of "water security," exists. Multiple definitions of this concept exist; researchers in various fields define water security in ways that often emphasize their area of interest (human rights, energy, agriculture, economic development, cleanliness, etc.), while international organizations tend to embrace broad, integrative definitions (Grey 2013) The World Economic Forum elegantly defines the intersectional nature of water security in its definition, describing it as "the gossamer that links together the web of food, energy, climate, economic growth and human security challenges that the world economy faces over the next two decades" (World Economic Forum Water Initiative, 2012).

The United Nations relatedly delineates it "as the capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability" (UN-Water, 2013). Grey and colleagues (2013) eschew comprehensiveness for a reductionist conceptualization, defining water security as "a tolerable level of water-related risk to society." Water Aid, an international organization aimed at improving access to clean water for marginalized populations worldwide, more narrowly defines water security as the "reliable access to water of sufficient quantity and quality for basic human needs, small-scale livelihoods and local ecosystem services, coupled with a well-managed risk of water-related disasters" (Water Aid, 2012). Its multidimensional nature engenders ongoing contention over water security theoretical bases. Any research paper assessing the relationship between water security's and any phenomenon, given water's intersectional nature and ubiquitous essentiality, must avoid duplication in its definition. This proves a complex matter if one bravely attempts operationalizing the UN Water (2013) or World Economic Forum (2012) water security definitions. Ironically, the completeness by which they define state water security renders assessment of factors affecting water security incredibly difficult. Operationalization must also avoid control and explanatory variable overlap with water security variable, antithetical variable operationalization and pleonasms that render drawing real conclusions overly complicated given variable phenomenological relatedness (Cook & Bakker, 2012).

Empirical analyses of water security generally range from access to clean water, local natural water availability, quality of sanitation services, and distribution of water resources. The Bangladesh Institute of Peace and Security Studies affirms, "Water security is essential for human access for health, wellbeing, economic and political stability. It is essential to limit risks of water- related hazards. A complete and fair valuation of the resource, sustainability of ecosystems at all parts of the hydrologic cycle and an equitable and cooperative sharing of water resources is very necessary" (Water Aid, 2009) Indeed, water security not only involves access but equity, affordability, regulation, and distribution amongst competing household, agricultural, and industrial demands. This study uses World Bank data on the percent of a population with access to an improved water source its measure of water security, for it implicitly assesses investment in water infrastructure as well as distribution and allocation of resources.

2.6 Urban Growth, Water-Supply and Sanitation

The rapid pace of urbanisation and population growth poses serious challenge to water- supply and sanitation provision in developing countries. General, urbanization is fastest, cities are failing to sufficiently prepare themselves for urbanization with advance planning and services. In many countries, urban expansion has often been characterised by informality, illegality and unplanned settlements, especially in developing countries. Kebede Kabiso (2015). Above all, urban growth has been strongly associated with slum growth, which is primarily due to a lack of appropriate planning and affordable housing as well as low incomes. The number of people living in urban slums since 1990 has increased by 33 % (UN-Habitat 2013). If current trends continue, between 75 and 90 % of future urban growth will take place in peri-urban settlements comprising the inner-city slums and squatter settlements. Currently, these settlements accommodate between 30 and 60% of urban populations in developing country cities and towns (UN-Habitat, 2013). As cities grow and their populations increase, so does demand for water, and the generation of wastewater, much of which, in developing countries, is discharged untreated into the environment. According to (Argüeso,. Evans Fita, and Bormann, 2014) By 2025, annual demand for municipal water in the world's large cities is expected to have increased by nearly 80 billion cubic meters, from around 190 billion cubic meters per year in 2012 to about 270 billion cubic meter per year. Building or expanding the municipal water supply infrastructure will require cumulative investment of about USD 480 billion by 2025, including investment to increase supply and to expand the distribution and treatment of wastewater (McKinsey Global Institute, 2012). Population growth is another factor, but the

relationship is not linear over the last decades, the rate of demand for water has doubled the rate of population growth (Shiklomanov, 1999; USCB, 2012).

In the developing countries, the supply of water has not kept pace with the high demand created by continued and rapid urban population growth combined with rising consumption patterns. Furthermore, the lack of adequate institutional arrangements and infrastructure to manage increasing volumes of wastewater and faecal sludge continue to pose major public health and environmental hazards. Internally, cities' capacity to deliver adequate and affordable water and sanitation is hampered by many factors such as poor planning, weak governance and legal frameworks, fragile institutions, or low capacity of local authorities to finance, build and operate essential infrastructure. (IWA, 2012, TNC, 2014).A key issue is that urban planning today is highly undervalued in developing countries and its practice outdated. By the time a plan is finalised the conditions on which it was based are no longer valid.

There is a need for a different type of planning, more proactive, flexible, and reactive that can anticipate urban growth and prevent slum formation and its related water challenges. Furthermore, there is a need for more holistic approaches that integrate water and sanitation planning into the urban planning process, as well as an adaptive capacity and resilience to respond to rapid change, including disruptive events such as flooding and droughts expected to be more frequent with climate change, or a slow changing context (McKinsey Global Institute, 2012).. With large sections of the urban population living in informal settlements where water and basic sanitation are severely deficient, cities will increasingly have to face the challenge of how to expand and upgrade these services to keep pace with urban growth, while ensuring access to an adequate level of services for the poor. This has implications for the planning process, as optimal solutions must be found to achieve the right balance between investments in bulk centralised and decentralised infrastructure to accommodate urban growth, as well as service extensions to the informal settlements (Yang and Wang, 2014).

The world's population is growing by about 80 million people per year (USCB, 2012). It is predicted to reach 9.1 billion by 2050, with 2.4 billion people living in Sub-Saharan Africa, the region with the most heterogeneously distributed water resources (UNDESA, 2013a). Increasing urbanization is causing specific and often highly localized pressures on freshwater resource availability, especially in drought-prone areas. More than 50% of people on the planet now live in cities, with 30% of all city dwellers residing in slums. Urban populations are

projected to increase to a total of 6.3 billion by 2050 (WWAP, 2012). Developing countries account for 93% of urbanization globally, 40% of which is the expansion of slums. By 2030, the urban population in Africa and Asia will double (UN-Habitat, 2010). Excessive water withdrawals for agriculture and energy can further exacerbate water scarcity. Freshwater withdrawals for energy production, which currently account for 15% of the world's total (WWAP, 2014), are expected to increase by 20% through 2035 (IEA, 2012). The agricultural sector is already the largest user of water resources, accounting for roughly 70% of all freshwater withdrawals globally, and over 90% in most of the world's least-developed countries (WWAP, 2014). Practices like efficient irrigation techniques can have a dramatic impact on reducing water demand, especially in rural areas. Many of the pressures that impact water sustainability occurs at local and national levels, and are influenced by rules and processes established at those levels. Increasingly, however, the rules and processes that govern global economics investment of capital, trade, financial markets, as well as international aid and development assistance – influence local and national economies, which in turn dictate local water demand and the sustainability of water resources at the basin level (UNDESA, 2012).

2.7 Urban water: the mechanisms of supply

Usually, the water pumped to households through municipal systems is produced from a source of water, transmitted to the final consumers in their households through a network of pipes and appurtenances (reservoirs, valves, bends and meters) well-known as the distribution systems that transfers the water (Brooke, et al.,2013). The source of the water varies. Depending on the treatment system and the technique, the water may either come from a large managed reservoir, surface water, among others. The transmission system on the other hand, consist of a very large pipes through which the water is transferred from the production and treatment centre sometimes to other stations for distribution to the various communities. The distribution or delivery networks however are through a relatively medium or small size pipes normally laid in the community and to the households" (Brooke, et al., 2013).

Attempts towards management of water in urban areas have been made in some developing countries. The problems of water management and possibilities for integrated management are examples from a typical developing country which is Zimbabwe. Water management in the urban areas of developing countries is beset with a variety of problems. These problems are largely due to lack of sound management. In urban areas, there are two major water systems;

the water supply system and the waste water which is sewage system. Very few households in urban areas in developing countries are provided with water borne sanitation systems. The water systems of urban areas in developing countries often break down, thus causing disruption of service to the communities. When a water supply of a town breaks down, its inhabitants will likely fetch water from unimproved sources like wells. The lack of coordination between the authorities concerned with water management is largely to blame for failures of the water systems. Infrastructure is essential for development, but by itself it will not contribute to improving the quality of life of millions of people unless it is part of an overall framework for development, economic growth, social equity and environmental protection. As mentioned by Nobel laureate Amartya Sen, the absence of infrastructure has a pervasive influence on poverty, but at the same time is not a free-standing factor in lifting people from it (UNDP 2014).

The focus should thus not be on physical infrastructure per se but on infrastructure as a driver for growth and sustainable development. This requires more comprehensive institutional, legal, regulatory, policy and management frameworks than the ones existing at present. The management of fresh water resources is of critical importance to the social, economic and political well-being of a society. Stresses exerted on the world's water resources by the increasing demand of growing populations with changing consumption patterns, the damage to water quality from pollution as a result of poor environmental management, and climate change are placing water increasingly higher on the international agenda (European Commission, 2012; UNEP, 2012). These megatrends pose urgent water challenges particularly in cities (Chong, 2014; Engel et al., 2011; MacDonald et al., 2014; SIWI, 2012; Van Leeuwen, 2013). Developing sustainable urban infrastructure benefits not just the environment, but can also boost economic growth and social stability. The United Nations Environment Programme (UNEP) stressed the need to transition to resource-efficient technologies in cities and most of the investments are predicted in the area of water infrastructure (UNEP, 2013). Water governance takes numerous aspects, interests and actors into account (Philip et al., 2011) and can be defined 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 and for different purposes' (UNDP, 2013). Water governance covers the mechanisms, processes and institutions by which all stakeholders - government, the private sector, civil society, pressure groups - on the basis of their own competences, can contribute their ideals, express their priorities, exercise their rights, meet their obligations and negotiate their differences.

2.8 Challenges and Implications of Water Scarcity

The above debate is advanced by classic water literature such as Sandra Postel (1999) who says that the era of water scarcity is upon us (Mahayni in Harris, Golden and Sneddon 2013). It is supported by Mahayni in (Harris etal 2013) the authors above posit that water scarcity is just a perception. It represents water scarcity or crisis as a present fear about likely critical shortage of fresh water which will affect the whole world in the near future. The fear of imminent water shortages is based on the work of Harris et al (2013) which reports that world fresh and usable water is 2,5% of the total earth water mass and 70% of fresh water is in form of ice. Baseline computation of the figures shows that only 30% of the 2, 5% is accessible to the world for all the various and sometimes competing water needs. It is further observed that 97% of the 30% of 2, 5% of accessible world fresh water is ground water and 3% is in rivers and lakes (Harris et al 2013).

A bleak picture of future water supply is painted by the above statistics. Representation of water scarcity as an inevitable and imminent state of absolute critical water shortages begs for an urgent paradigm shift in water management that allows for strict and committed water conversation as a survival strategy. Although the above representation of water scarcity has its own shortcomings, however it serves as a good starting point for an argument for Water Demand Management.

The representation of water scarcity above is useful for water managers, policy makers and citizens. It is forward looking and promotes proactive responses to imagined water scarcity levels. It is useful for the management of the water situation in the city of Mutare Dangamvura Gimboki in that while the city is facing challenges to the water problems already but the situation is yet to intensify. The above representation of water scarcity has the potential to construct a useful community understanding of water availability that promotes responsible and hence sustainable water use behaviours.

One of the limitations of the above representation of water scarcity and debate thereof is that it is not able to discretely explain water crisis as experienced by different individual parts of the world (Linton 2010) in Harris et al (2013) elaborate the above point when they observe that these statistics can be misleading because they overlook substantial geographical differences in fresh water supply access and perception". The representation of water scarcity is discordant with local experiences, local perceptions and local histories of critical water shortage. Water

scarcity in Mutare Dangamvura Gimboki Township is not imagined nor is it an impending or imminent threat. It stands true that the analysis has some inadequacies.

The other limitation of the above representation of water scarcity is that it views critical water shortages as absolute. It does not sufficiently factor into the debate the fact that water is a renewable resource. Again climate variability, touted as a limiting factor to water renewability is not a sufficient explanation since it will not only result in some areas becoming drier and some areas becoming wetter (Muller 2006 in Treunicht 2008). Therefore, the foundation of the global water crisis representation has a fault line.

The above debate bases water scarcity construction on mental or academic hunches. Such representation of scarcity thus opens itself to a flurry of debates that seek to approve it as fact or disprove it as fiction (Rijsberman 2006). While the debate is good enough to conscientise stakeholders about conscious water use it is not a sufficient tool for mobilising action against real and present water scarcity as in the case of Mutare Dangamvura Gimboki Surburb.

2.9 Water unavailability

Scarcity is an ambiguous concept. It means different things to different people or in different contexts. They further observe that "scarcity is a more complex concept than simple ratios can indicate (Wolfe and Brook 2007: 105). They propose a comprehensive definition that separates the complex concept into physical social and economic orders. According to the above authors physical order is the actual absence of water while the social order is shortage of water which is induced by political and cultural dispensations obtaining in a given locality. On the other hand, "according economic definition of water scarcity, water resources are valuable because they are limited compared to demand (UNDP 2013)

Water scarcity is the lack of fresh water resources to meet water demand. It affects every continent and was listed in 2015 by the World Economic Forum as the largest global risk in terms of potential impact over the next decade. It is manifested by partial or no satisfaction of expressed demand, economic competition for water quantity or quality, disputes between users, irreversible depletion of groundwater, and negative impacts on the environment. One-thirds of the global population (Two billion people) live under conditions of severe water scarcity at least 1 month of the year (UNDP 2013) half a billion people in the world face severe water scarcity all year round. Half of the world's largest cities experience water scarcity.First order

scarcity stems from actual or perceived inadequacy of supply, given levels of demand that are presumed to be largely if not entirely outside policy control. (Wolfe and Brook 20007:102)

The second order deals with scarcity of water due to lack of what Ohlson and Turton (1999) call adaptive capacity. It includes "good management; and economic efficiency demand side management (Wolfe and Brook 2007:103). The second order is more about responding to than defining water scarcity. However, it is helpful in explaining the representation of scarcity as currently experienced critical water shortage that has to be confronted as opposed to the notion that water scarcity is present fear for some expected critical water shortage.

The third order presents scarcity from a political or cultural point of view (Wolfe and Brook 2007) simplifies the third order of scarcity when it observes that it is about availability of approaches that address water demand by advancing reasons for use of water efficiently, by challenging rationale behind using water in toilets and for irrigation in arid regions as well as challenging the use of potable water to wash cars and for watering loans. The third order of scarcity is more about dealing with scarcity than simplifying the complex concept. Its usefulness to the study such as this one is that it introduces the soft path (Wolfe and Brook 2007 and Gleick 2002) to dealing with scarcity. It is the conclusion of this study that both the second and third orders of scarcity as presented by Wolfe and Brook (2007) are sides of water scarcity mitigation approaches. Good water Demand Management which is an element of the second order can be effectively enhanced by refraining from putting potable water into uses that cannot be justified or that can be avoided which is an element of the third order.

Mehta (2008) dismisses the notion of water scarcity when it contends that water is a renewable source, its availability is constantly subjected to variation depending on the hydrological cycle. The work cited above suggests that water availability falls during the dry seasons and increases during the wet seasons. (Mehta at el 2008) puts its position clearly when it states that, it is fallacious to see water scarcity as something that is constant and permanent. The above contention helps the study to explain that although the city of Dangamvura Gimboki Surburb is experiencing total water scarcity but supply is better in other areas in Mutare. The other implication of the above quotation is that water can be temporarily physically scarce.

The position about scarcity suggested above also seems to lack credibility in that it underestimates or totally excludes the possible negative impact of climate change on water

renewability in some parts of the world. Furthermore, the representation of scarcity is not discrete in terms of analysing water availability in different geographic regions since different parts of the world experience different weather and climatic patterns. One other central weakness of the above representation of scarcity is that it is anchored on spirited denial of the existence of critical water shortages. Strong denial is undesirable as it has the potential to dampen commitment to water crisis mitigation efforts by water users since it promotes business as usual in terms of water use. Although water scarcity may be a fallacy in some parts of the world, it is a reality in Dangamvura Gimboki Surburb. Mitigation of the water crisis in the city of suburb is an urgent necessity.

There are water scholars who argue that water is not scarce in a physical sense but rather in an economic sense. Anton (1995) in Molle and Berkoff (2006) exemplifies the case when it notes that the situation in the Caribbean and Latin America is economic (and) not physical scarcity. To add onto that, the Camdesus report in (Molle and Berkoff 2006) notes that: the root is money and not availability of water. The question should be where are we going to get the money and not where are we going to find water. (Molle and Berkoff 2006)

The above representation of water scarcity resonates with the entitlement attitude which says that the powers that be should provide water as a matter of obligation and towards fulfilment of citizenry human right. The debate is popular with water users and social science scholars. For example, in the case of Mutare Dangamvura Gimboki surburb there is a blame game between City of Mutare and Housing cooperatives who is said to be servicing the area the central cause of the critical shortage of water, according to the above argument, is refusal by Mutare City Counciland Housing Cooperatives to find an amicable solution to the crisis. Therefore, according to the studies cited above the question should be where the city of Mutare and Cooperative will get money to harness water the suburb.

The representation of scarcity under discussion is based on the belief that water is an infinite resource. However, the fact that climate variability and anthropogenic factors are making some of the world's rivers and basins dry discounts the above debate and representation of scarcity.

It is the conclusion of the current study that lack of money and not water, though plausible and popular as a representation of scarcity, cannot be the only best explanation for the water scarcity in the city of Dangamvura Gimboki. The study states again, for purposes of clarity, that the suburb is experiencing total water scarcity and something must be done to mitigate the effect of the water crisis on human development and security.

Contemporary debates on representation of water scarcity complement each other in pointing to the need for a paradigm shift in water management. Although each representation discussed above has its shortfalls or seem to be an antithesis of other representations, however this study argues that they are useful various lenses of viewing the water crisis in the cities. If the globe is on the verge of hydrological crises, then proactive measures should be planned and implemented to avert the imminent negative situation of physical water scarcity. The antithesis of imminent physical water scarcity is physical, economic and social water scarcity.

The debate is useful because it implies that water management strategies that can correct water scarcity induced by physical, social and economic factors have to be planned and implemented to mitigate critical water shortages. The argument that physical water crisis is a fallacy because water sources are replenished by precipitation can be extended to show that forward and effective water planning should be responsive to critical physical water shortages during dry seasons as well as poor rain seasons. The debate that money and not water is scarce can be extended to acknowledge that effective water management strategies need to be generated and implemented to mitigate water scarcity caused by inability by a water authority or a national government to fund additional sources of water. The contemporary debates selected aptly describe the nature and causes of water scarcity in Gimboki surburb. It is for that reason that the study represents the water crisis in Gimboki as total water scarcity.

2.10 Water, Sanitation and Politics

In many countries, water is a much-contested resource. Water has triggered numerous conflicts between and within countries for decades. Gleick (2012) elaborated that water has a long history of being used as a political and military target or tool and can be traced back to 2, 500 years. This empirical knowledge has undoubtedly led scholars and international commentators like the former World Bank's Vice President, Ismael Serageldin, King Hussein of Jordan, and Boutros Boutros Gali of Egypt, to prophetically declare that while the wars of this century are related to oil, the wars of the next century will be over water resources (Dombrowsky, 2007). Conflicts, both within and between countries over water are predicated on the experiences of countries suffering from both water stress and water scarcity situations (Tadesse, 2007).

Against such backdrop, water has often been politicized. Dungumaro (2006) illustrated this with the case of Tanzania in Africa that has three lakes shared with several countries – Kenya, Uganda, Burundi, Zambia, Republic of Congo, Malawi and Mozambique. The Middle-East region is another classic example where water has become a political andmilitary tool. This is

well articulated in the late Egyptian president, Anuar Sadat's warning statement to Ethiopia. The politics of water are best manifested in developing countries through its unequal distribution, thus giving rise to conflicts. Here in Zimbabwe, political issues on water has taken a centre stage on different municipals. There has been a blame game on the issue on providing safe and clean water to urban people. The local government and the councillors have been on collision courses due to who is who in terms of water governance. The Central Government blames the MDCT lead councils on poor water and sanitation problems. The MDCT has been accused of failing to manage local municipalities. Both ZANU PF and MDC T councillors have been on collision course fighting to control municipal issues. The former Minister of Local Government Saviour Kasukuwere almost suspended all MDCT councillors countrywide accusing them of corruption and failing to deliver what is expected of them replacing them with commissions. These battles would be fought in the courts and most MDCT councillors will win such cases as the courts will allege such suspensions on political grounds.

Since water directly relates to sanitation and both cannot be separated out, it is a truism that contentions and conflicts over water resources are also conflicts over sanitation. The duo is intimately linked, thus hydro-politics associated with water also affect sanitation. Indeed, water supply and sanitation are considered to be 'environmental capital' and closely linked to economic development. Karshena (1994) developed a basic model that attempts to capture the relationship between economic development and 'environmental capital', it offers a useful guideline to urban water supply and sanitation as they are environmental capitals that have direct bearing to a nation's economic development.

These problems along with water supply problems discussed above are a result of the lack of formal strategic and spatial planning for urban development in developing countries.

Consequently, there evolves a spectrum of planning and management approaches pursued by developing countries to address issues of water supply and sanitation as well as development challenges in general.

2.11 Planning and Development

The inclusion of access to potable water and basic sanitation in the MDGs for sustainabledevelopment shows that water and sanitation are important development indicators. It is a fact that infrastructure development and socio-economic development are much related.

Infrastructure development may include road construction, water and sanitation improvements, and irrigation development. Thus, having access to such services isconsidered as a precondition for economic development. Accordingly, water and sanitation infrastructures also have impact on the economic, social and human development of a nation.

According to UNDP (2006) the water and sanitation crisis has a role of reducing income poverty. National governments are very aware of the expenditure needed to increase the access to improved water and but they are not curious about the economic costs of the negative consequences of unimproved water and sanitation. If the world population had access to safe drinking water the outbreak of diseases would be reduced. Appropriate. As a result of poor water and situation many people in the world are insecure. Access to clean water and is also a means to reduce health related costs, and it also ensures a sense of human dignity. Generally, access to clean water and improved sanitation 'can make or break human developmentand it is a condition for all human development goals achievement.

2.12 Traditional Planning

In traditional planning, the planner prescribes both the goals of the plan and the means to achieve them. This approach to planning presupposes that there is a right and wrong way to develop a city and planners by virtue of their expertise and experience, know the correct path. Reiner (2012:232) summarized the 'traditional' planning approach in the following way:

An appealing and plausible idea attracts planners the world over*:* we are scientists, or at least capable of becoming such*.* As scientists or technicians, we work with facts to arrive at truth, using methods and language appropriate to our tasks, and ways of handling problems are not subject to outsiders*'* criticism (Reiner at el 2012) however, pointed out that in 'traditional' planning; planners have generally advocated policies that fit the predisposition of the upper classes but not of the rest of the population. In many cases, this approach is attached with the notion what the planners think and do will be in the best interest of the people being planned for and thus, people who are affected by the plan are not usually consulted. This planning approach falls within the 'top-down' centralized approach. This approach to planning as Fainstein (1996:273) says owe its origin to the works of Comte, Saint – Simon, Owen and Fourier who advocated that technology is the cure for all societal ills and that social change must be engineered from the top by a social stratum that commands the economy, and in the public interest, meaning the interests of the lower classes in society. This view sees a harmony between the interests of the masses and the ruling 'elites'.

2.13 Equity Planning

Equity planning' and 'democratic planning' are overlapping types but differ in approach. While democratic planning emphasizes the participatory processes, the 'equity' planning on the other hand focuses on the substance of the program. In this kind of planning, planners try to take into account the conflicting multitude of social interests, many of which are difficult to reconcile (Fainstein, 1996). 'Equity planners try to promote a wide range of choices for those who have few' (Forester, 1989). The term 'equity' planning has often been used interchangeably withadvocacy' planning. The latter however, connotes to advocating for the poor (Fainstein,1996: 245). Originally derived and constructed within the socialist thinking, 'equity' planning approach advances the idea that the well-being of a society is judged by equality in society. Equality must be manifested in material forms rather than simply political or legal terms where the upper classes in society have their interests served while those in the lower ladder are disadvantaged and marginalized.

2.14 Incremental Planning

In 'incremental planning', policy makers come to decisions by weighing the marginal advantages of a limited number of alternatives. According to Fainstein (1996:245) rather than working with a range of long-term goals, they move ahead through successive approximation. Toteng (2002) explained 'incremental planning' as: **'**planning knowledge is acquired by experimentation and is thus very much based onpragmatisms**.** The overall assertion in this kind of planning is that societies continually require conscious control and manipulation .Thus, in 'incremental planning', though ends and means are not formulated, decision makers work out ways to reach socially desirable goals .According to Fainstein (1996:245) originally derived from liberal political theory of the seventeenth century under philosophers like Locke and later popularized by (Bentham, Spencer 2000) and a number of thinkers in the nineteenth century, the theory advances the conception that human beings are rational beings and thus, the best judge of their own private interests. The public interest is argued under this approach as the interplay of a multiplicity of private interests within the confines of the political marketplace. To this end, incrementalism shares the weakness of liberalism in that when societies already have inequality in terms of wealth and power, then those who are worse off materially will have less ability to change the system.

2.15 Summary

This chapter has provided a conceptual and theoretical framework and the linkages for understanding issues relating to urban water-supply and sanitation especially in the Mutare Dangamvura- Gimboki This chapter covers literature review of the study. This study provided an assessment of water problems in different part of the world. This chapter discussed the water sources used by people around the world. The chapter discovered water problems were due to power governance, political interference among other problems. It was also mentioned in this chapter that water and sanitationproblems were due to inadequate prioritization, other sector receive priority than others. People living in this area are deprived services because of their socio-economic status. Most people living in the areas are low income earners. Water andsanitation situation in this areas are poor compared to other areas. Another factor explainedin this chapter causing water and sanitation problems was population growth. Populationgrowth directly affects the amount of water removed from water systems. Unplanned settlement makes it difficult for water and sanitation services because they are scattered. Eventhough water is a problem in this location people have coping strategies. They usegroundwater from borehole as a source of freshwater supply. The local council is doing muchin supplying water and sanitation but still a lot need to be done in terms of human resource, finances and efficient management. Another obstacle to providing water and sanitation is lack of community participation. Chapter 3 discusses data presentation and analysis.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

For dependable and usable results to be arrived at, any study must deploy tried and verified study designs and methodologies. Creswell, J. W., & Plano Clark, V. L. (2011). This chapter posits to flesh outthe research design and methodology of the contemporary study and to explain howthese were systematically applied. It describes variables that are very central tothe study. The chapter also details sample design and sampling methods, data collection techniques and their design. Also data capturing and editing aswell as data analysis procedures are explained. Finally, the chapteracknowledges some inevitable limitations and shortcomings of the datacollection process that have a potential to compromise the validity of datacollected. It also states strategies used to overcome or minimise the negativeimpact of the shortcomings and limitations on the findings of the study.

3.1 Data Collection Process at a Glance

Data were collected from 16 July 2018 to 25 August 2018. The researcher sought permission from the City Council.And a clearance letter from the Town clerk's department was given. The City Council and Councilors provided the researcher with statistical data for total number of the residents in the selected areas under Gimboki Township. The data was collected using questionnaire, direct observation and structured interviews. Some officials were not willing to give the researcher information citing political reasons attached to the research topic.

3.2 Methodology.

The researcher employed a number of different data collection methods, called a "mixed methodology or the methodological triangulation" technique the mixed method as used in this research is a method that combines the collection of quantitative and qualitative data. Even though Creswell (2003) took a strong stance against mixed methodologies because they had stood the test of time, others point out that the goals of triangulation are for convergence and completeness. In other words, the useful qualities of both methods could substantiate the reliability of the results. Also, by combining both qualitative and quantitative data, rigor in the research process is enhanced. Since the main goal of triangulation is to comprehend and

confirm research results by using the strengths of both qualitative and qualitative methods, and based on the good conclusions made by Creswell et al., (2003), Morse (2003) and Newman et al (2003) on combining both methods, this study finds it appropriate to use both qualitative and quantitative methods to gain a better insight into water management and use in the study area. Also, research methods and methodologies have changed over time and multiple methods are now being employed such as doing, hearing, seeing, recording, writing and reading in different ways in order to uncover different people's experiences. The position of this study is to use the methods that are appropriate to the problem at hand.

In this research the researcher use mixed methods. Mixed methods involves the collection and "mixing" or integration of both quantitative and qualitative data in a study. Mixed methods research has increased in popularity in recent years, and this chapter highlights important developments and provides an introduction in the use of this design. Mixed methods researchis an approach to inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks. The core assumption of this form of inquiry is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone. The use of both quantitative and qualitative methods is very important because some objectives require the use of qualitative research and others require quantitative research. The first and second aims of the study rely mostly on the use of primary data and interviews with relevant stakeholders.

3.3 Research Design

A research design is basically a chosen plan for achieving a particular study or research and it gives details on the type of data to be collected and the techniques that will be used in data collection. It makes the research as efficient as possible by giving maximum information with minimal expenditure of effort, time and money (Agrawa 2013:2). Kumar (2008) posits that a research design is extremely essential since it necessitates the identification and development of procedures and logistical arrangements required to undertake a study, as well as emphasizing the importance of quality in these procedures to ensure their validity and objectivity.
Rahi, S. (2017) postulate that research design is likely to evolve in response to participant needs, and, therefore, it is not always plausible to fully inform participants of potential risks or benefits that may ensue throughout the course of a study (McCormack, Carr, et al and

Schumacher (2001) further defines research design as a plan for selecting subjects, research sites, and data collection procedures to answer the research question. They further indicate that the goal of a sound research design is to provide results that are judged to be credible. Durrheim (2004) opines that, research design is a strategic framework for action that serves as a bridge between research questions and the execution, or implementation of the research strategy. Creswell (2007) indicates that the research design process begins with philosophical assumptions that the enquirers make when deciding to undertake a study

This study adopted case study as the research design. "A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident". (Yin 2009). By using the case study, the researcher gains particular understanding or insight into a phenomenon. Case study allows the researcher to look into a phenomenon within the context. McCormack and Carr (2012:34) posits that, "qualitative studies involve the collection of large amounts of information from participants about themselves, their families, and/or the environments in which they live. Such rich descriptions are necessary so that the experiences, or ''true life-world views,'' of participants are realistically contextualized and portrayed".

Farquhar (2012) further argues that, "case studies are empirical investigations, in that they are based on knowledge and experience, or more practically speaking involve the collection and analysis of data". Creswell (2007) opines that a case as 'a bounded system' or 'multiple bounded systems'. He meant that the researcher makes clear statements in the research objectives about the focus and the extent of the research. Bhattacherjee (2012: 40) argues that, "the strength of this research method is its ability to discover a wide variety of social, cultural, and political factors potentially related to the phenomenon of interest that may not be known in advance". However, there are criticism on the use of case study. One prime criticism of case study is that it lacks objectivity, but the researcher is usually immersed in cases which are often described as subjective. (Creswell 2012)

3.4 Population

People in the Gimboki Township community were the targeted population. Also, the academia, peace building organisations in the Gimboki area, and other line ministries were under investigation. However, Gimboki Township community has a huge number of people, it is difficult to engage everyone. Sampling was thus used. McPhail (2001) defines sampling as a process of selecting a few (a sample) from a bigger group (the sampling population) to become

the basis for estimating or envisaging a fact, situation or outcome pertaining to the bigger group.

Creswell (2012: 142) describes a population as a group of individuals who have the same characteristic. Creswell further defines target population is a group of individuals (or a group of organizations) with some common defining characteristic that the researcher can identify and study. Creswell, J. W. (2013) says Samples of the population are used to represent a population because it would be nearly impossible to collect information from each unit or subject in a population. Therefore, population refers in simpler terms to those elements within which a sample of study is drawn from. In this research, the population was made up of Gimboki residents, government official, City Council Officials, Housing Cooperative and Councillors of the area.

3.5 Description of the Study Area

The study was carried out at Gimboki Township ward which is under Mutare Municipality. The study area was selected because of the little involvement of community members in water resources management, problem of water and eruption of diseasessuch as cholera and diarrhoea. Section 2 in Gimboki was purposeful selected as it exhibitedall characteristics of a study area. Although the purposeful sampling techniquesapplied, also the influence of a researcher played a great role as she resided in thenearby location.

3.6 Sample

Cres**we**ll (2012: 142) define a sample as "a subgroup of the target population that the researcher plans to study for generalizingabout the target population. In an ideal situation, you can select a sample of individualswho are representative of the entire population". The researcher employed this because Gimboki Township is a large area hence a sample of individuals aired their views and they represented the entire population.

3.7 Sample Size and Sampling Techniques

The researcher selected Gimboki Township community under Mutare local Municipality as the area of interest. The area is faced with water and sanitation problem. The target for sampling is only the households. The community consist of 430 households with the population of 3000 that's according to Mutare City Council town clerk's department. Among 430 households only 50 households would be surveyed. Random sampling would be used to select households; this

is because random sampling gives each household an equal chance to be selected. The households will be numbered from 0 to 50. The first number is house number 1, then followed house number 3, then 5, 7, 9, 11, 13, 15, 17, 19 until 50. In order words the researcher sampled household 1, but household 2 was not sampled then continued to household 3 and again household 4 was not sampled then continued to household 5 until household 50. This technique helped the researcher to get information from different households moreover not from close homesteads but different households.

3.8 Types and Sources of Data, Data Collection

Fig 1

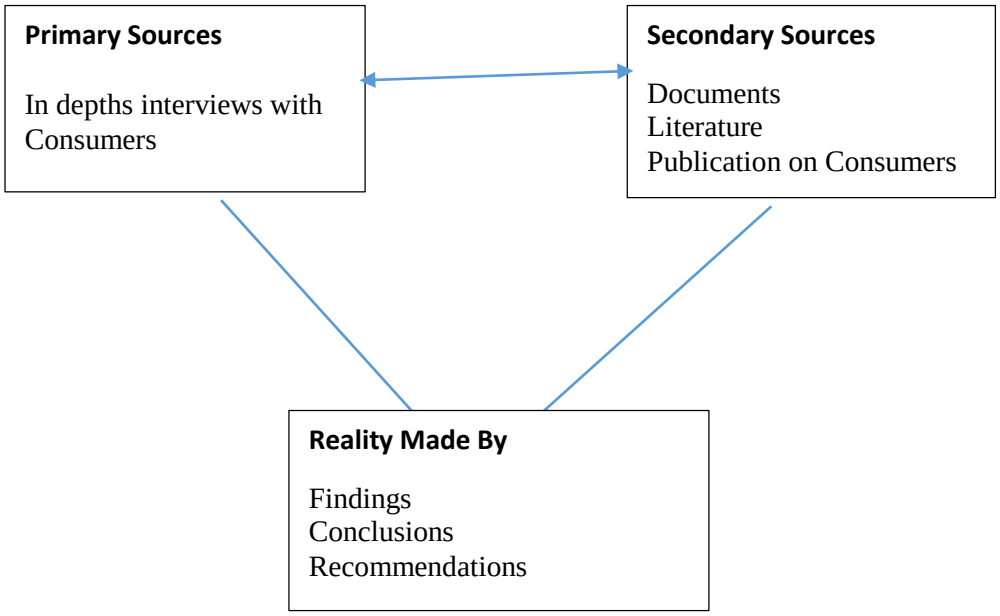


Figure 1. Data and Information triangulation adapted from Bryman, 2004

3.8.1 Interviews

Face-to-face interviews formed the primary data collection method for the study for they provide a deep analysis into understanding the situation in Gimboki Township**.** The researcher targeted the residents. Mutare City Council officials, UDCORP, Local government officials and Ward councillor**.** On average the researcher held ten interviews and they would last about between twenty to thirty minutes**.** The reason being that some were people were busy for my interviews**.** Some found research political in nature**.** Rugg and Petre (2007) opine that an interview, as a primary source of data gathering, is in essence a "conversation with a purpose" Stressing the importance of human interaction for knowledge production, Kvale (1996), regarded interviews as "an interchange of views between two or more people on a topic of mutual interest". The researcher chose semi-structured interviews because they strike a balance between the two extremes of fully-structured interviews (with pre – determined set of questions asked and responses recorded on a standardized schedule) or unstructured (completely informal

interview where the interviewer has a general area of interest and concern but lets the conversation develop within this area), (Colin 1993).

Interviews can be structured, semi structured or completely open and unstructured. The researcher targeted Gimboki Township residents, councillors of the area, City of Mutare officials and governments departments. In these interviews the researcher used various methods such as taking notes, using email, or use voice recording. The researcher used face to face interview which proved to be effective in gathering data. To take advantage of this strength of the interview method, semi-structured interviews were a major data collection method used in the research. All interviews were conducted in a semi-structured manner. Instead of using a guide comprising a list of subject area, the researcher prepared question guides for the interviews. The questions were open-ended and the respondents had the opportunity to explore the issues of the questions. This enabled respondent to provide information - freely-expressing the facts as well as their opinions and propositions about the events, while still enabling me to guide the process and keep it focused enough to yield the kind of information that was useful to this research. Respondents for these in-depth interviews were carefully selected to provide important insights and to provide quick access to the history of events. This method entailed face to face conversation between the interviewer and interviewee with the aim of gathering the desired information**.** The interview guide was prepared as a tool for data collection. The method was used because it enabled the researcher to understand the respondents when answering questions asked by the researcher. An interview as a tool for data collection was used to those who could not read and write. Also for those who had no time to fill in questionnaires.

3.8.2 Questionnaires

Fifty questionnaires were administered and only thirty were returned, the reason would be some would politicise the study and some were ignorant on how to answer the questions**.** Some would just take the paper and kept it**.** Questionnaires were used to collect both quantitative data closed ended questions and qualitative data open ended questions. The questionnaires were distributed personally in each household in the community of Gimboki Township. The questionnaire consisted of a set of questions that were presented to the household for answers. Questions were asked in English language as this was the local language and the answers were ticked or written down. In addition, those who were surveyed were asked a number of questions in indicative of their demographics, employment status, educational status, environmental and

water status, the coping strategies, the sources used for water, types of toilet used and municipality intervention.

This method is simple to use compared to interview and it is free from bias on the part of the interviewers. It also makes the respondents to be comfortable when answering questions (Kothari 1991). In this study, the researcher used questionnaires to obtain data from the respondents who were not able to be interviewed.

3.8.3 Focus Group Discussion

Six focus groups were held each with about six people**.** The reason for having six people per group would make it easier to control during the discussion time**.** The focus group will last for about thirty minutes to forty-five minutes per each session**.** There was time limit which was meant to avoid stretching people`s concentration. The groups also were small enough to give everyone the opportunity to express an opinion but large enough to provide diversity of opinions. Focus groups are meant to generate information from a diversified spectrum. In focus groups the participants influence each other through their answers to the ideas and contributions during the discussion. A focus group is a carefully planned discussion designed to obtain perceptions on a defined area of interest in a permissive, non-threatening environment (Chiwada, 2012).

Bhattacherjee (2012:40) posits that, "focus groups are not generally used for explanatory or descriptive research, but are more suited for exploratory research". Focus group research method is suitable for generating ideas for investigation and it was apt for this study as it sought to investigate how Gimboki Township residents have felt the water situation. The researcher managed to conduct five focus groups with an average number of five people. Although one focus group could not divulge much information as they could not comprehend the meaning of the discussion although the researcher had earlier indicated. The focus group discussion averaged about twenty thirty minutes and this provided time for everyone to participate.

3.8.4 Observations

The researcher**'**s observation took place at the boreholes, open wells and river banks in Gimboki Township which was my study area**.** Why I observed these places it was because these are the main sources of water in the area**.** Observation is independent of respondents**'** willingness to respond and as such is relatively less demanding of active cooperation on the part of respondents as happens to be the case in the interview or the questionnaire method**.** The researcher opted for personal observation as a reinforcement measure for data collected. While

questionnaires and interviews provided different views and angles on the study, the researcher saw it as of paramount importance to observe some of the minute details that might have not been captured by the other two tools.

Creswell (2012) defines observation as, "the process of gathering open-ended, first-hand information by observing people and places at a research site."Bhattacherjee (2012:106) concurs that, "observational techniques include direct observation, where the researcher is neutral and passive external observer and is not involved in the phenomenon of interest (as in case research), and participant observation, where the researcher is an active participant in the phenomenon and her inputs or mere presence influence the phenomenon being studied (as in action research. The observation process was semi-structured. Using a semi-structured observation approach allowed the researcher to remain open-minded and to observe several aspects of the phenomenon being studied as well as others which seemed relevant. This research sought to achieve in-depth information on the phenomenon that was the focus of the study. As a result, the researcher was keen to observe all relevant aspects of issues concerning the phenomenon whether anticipated or not. Using the semi-structured approach helped achieve this. During the entire process, the researcher looked out for new things that were relevant but had not been anticipated and noted them. The researcher used observation during the research as it brought many insights into the study. The researcher opted for observation because it captured the reality on the ground on the behaviour as it takes place. However, observations limited the researcher to those sites and situations where the researcher gained access. Some were not unaccustomed to formal research and it was difficult.

3.8.5 Secondary Data

The researcher had the privilege of accessing Council reports from 2014 to 2018 about water situation in Mutare through Town Clerk's department. In addition, the researcher also accessed scholarly journals articles, newspaper articles and books of the period under study. These were useful in gathering information on the water challenges. Such critical insight was put into the interpretation of the data for the study. These records are not taken on their face value but rather serve as a basis for evaluating what the qualitative data brings forth. Government publications and official statistics are authoritative sources of data in Zimbabwe in the absence of a vibrant private sector and these publications, especially those of the DA, are used for the study as they are produced by experts from the field and therefore they carry some credibility.

3.8.6 Quantitative Data Analysis

The analysis of the data from the questionnaires was performed using frequencies of the various responses worked out, interpreted, and explained in terms of the general trends that emerged with the aid of the Statistical Package for the Social Sciences (SPSS). Because of the intention of showing qualitative reasons for the use of a specific water source, statistical techniques are not used to test significance or relationships between variables. The use of mainly qualitative methods in this study is not a missed opportunity based on Denscombe's (2003: 236) observation that: "provided the researcher has a vision of the pros and cons, and appreciate thelimitations to what can be concluded on the basis of the data collected, goodquantitative research need not require advanced statistical knowledge. (Cooper, H. 2010)

To easily input and analyse the data from the questionnaire, it was coded before it was administered. Categories of responses were sorted, built into numbers and integrated into the questionnaire in advance for easy classification. Through this, elementary aspects of quantification in the form of simple descriptive statistics were generated to compare and contrast responses and analysed accordingly. After administering the questionnaire, the data was "cleaned". This process comprised deleting obvious errors like double entries and entries that could not be taken as valid responses due to poor data logging through administration. After this procedure, variables were aggregated for easy categorization. After completing aggregation of variables, they were re-coded in order to remove "outliers". These are uncommon or unexpected responses which can lead to misinterpretation of results (Field, 2005). The open response questions were analysed using subject headings for the most common responses on the basis of the coding. Those that were difficult to initially categorize have been placed in "other" column and interpreted after data inputting was complete.

The study mainly uses percentages to show responses to questions. An advantage of using percentages in the form of graphs, charts and tables is that some of the questions were put in closed and some in open-ended format. In some instances, direct responses from the questionnaire were used to show answers to questions which in a way can be called qualitative responses. This was done to give a qualitative flavour to the responses and not only present responses in percentages or ratios which are characteristics of most studies on water management and use in developing countries like Ghana. Indeed, the detailed qualitative method employed in this study records what participants say in their own words issues that

matters to them and why. Also, it provides a forum for the participants of the research to express their views for meaningful understanding of each household and community's needs and expectations. It is felt that without qualitative insight and expression of participants own feelings, an incomplete view of water management and use may be formed.

3.8.7 Validity and reliability

Validity and reliability can mean different things at different stages of a research process**.** Validity can be classified into two, which is internal validity and external validity. Internal validity is concerned with the question as to whether a conclusion incorporate a causal relationship between two or more variables holds water (Bryman and Bell, 2007). On the other hand, external validity refers to the extent of generalisability of the results of a causal study to other settings, people or events (Makore-Rukuni, 2004). Reliability denotes the extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable, *(*Joppe 2000*).* Polit and Hungler, *(*1993*)* refer to reliability as the degree of consistency with which an instrument measures the attribute it is designed to measure. The researcher will ensure that data collection instruments are pretested to identify flaws.

3.9 Pilot Testing

Bhattacherjee (2012:23) states that, pilot testing is an often overlooked but extremely important part of the research process. It helps detect potential problems in your research design and/or instrumentation (e.g., whether the questions asked is intelligible to the targeted sample), and to ensure that the measurement instruments used in the study are reliable and valid measures of the constructs of interest. Dikko (2016:521) explains that, "A pilot study is defined as a mini version of a research or a trial run conducted in preparation of a full scale study and may be conducted specifically to pre-test a research instrument." The pilot sample is usually a small subset of the target population. The researcher will have a pre- testing on interviews on a small population to see that all population are represented.

3.10 Ethical considerations

All scientific activities involve the participation of human beings and have an overt or covert impact on human beings as well as the wider society and environment and social science research is not an exception. According to Biber (2005), social science research has for a long time been concerned with ethical issues in the research process across complex disciplineswhich involve cultural, legal, economic, and political phenomena. Ethical considerations aretherefore rules governing a scientific research to ensure that no human rights are infringed. The fact that humans are involved in research necessitates the call for researchers to prioritize moral integrity to ensure that the research process and findings are trustworthy and valid. Biber (2005) points out ethics which researchers should observe such as informed consent, confidentiality, freedom from coercion, anonymity, non-exploitation, research should not expose participants to risks and it must promote the principal of beneficence to the participants. When carrying out the research the researcher managed to acquire informed consent form the participations since they were asked if they were willing to contribute to the study after they were fully informed of the nature of the research and how it was going to benefit them. However, some participants were not willing to disclose their names hence anonymity was achieved.

3.11 Summary

This chapter has given an exposition of data collection methods of the study and how the study was designed toward the attempt to unpack reliable resultsand observations. The attempts of the study to, as accurately as possible, answer the research questions and fulfil the research objectives are nuancedin this chapter. This chapter harmonises the intentions of the study and theavailable literature and resources on which the study relies for observationsand arguments. In a way, this chapter explains how the study arrived at theobservations and arguments that constitute the conclusions of the entirestudy.

CHAPTER FOUR
DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter focuses on the major findings that was obtained from the field of study. The discussion is centred on the stated objectives of the study namely.

To explore the water challenges facing Gimboki residents in Dangamvura Township, Mutare.
To assess the capacity of Mutare City Council relating to the provision of clean portable water to existing and new settlements in Mutare
To analyse the effects of poor water provision in Gimboki Dangamvura Township.
To propose solutions for the effective provision of water in Gimboki and other parts of the city.
Conscious attempt is being made to contrast the finding with the reviewed literature in this study.

4.2Summary of Participants

4.3 Data Presentation

The findings from the study indicated that the number of respondents from each section participated in the survey. The researcher interviewed Gimboki residents. The respondents were selected randomly and formed a total of 50 respondents from three sections. The researcher also interviewed the town clerk, the water city engineer, the town planner, the housing cooperative official as well as local government officials. However, it is worth to note that during this exercise of collecting data some of the participant referred some of questions to other people whom I find very helpful and they provided the necessary data.

4.3.1 Exploring the water challenges facing Gimboki residents in Dangamvura Township, Mutare

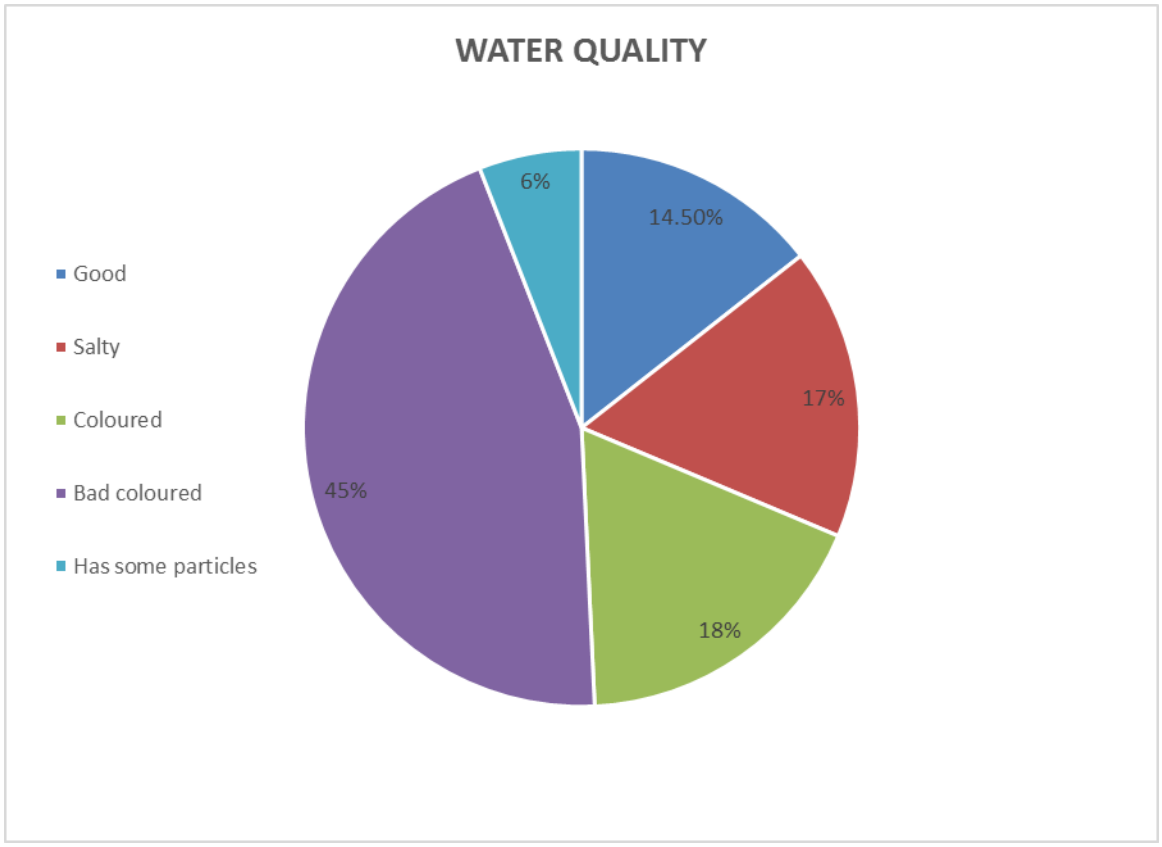
Gimboki Township community is a frustrated community. Respondents in Gimboki Township feel that the entire idea of them paying development levies was unfair. The disproportion between benefiaries contributions and the level of development that they managed to achieve leave a lot to be desired. Gimboki residents boldly stated that councillors in their respective wards in Gimboki Township are a band of people who lied to an entire community. Political

grandstanding took centre stage in Gimboki as Land Barons officials looted resources in their midst while Gimboki residents wallow in water challenges. Residents are still hanging to the appointed UDCORP by Government to sanitize the area.

The study wanted to identify the involvement in water resources management in Gimboki Township. The results indicated that more than 60 of the respondents were the community members. These results imply that the community members were voluntary willing to participate in the study because they faced a lot of barriers to participate and plan in community development activities including water projects. These barriers included: refusal to attend meetings that addressed issue of safe water, weak leadership, lack of mobilization, lack of time and failure to see the benefit of their participation in water resources management. Their participation in water projects could influence the management of water.

Hence this study afforded residents an opportunity to express their feeling on water resources management and how they were neglected despite the great role they play in management of water resources when the issue of water arose. Because of their routine involvement in water collection, community members were generally appreciative in my research as they hope it might bring hope to them and might help those in the corridor of power to act. Further it was verified by the statement made by Vijita (1996) that water management involved the participatory approach of empowering communities to provide, protect and safeguards their own water sources. Therefore, sufficient water is needed to community members of Gimboki Township for general domestic purposes especially washing, bathing and water for drinking and cleaning.

Fig 2. Pie Chart showing quality water in the area.



4.4 Assess the capacity of Mutare City Council relating to the provision of clean Portable water to existing and new settlements in Mutare

In this study, participants were asked where they got water for daily uses. The question aimed at identifying the distribution of water to the community members. It was revealed that 20% fetched water from their neighbourhood that is the area close by which has got piped water though in short supply as well. 80 % from the public well, bowsers which are sometimes provided by the local legislature and boreholes dug adjacent to their homes. This indicates that water is a very big challenges to Gimboki Township. Some respondents said they use the public well water to do laundry and gardening and they have to buy drinking water from shops. Local shops and water vendors have brisk business of water which is on high demand.

Table 1. Showing reasons why water is a challenge in Gimboki

Cause of water shortage	Number of Respondents	% of the Respondents
Lack of rain	6	12%
Municipality Pipes	37	74%
Not Sure	3	6%
Other	4	8%

4.4.1 Distance Travelled to Fetch Water

Access to water is directly linked to distance to water sources. Generally speaking, the greater the distance from the source of water, lesser is the access to water. A significant proportion of households (80 percent) used non-tap sources. Besides, the households frequently relied on non-tap sources for water due to shortage, irregularity and unavailability of water tap. The distance travelled by theses household members to fetch water from non-tap sources show that about 80 percent households travelled a distance to fetch water in Gimboki Township. Of this, nearly 80 percent households travel a distance more than 100 meters to fetch water and the rest move to a distance less than 100 meters. However, for the majority (78 percent), distance factor was considered as a non-issue.

Table 2. Illustrates the water source that people use when accessing water for both people who (travelling and not travelling)

Water sources	Travelling distance	Do not travel distance
Hand dug well	18	1
Community borehole	12	1
River	10	3
Neighbouring community taps	3	2

Fig 6

Withdrawing water from a river Bank(Mufuku)

In obtaining water services, community members incurred costs. Such costs differed from public tape to privately owned ones from neighbours. During the study in Gimboki, it was noted that Gimboki resident who are regarded as Dangamvura resident's charges high water costs as compared to public tapes charges. Although public tapes had lower user charges, community members preferred private tapes due to reliability on service delivery. They explained that, public tapes had always been in breakdown and it took long time to be repaired and kept the service delivery in line. In the interview, one interviewee had this to say: "We pay high user fees and sometimeswe do not see any water coming to our area, it leads us to walk long distances to find water for use**"**"

Water projects should be planned not only with a cost benefit analysis but on gender analysis to have a bearing on women's inputs and time. Water should be viewed as a public good and not a commodity. If the user fees of given water project are high, for example, many females headed households may not have the cash or labour to make a contribution to water which they get for use. Therefore, as attempts are made to unequal gender relations in water management, participation should not be at the expense of women. The children also are at

the recveiving end as sometimes they do not go to school in search of water. Most of their times is spent at boreholes and hand dug wells.

The participants in the study complained on problems that arose at the time they obtain water from public tapes and boreholes. The problems mentioned were high user fees, conflict when fetching water, the cooperative leaders sometimes close water for them, inconvenient time of service delivery and unfriendly language used by leaders. These discouraged some community members to continue using public tapes in getting water even though the service delivery considered more reliable compared to neighbourhood tapes. This can be justified by the word of mouth from one of interviewees who complained that. *(Hapana chandichaziva ,handivi kuti dambudziko iri richapera riini, ndinobhadhara mari zhinji as muridzi wemvura anenge avhara ndorara ndisina mvura yekunwa nekugeza)*

"I have no alternative and I don't know when this problem will end**.** I pay a lot of money to get water, at the same time if I come late the owner closes the tape thus I sleep without water for bathing and drinking too'

Table 3. Coping strategies adopted by the residents

Coping strategy	**Number of respondents**	**Percentage of respondents**	**Strategy category**
Reduction of water quantity use for specific purpose	35	22%	Conservation strategy
Use of bottled and sachet water especially for drinking purpose	22	15%	Alternative strategy
Purchasing of water from neighbours on daily basis	24	16%	Alternative strategy
Use of other toilet facilities that will not require much water	35	22%	Conservation strategy
Purchase of large water storage tanks for households	20	13%	Alternative strategy
Drilled wells	28	14%	Alternative strategy
Drilled boreholes	6	3%	Alternative strategy

The researcher also wanted to know why the public tapes were not operating well at each section. In order to identify the reasons behind, respondents were asked if they were involved in water resources management. It was revealed that the level of involvement was low. This was caused by bad management system, Ignorance of the Community members, unawareness and some of the members were living far away from the water sources. The researcher also went further to determine the source of the problem by asking whether they got education related to water management. The results indicated that more than fifty percent of the community did not get education on water management while 40% agreed to have received education. Lack of education in water management exaggerated the problem and its availability as a scarce resource. The level of involvement was also hampered by gender discrimination.

Women were lowly involved in decision making especially during planning about water resources management. As one of the interviewees had this to say: "One of the respondents argued that, we are not involved in water resources management and no education provided to us and only those who lived near the catchment areas are asked to participate in water planning and use" Source, One of community members, in Gimboki Township.

There are currently no mechanisms by which the community can participate in the planning and management of water and sanitation services. An attempt to form a stakeholder committee to improve management of water reserves in Gimboki had lapsed due to lack of efforts by all parties. Education, particularly of community in water resources management and campaigns are important elements in improving participation and need to be implemented at all stages of planning. The formation of community water and sanitation committees is an important mechanism for increasing participation at the local level.

4.5 To analyse the effects of poor water provision in Gimboki Township

4.5.1 Health effect on the residents

To live in a healthy life means that one must have access to quality and adequate water supply. The source of water determines its quality. An unimproved source of water is detrimental to the wellbeing of the user. To minimize this Mutare City Council is mandated to produce and supply quality water to urban residents. However, because of the erratic supply of water to the

already suburbs coupled with the fact that many residents who do not have access to the piped water from the Mutare City Council, many of these households rely on an unknown source from the informal water sources. This means majority of the population may be drinking the water they are supplied with by the vendors irrespective of the source. The risk of water borne diseases in Gimboki Township is therefore likely to be high. This result is consistent with the hypothesis of Bates et al. (2008) and Costello et al., (2009) that there is a significant relationship between inadequate water supply and the health of the affected people. It also supports the study by WHO (2008) that high spread of waterborne diseases such as dysentery, typhoid fever, diarrhoea and cholera are the result of consuming water from unimproved sources in the developing countries. Outwater, et al. (2013) also supports this finding that many of the sicknesses in African countries are water related.

4.5.2 Challenges Facing Community Members

The Local Government official whom were interviewed said that the most significant challenges facing the community members in the management of water services in improving water resources management were such as shifting of responsibilities from the government to local authorities, unpredictability of law and policy which lead to contradiction in laws and policy, lack of policy integration where different elements of water resources management were managed by different actors and the integration was insufficient, little cooperation (lack of coordinated governance or low water governance) in different systems of governance. Also, there was lack of communication with local communities.

The local government was not communicating to communities; therefore, it failed to respond to the needs of the local communities. The local government had to accommodate the needs of local communities and give them a voice in technology choice, levels of service and management structures Even where communities were given institutional space to participate in decision-making, not everyone was consulted. Only the selected few who were literate, the elites, were informed about the water projects, sat on the committees and the end users (who were the majority) we're not represented. As Julio (2001) argues that the challenges in water resources management are inadequate water policy, weak and ineffective water authority and institutional arrangements. Also, presence of serious water use conflicts, low water governance, inadequate water law and weak authority which is unable to fulfil its own roles mandated by

the law. Moreover, there is lack of appropriate institutional arrangements for people's participation in water resources management. This was said by one of interviewees:
There is a lack of coordination between various governments in sufficient water provisions in urban areas**.** Further, there is sometimes duplication of effort because of lack of planning within the institutions**"**

4.5.3 Challenges of rapid growth of population:

Urban areas are the main users of water. Urbanization also reflects the level of water consumption. Urban areas are the largest users of natural resources and produce economic value for raw material and consumption, which make urban areas the nation's economic centre.

Therefore, urban expansion directly affects the utilization of natural resources and economic development. It should be noted that the upstream area is like to be an agricultural community while the downstream area tends to be urban. Urban expansion affects the increase of water demand and land requirements. In some areas the demand for water already exceeds natural supply and a growing number of countries are expected to face water shortage in the near future (Population Information Program,1998). The pattern of water consumption and water demand in urban areas is important issues for sustainable urban development.

Urban expansion occurs in several dimensions, e.g. increased urban population, water consumption patterns, change of land use type that will affects spatial growth etc. Urbanization has been considered the main sector that takes advantage of natural resources, therefore the planning of urban form, urban expansion patterns, land requirements and the requirement of natural resources are necessary to planning of urban development. Unplanned communities can cause several problems especially water shortage and the loss of suburban agricultural area and green areas due to rapid urban expansion.

The steady growth of town's population due to natural increase and migration coupled with the expansion of the town imposed high burden upon the utility office Mutare City Council. And it becomes difficult to accommodate the ever growing population. The problem is exacerbated by the failure to design optimum use of water for the township due to underestimation of population growth. Gimboki Township is growing at a faster rate. The serviced stands characterises the Township. People are building make shift cottages. There are no roads, no

sewer let alone water which is basic human right every person. Cooperatives who are said to be managing the area are clueless on the issue of water. Several meeting have been held to address such challenges but to no avail. People used to pay money for the development on water and sewer reticulation but nothing has come out of it. In fact people have stopped to pay their monies because there are several allegations that cooperatives management team are lining their pockets instead of addressing the issue of water before them.

4.5.4 Lack of institutional coordination:

Major stakeholders in Gimboki township water supply activities include Mutare City Council, UDCORP and the community. However, there are no coordinated linkages among these offices. Different professionals are not incorporated in Board members to exploit their technical knowledge. The community is represented by few-delegated members. Thus, the poor institutional coordination hampered the efforts to achieve water challenge in Gimboki.

4.5.5 Limited budget /funds:

Delivery of urban water supply requires a high level of investment. Lack of sufficient funding has limited the quantity and quality of water supply service of the Gimboki Township. Moreover, lack of effective cost recovery mechanism often inhabited the office from sustaining even the existing service and fulfilling its mandate. Shortage of skilled manpower is the critical issue faced by Housing cooperatives managing the area. This constraint is also the most limiting factor in the fulfilment of its desired service provision. In addition to this, in adequate equipment facilities and other material resources further exacerbated the nature of the problem

4.5.6 Low community participation in decision making:

Individuals and communities, the private sector and NGOs have very important roles to play in the implementation of water provision in Gimboki Township activities and in achievement of water supply schemes. However, there is no participation of these important stakeholders in Gimboki township water supply service activities except the local Member of Parliament who had initiated drilling of few boreholes and supplying water using his vehicles. Thus, it is difficult for these housing cooperatives o to meet the ever-growing demand of the population. Involving the community during planning, implementation and operation phases of the scheme and delegating those helps to create sense of ownership to ensure the sustainability of the water supply scheme. In addition to this, it is also important to establish water committee with

membership of women and well developed reporting format and system to get feed-back on issues of water supply.

4.5.7 Good Governance

Governance for water resources management is a broad topic that spans many issues, butserious water problems show that effective and coordinated water governance systems areneeded, or purely technical solutions will fail. The urgency of the situation was explainedby the World Water Assessment Programme (2006). It wrote that in many countries, watergovernance is in a state of confusion, with a lack of water institutions or a fragmentationof authorities and decision-making structures, resulting in many unsolved water problemscausing misery and poor living conditions.

The definition of governance usually focuses on the administrative authority to manage public affairs at different political levels. For example, Rogers and Hall (2003) defined it 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." The Water Governance Facility of the United Nations Development Programme (UNDP) (2011) presented a broad explanation that water governance is "defined by the political, social, economic and administrative systems that are in place, and which directly or indirectly affect the use, development and management of water resources and the delivery of water service delivery at different levels of society". It gave as examples that water governance addresses equity and efficiency in resource and services allocation and distribution, water administration, the balancing of use between economic and ecosystem needs, policies, legislation and institutions, as well as the clarification of the roles of government, civil society and the private sector

It might be figured out from the preceding that poor-governance lies at the root which causes the lack of urban water supply. Poor-governance in this regard is characterizedby the management in the urban water public authority that put official and political interest to the expense of that of water consumers. This way of management canflourish because the management of public authority in charge of urban water in most ofurban, has, for a long time, been conducted without transparency to water consumers. This non-transparent management allows public authority to be in control of water system instead of the water consumers. It can be understood now that to solve the problem, there should be a good governance in water public

authority which has transparency in its management that allow water consumers as paying stakeholder to be in control, in place of the public authority. Transparency for this purpose can be achieved by letting water consumers be involved in the policy-making of urban water, and in the supervision for the implementation of those policies. In this way, public authority of urban water will be held accountable to the water consumers in the implementation of water policies, and in the carrying out of the management of urban water system. Satisfaction of water consumers therefore will be held as top target, and the consumers will, as the result, be more in control of the urban water supply system than the public authority.

4.5.8 Complaints from Community Members

The researcher wanted to know if the authority was aware on the complaints from community members. The local councillor, Housing Cooperatives managers and city officials all admitted that they had received a lot of complaints regarding water challenge and management from the community members at the ward. These complains were obvious indicator of bad operation and management system of water resources in the area done by Housing cooperatives and UDCORP. Most of the community members complained about their monies which they were paying in order to get water but to no avail. The findings concur with NAC (1999) who assert that a role of institutions is providing rooms to share and communities have to post their complaints to responsible institutions. The form of authority may be important but sometimes is not directly related to the grassroots level or local needs. The water authority conducts coordination function in water resources management, consultation with stakeholders in order to have policy integration, monitoring and evaluation of national policy implementation on water resources management. The authority is mainly responsible for delivering of water.

4.5.9 Involvement of Community Members

In this study, it was revealed that sometimes the community members were not involved in all steps taken by the institution in water resources management. The people in Gimboki Township lived far away from the water sources. Hence the institutions had ignored them but interestingly, they were concerned with people in Dangamvura Township who obviously lived near the sources of water. The findings contradict with the national Water policy and good governance which requires every member to be involved in matters that affects them directly

in the management of resources. However, the increase in population which is unproportioned to the resources exaggerated the extent of the problem.

The findings a similar to those of Amron (2009) who argues that stakeholders' involvement is required because water resources management is usually characterized by involvement of different decision makers operating at different levels. Stakeholder's participation on water resources management could be achieved if there is good communication and coordination among stakeholders in all levels and stakeholders' involvement and participation. In this connection, bottom up approaches to planning are being very actively promoted. Public consultation is a mandatory requirement for incorporating the various demands and needs of communities and stakeholders (user groups) into the process of planning. Community members shall have equal opportunities to take role in the process of planning, implementation and supervision of water resources management.

Ways to Involve Community Members in Water Resources Management

Besides testing the level of involvement, the researcher wanted to know the ways the public members were involved in water administration. They were tested whether they were involved in planning, decision making and implementation. The results indicated that none among these ways were the community members involved. It is justified by the score that only 10% agreed that they are involved in planning, decision making and implementation and 90% respondents said that they are not involved in water sources administration.

Although community members somehow benefited from the management and use of water, the study also indicated that 67% of respondents said that there was low implementation in management and use of water while 33% said that there was implementation in the management and use of water. Those who argued about implementation, they said that normally the management provides feedback on the management of water during their meetings. However, the majority of the respondents claimed that the management of water does not give them enough service.

4.6 To propose solutions for the effective provision of water in Gimboki and other parts of the city

4.6.1 Local Government Officers

The researcher interviewed the local government officers to determine approaches in place for water services delivery to the community members in Gimboki Township. During interview, the local government officer said that the Government of Zimbabwe have set water management policy in both rural and urban areas. The policy clearly states strategies for community involvement in water resources operation and management. Strategies mentioned were provision of education and environmental conservation surrounding the water sources as well as community involvement in planning, decision making and implementation. The local Government official explained that the strategies in place have helped the distribution of water in other places and plans are now underway to make the same arrangements with Gimboki Township but explained that there were many stakeholders to be involved since Gimboki falls under Cooperatives schemes which has its own way of doing things.

4.6.2 Interview with the Public relations department of the city of Mutare

The researcher interviewed the city of Mutare Public Relation officer Mr Spren Mutiwi who said the City is much aware of Gimboki water challenges. Mr Mutiwi said the former Minister of Local Government Savoiur Kasukuwere appointed Urban Development Cooperation (UDCORP) to sanitise Gimboki in 2016 after Housing cooperatives managers were accused of corruption among other things. The Mutare City Council (MCC) is out of this arrangement. It is doing a helicopter watch since Gimboki falls under the city jurisdiction. He said UDCORP is responsible for water challenges in Gimboki. Though Mutare City Council and UDCORP are from the same parent they are not working together in the Gimboki water challenges. Asked how the housing cooperatives allowed people to go and settle where there was no water, Mr Mutiwi said the land barons did not follow the council Memorandum of Understanding where they were supposed to be given a certificate of completion by Mutare city Council. He alleged some corrupt activities among those responsible when the project started hence it was now very difficult deal with such issues when people have already occupied the subserviced stands. However, the city public relation officer said the city council can intervene in case of diseases outbreak such as cholera or typhoid. For example, when the researcher was carrying out his research he saw the Mutare City Council workers cutting down grass in riverbanks to avoid mosquitoes from breeding. The spokesperson said it was the duty of Mutare City Council to prevent diseases from all its people in its jurisdiction.

4.6.3 Interview with Mutare Water City Engineer

The water City Engineer also lay out social challenges in this study refers to the challenge that emanates from the physical growth or development of the community. In the context of this study, the social factors considered include, the rate of expansion of the suburbs against the laid water pipes and the illegal settlement of people to a subserviced land. The Engineer went on to say thathouseholds can only access water from the national grid only if they are connected to the network or pipes of the Mutare City Council. It is the responsibility of the house owners and land developers to have their houses connected to the national grid upon meeting a set standard by Mutare City Council. In Gimboki Township we have more than five thousand customers. Boreholes there of course cannot serve the entire population in the area. So the rest of the population access water through their own means.

4.6.4 Interview with Mutare Town Clerk

The Mutare City Town Clerk Mr Joshua Maligwa said the Gimboki issue is not in council hands but said as council we are not folding our hands on water challenges in Gimboki. Though we are not real on the ground but we are doing helicopter watch as well on the issues in Gimboki since it falls under the jurisdiction of Mutare City Council. The Mutare City Boss echoed the same sentiments with Town Water Engineer that we await the UDCORP to sanitise everything in Gimboki and we are ready to partner them in making sure that Gimboki people get clean and safe water to drink just like any other Mutare residents. The city boss said if anything happens to Gimboki residents like diseases outbreak we can step in. Given the opportunity to handle Gimboki issues, we as city council can whip everyone into line and sanitize everything so that it can be manageable because at the end of it Gimboki will be our baby to manage just like any suburb in Mutare.

The government also collaborates with the institution concerned with water administration. The community members and local government leaders had to adhere to them to avoid conflict of interest. The policies and procedures for water resources management were clear and the institution had disseminated to community members. The town clerk besides explaining the ways, policies and distribution of water in this area, he admitted that water service delivery in Gimboki was not satisfactory.

4.6.5 Interview with UDCORP Officials.

The researcher had an interview with UDCORP a government unity which was appointed in 2016 to sanitize the area after housing cooperatives were accused of fleecing beneficiaries' money. The UDCORP official said that from the time we were appointed by government we

only sunk two boreholes in the area because of limited resources. Initially we were supposed to have sunk 21 Twenty-one boreholes but we failed because the beneficiaries are not forth coming in paying up their monthly contributions. UDCORP has no power to force people to pay their monthly payments. The official called upon Mutare City Council to enforce payments from people so as to put up infrastructure for sewer and water reticulation. However, UDCORP is much aware of the water problems in Gimboki. The official accused Land barons who allowed people to occupy the land which was subserviced. The Gimboki residents are resisting anyone coming to them asking them money because they felt they have been fleeced their monies for a long time.

Fig 3. One of the few boreholes where people scramble to get water to drink in Gimboki

There are limited numbers of boreholes with limited potential yield. The said boreholes were initiated by the local Member of Parliament who took upon himself to help people of Gimboki Township. Other two boreholes were sunk by UDCORP which was appointed to run the affairs of Gimboki after the cooperatives had failed their mandate in delivering what was expected of them. The boreholes are always down because they cannot cope up with the demand of the population in Gimboki. Some people are going there to sell water using their cars. Desperate people have no choice but to buy water especial for drinking and cooking purposes. A snap survey in the Township would tell that there is a big challenge of water in Gimboki, why did the cooperatives allow people to stay let alone build houses at subserviced stands? Who authorised people to occupy the stands without water and sewer reticulation? The city fathers

are mum on it. The city fathers referred all these questions to cooperatives who were administering the area. Nearly everyone is refusing responsibility.

The supply decreases more during the dry season. In addition to this, there is frequent interruption of the supply, which reduced the actual production to be less than the expected amount. There are no mechanisms developed to solve these challenges. Even the existing different sources of water are not synchronized to modern water supply; conserving or recharging natural ground aquifer such as afforesting water catchments areas that can regulate flow of water is not exercised. Moreover, curbing waste water and reusing for different purposes is not introduced to the community.

Fig 4. An open well in Gimboki where people fetch water for domestic use

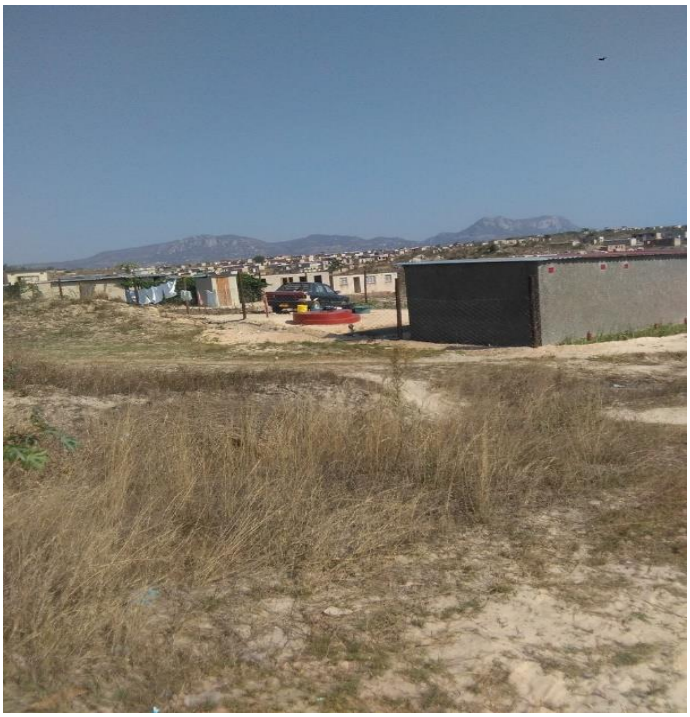


Fig 5. .A hand dug borehole at a homestead close to Blair toilet. This poses a lot of diseases outbreak

Discussion and Analysis

This study set out the goal of understanding how the inadequate institutionalstructure in the GimbokiTownship water sector contribute to the poor operations of the water supply. Empirically, itwas found that there is a general lack of interest among actors involved in urban watersupply process and non involvement of some actors in the process. It was also revealedthat lack of political will remains a big problem in supplying water to Gimboki residents. The findings are generally consistent with the theoretical framework of thisstudy. Practically, the results obtained from this study enabled the researcher to understand thebroader context issues affecting urban water supply. The overall implication of the study is for the actors and institutions in the water sector regarding urban water supply.

The poor service delivery in Zimbabwean cities is attributed to a combination of socio-economic problems within the country and in City Councils. Corruption, political interference by inter-party and intra-party members, and lack of effective participation mechanisms by the community are some of the political factors hindering effective service delivery. The tension between local government and central government is a cause for concern. The government of today is ZANU PF while most urban councils are being run by opposition MDC. Firing and suspending of councillors most from urban councillors who are from MDC is the order of the

day. As of result of this residents suffers the consequences. Economically, city fathers lack resources and are constantly gripped with non-payment of bills by government departments and politicians thereby prejudicing their capacity to service delivery. And because of this resident end up blaming the city council on their problems. The residents are ignorant on how the local business is run. Blamming of city fathers became the order of the day.

Other reasons also include the immaturity and incompetence of uneducated councilors and workers running local authorities in Zimbabwe and Mutare to be specific. All of the above problems affect cities in Zimbabwe, in varying combinations and to different extent. It is therefore imperative that local governance system be reformed and related pieces of legislation be enacted so as to revive and enhance good corporate governance, management capacity and financial mobilization. There is need for vibrant Residents Associations to advocate for service delivery, educated and focused councilors, workers and mayors who are adequately remunerated. The local authorities should embark on re-capitalization of their income generating activities. One may propose the devolution remedy as a solution to the governance challenges bedeviling local governance institutions in Zimbabwe. The Constitution (Amendment No. 20) of 2013 sells the devolution gospel and re-aligning Urban Councils Act and the 2013 Constitution must be looked at seriously if Zimbabwean local governance is to be rescued from the vagaries of bad governance.

Improvement in the local governance of cities depends heavily on the political and economic stability of Zimbabwe. As highlighted, instability breeds corruption and fund embezzlement by those in power. Work towards development or institutional progress takes a back seat as those concerned focus on self-aggrandizement. Even though good city governance depends heavily on stability, other strategies to be highlighted will also be of paramount importance. Leadership at any level calls for dedicated and educated individuals with an understanding of the service needs of the people. Councilors should be apolitical in their delivery of duty, ensuring that promotions and demotions are based on merit not political allegiance. Mayors and councilors are expected to be educated so that they comprehend cross-cutting issues relating to council's day to day management. The research noted that councillors" analysis of legislation and the budget is extremely poor as they cannot unpack the relevant pieces of legislation. This is not even enough nowadays with the level of education and technological advancement, which calls for one to be well acquainted with them. In this case, the attainment

of a professional course would be an added advantage to those seeking to be in position of responsibility to dovetail development.

Effective citizen participation is one variable missing in local governance of most local governance institutions in Zimbabwe. Gimboki residents find their input missing in the final document or implementation stage. A clear indication that the council ignored input from its residents. It is against this background that city fathers should strive to ensure people participate and their views are implemented at the end. Whenever implementation of agreed upon policies fails, they should come back to the people to explain what would have caused the failure.

Gimboki's persistant water shortages are a threat to to peace and development, as residents are likely to demonstrate or use violence to communicate their frustrations Gimboki is also an indicator and typifies how the poor are treated by those in corridor of power.

This study could be an eye opener to others reseachers in persuing other gaps which the reseacher did not deliberate, for example the the issue of level of education in service delivery in urban cities, financial constraints in urban council which will affect smooth running of the urbarn councils and the Political will among political players in services delivery.

4.7 Summary

This chapter covers the data analysis and findings of the research. Findings of the study established that the community is facing water problems due to poor governance, water infrastructure, deterioration of water system, poor water supply, contaminating the existing water supply systems and lack of community participation. People are accessing water from traditional hand dug wells, borehole, rivers and water from neighbouring community. The findings of the study also showed that there was high rate of women in this community. The study also established that most people collecting water from these sources were women and children. Most of people walk distance to access water from these sources.

The study has demonstrated that Gimboki residents have developed strategies to cope with water and sanitation problems. The strategies include accessing water from unreliable sources and storing water to sustain them for longer period. People have constructed pit latrines to cope with sanitation problems. People in this Township are denied access to water and sanitation

because their socio-economic status. Water shortages have a great impact on community's economic activities. The recommendation and conclusion of the study will be discussed in chapter 5.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.0 Introduction

This chapter centres around three themes; a summary of the research study, conclusion and recommendations. The conclusion part, centres on the deduction drawn from research findings, literature review and empirical studies. The Last part is recommendations and policy implications which give suggestions based on the results obtained and how it should be done in the improvement of water challenges in Gimboki Township.

5.1 Summary

Urbanisation and its resultant urban growth is an inevitable process of development in developing countries. Urbanisation presents both challenges and opportunities. In most of the developing countries however, the rate of urban growth outstretches the abilities of cities to cope, thus cities vis-à-vis towns have become sources of problems rather than solutions. The urban growth put pressure on civic authorities, making them under resourced in providing basic urban services at adequate levels. Consequently, cities and towns have become centres of more problems rather than opportunities for progress.

Against this backdrop, this study was based on the central objective of investigating the urban growth and expansion and security threat challenges on water governance in Dangamvura Gimboki Township, its impact on basic services such as the water- supply and sanitation in the Township. The study was undertaken within the confines of the key research question posed in the thesis: what factors are evident in Gimboki Township that best capture the realities of water-supply and sanitation? And, the overall research objective noted above. The study employed a multidimensional approach integrating the economic, social, cultural, physical, and political factors.

The study focused on the status, levels and problems associated with water-supply in Gimboki Township. An analysis is done both at a macro and micro level. The macro-level study focused on Mutare City as a whole and covered the state of water in terms of network distribution system and its capacity, demand and supply and, consumption per capita. The micro-level study focused at the household in the study area over water- supply issues in terms of availability, accessibility, quality, and associated problems.

Traditional unprotected ponds, spring, rain and piped are the sources of water for Gimboki Township. The water they get from the above listed sources is used for both drinking and other household activities. In terms of coverage the traditional ponds amount for the highest coverage for both drinking and for other household activities in the community which is more than 80 percent of the community gets their drinking water from the traditional unprotected ponds. The responsibility for collecting water from these sources is almost all on the shoulders of women while their frequency of visits to the water sources depends on the amount of water they need per day. As we have seen from the analysis, every woman has to visit the water source, which takes one hour on average for one trip, at least twice a day. The worst case for the responsibility of fetching water is children whose ages are less than 15 at the age they supposed to be at school. Though there are different definitions to the word quality, as most of the respondents agreed the purity of the Gimboki Township water is not enough to be called good quality. Though most of them agreed on the poor quality of water, very few of them treated their drinking water, for which lack of awareness, time shortage, being reluctant and unable to get water treatment tablets are some of the reasons given.

The study also covered environmental and health aspects by examining incidence of water and sanitation-related diseases. Although the overall research approach was qualitative, the research methodology employed was not restricted to qualitative one. It interweaved research tools from both qualitative and quantitative approaches to arrive at valid, reliable and justifiable research results. Many researchers called this a *'*triangulation approach*'*. For this study, the research tools adopted include a household questionnaire survey, key informant interviews, observation, informal discussion and focus group discussion. In executing these research tools, seven households from the three sections in Gimboki Township were selected using a purposive sampling technique. This sampling method was employed in conjunction with the research question which was not only aimed at finding statistical relationships or explaining the question of 'why', but also it attempted to understand social processes and experiences and addresses the question of 'what' experience the Gimboki residents had regarding water supply provision. Besides, key informants from government agencies were also interviewed to solicit the institutional dimensions of water challenges. Furthermore, residents were engaged for the focus group discussion as well as a significant proportion of Gimboki residents who were engaged during the process of informal discussions on water and sanitation issues in Gimboki Township.

Gimboki Township is experiencing serious water problems. These are caused by several factors, namely a rapid population increase due to rapid urbanizations, alleged corruption on those who are managing the project and lack of political will for those in the corridor of power. Besides causing discomfort to householders, the shortage of water could result in the spread of diseases such as cholera, diarrhoea, and dysentery. The shortage of water is a serious threat to sustainable development. The health of the residents is under threat. The environment is polluted as toilets cannot function well without water. It is imperative to turn around the situation in order to avert the spreading of diseases in Gimboki Township. Water is an important element in the survival of people. It is imperative to come up with long lasting solutions to the problems of the water shortage. Mutare is fortunate in the sense that its main reservoir, Pungwe dam, is usually 100 percent full and its water supply problems are technical in nature. A number of suggestions have been proffered and, if considered, it could go a long way in the sustainable utilization of water especially to Gimboki.

The available groundwater sources from where the Township is collecting for the domestic and productive consumption is becoming depleted from time to time. This problem is aggravated by the rapid rate of population growth; rapid expansion of the township coupled with other avoidable problems such as fewer boreholes resulted in the existing water supply to be inadequate. Even though, the UDCORP is planning drilling additional boreholes from year to year, there are also wells which are becoming out of use.

5.2 Objectives in summary

The state of water provision in Gimboki Township is directly linked to distance to water sources. Generally speaking, the greater the distance from the source of water, lesser is the access to water. A significant proportion of households (80 percent) used non-tap sources. Besides, the households frequently relied on non-tap sources for water due to shortage, irregularity and unavailability of water tap. The distance travelled by theses household members to fetch water from non-tap sources show that about 80 percent households travelled a distance to fetch water in Gimboki Township. Of this, nearly 80 percent households travel a distance more than 100 meters to fetch water and the rest move to a distance less than 100 meters. However, for the majority (78 percent), distance factor was considered as a non-issue.

The strategies used by Mutare City Council and other institutions clearly states strategies for community involvement in water resources operation and management. Strategies mentioned were provision of education and environmental conservation surrounding the water sources as

well as community involvement in planning, decision making and implementation. The local Government officials explained that the strategies in place have helped the distribution of water in other places and plans are now underway to make the same arrangements with Gimboki Township but explained that there were many stakeholders to be involved since Gimboki falls under Cooperatives schemes which has its own way of doing things.

The effects of poor water provision in the communities has a bearing on people's lives, to this end, a healthy life means that one must have access to quality and adequate water supply. The source of water determines its quality. An unimproved source of water is detrimental to the wellbeing of the user. However, because of the erratic supply of water to the already surbubs coupled with the fact that many residents who do not have access to the piped water from the Mutare City Council, many of these households rely on an unknown source from the informal water sources. The risk of water borne diseases is therefore likely to be high. This result is consistent with the hypothesis of Bates et al. (2008) and Costello et al., (2009) that there is a significant relationship between inadequate water supply and the health of the affected people. It also supports the study by WHO (2008) that high spread of waterborne diseases such as dysentery, typhoid fever, diarrhoea and cholera are the result of consuming water from unimproved sources in the developing countries

5.3 Conclusions

The establishments concerned with water management, protection and supply have rules and procedures for involving the water users. Although these rules and procedures are in place, people at grassroots level are not aware. Institutions in the region advocates that it has a role to educate and involve community members on the water resources management, protection and supply, but it has never conducted awareness meeting to community members in the area. Eventhough ward councillors are educated on these rules and procedures either by their ignorance or deliberately they have not delivered the same to the grass root level. These contradictions can be justified by the responses given by three categories of respondents, namely community members, local government officers and the council officials. While the ordinary people complain that the public water delivery is poor, the Ward councillors explain that the water service is conveniently provided though at a low level. Although there are laws, policies, and rules and regulations governing the provision of water supply services to the communities, there is a great need to clarify the roles and responsibilities within government institutions. Better coordination is needed both within government structures, and in the way

in which government bodies interact with local communities for provision of water services. Greater coordination is needed to implement the changes required in the rules, regulations and procedure critical to effective coordination. Also, Capacity building is vital at different levels within government institutions, as also within local communities in order to improve the provision and maintenance of water supply services in Gimboki Township.
People involvement at all steps of planning, decision making and implementation is paramount in both social and economic development.

This section concludes the findings in relation to the literature discussed in chapter two in the light of the importance being given to institutions of water facilities as complementary to the management of water facilities in developing countries like Zimbabwe. It argues that, while in principle Zimbabwe is on course to achieve the MDGs, in reality people who have alternative water sources in their community hardly use the potable water facilities provided for drinking in their communities. What is more the study shows that where people do not have alternative water sources they turn to use the available facilities but where there are alternatives like rainwater harvesting and rivers, they continue to use these 'traditional' water sources.

Participation in community affairs like managing water facilities also brings about differential burdens on women as they will still be responsible for major works at home even after being given the opportunity to take part in decision making process. Women's participation in decision making is a measure that will help alleviate some of the suffering of women however, there is the danger of perpetuating 'myths and stereotypes' in the water sector when women are asked to participate in it without due remuneration. Women and men's roles and responsibilities in planning water facilities are important for development and for improving the sustainability of the facilities however, this approach to the provision and management of resources like water failed to focus on what development can do for women in contrast to what women can do for development (Momsen, 2014). It is strange that gender activist in developing countries accept women to participate in managing water resources even at the midst of calls for transformations of economic, social and political structures at the local, community, national and international levels for the betterment of women, their households and the community in general. Indeed, Boserup's work showed that most housework done by women is undervalued because it is unpaid work leading to *"*misallocation of resources between men and women. (Horrell and Mosley, 2008: 2)

5.4 Recommendations

In pursuant to this study the following recommendations were made:

- The municipality of Mutare with the help of the government should aim to identify and develop more water sources since the urban population is rapidly increasing.
- The city council should not allow land developers to allocate subserviced stands because it compromises human welfare.
- City council should always assess population expansion against the water supply.

5.5 Areas for further Research

- Financial Constraints within local Authorities in land developing
- Political interference of political parties in Council business

DATA COLLECTIONS INSTRUMENTS

Interview schedule for Local Government Officials

The purpose of this study is to examine the challenges of water problems, the coping strategies and its social and economic effects on the residents of Gimboki Township. Your responses and cooperation will be very much appreciated. The information you willprovide shall be used ONLY for academic purposes and shall also be kept confidentially.
Thank you.

These interview questions will be asked to local Government officials

1. What is your knowledge and understanding about water provision in Mutare in general and Gimboki in particular?
2. Who are the actors and are they doing enough?
3. What are some of the challenges relating to water provision in Gimboki?
4. What do you think are the factors which hinder the local institutions to be involved in water resource management in Gimboki Township?

INTERVIEW QUESTIONS FOR HOUSING COOPERATIVES OFFICIALS

The purpose of this study is to examine the challenges of water problems, the coping strategies and its social and economic effects on the residents of Gimboki Township.
Your responses and cooperation will be very much appreciated. The information you will Provide shall be used ONLY for academic purposes and shall also be kept confidentially.
Thank you.

1. What is the state of water provision in Gimboki
2. Who has the responsibility to provide clean and portable water in the area?
3. Who authorised the settlement and were the social facilities including water reticulation ready for the people?
4. How does your cooperative work with municipal and local government officials to ensure decent water provision for the people?
5. What are some of the challenges that the people are facing and what can be done to address these?
6.

QUESTIONNAIRE FOR THE COMMUNITY MEMBERS

Dear Respondent

The purpose of this study is to examine the challenges of water problems, the coping strategies and its social and economic effects on the residents of Gimboki Township. Your responses and cooperation will be very much appreciated. The information you willprovide shall be used ONLY for academic purposes and shall also be kept confidentially. You are kindly requested to assist towards the success of this project by sharing your experiences during the process. Please give your honest views on the questions given. The researcher has permission from Bindura University of Science Education to carry out this Research. Feel free to respond to all the questions. Please note that all responses given will be treated in absolute confidence.

I want to thank you in advance for your cooperation in the quest to add to the body of knowledge in the field of Peace and Governance Studies.

Thank you.

Questions

SECTION 'A': PERSONAL DATA

1 Township Name ……

2 Sex: a. Male [ ] b. Female [ ]

3. Age (in years) a.18-24 [ ] b. 25-30 [ ] c. 31-35 [ ] d. 36-40 [ ] e. 41-45 [ ] f. 46-50 [ ]

4 What is your highest educational attainment?

a. None [ ] b. Non-Formal Edu. [ ] c. Primary [ ] O' Level. [ ] f. Comm/Voc/Technical [ ] University [ ]

5. What is your main occupation?

a. Farming [ ] b. Trading [ ] c. Civil Servant [ ]. Others (specify)…….

6. Kindly tell me the house type that you leave in?

a. Brick house [ ] b. Brick with Iron roofed [ ]
e. Others…….

SECTION 'B': WATER SOURCES, USES AND MANAGEMENT

1. How would you rate your access to the water facilities provided in your community?
a) Easy access [ ] b) Access with some difficulty [ ]
c) No access [ ]

2. What is the major source of domestic water in your community?
a. Borehole [ ] b. Hand-dug Well [ ] c. Others……. [ ]

3. How often do you have to collect the water?
a. Twice a Day [ ] b. Once a day [ ] c. Anytime I need water [ ]

3. What is the distance from your house to the major source of domestic water?

a. 100m [ ] b. More than 500m [ ] c. More than 1 km [ ]

4. What is the estimated total quantity of water (in buckets) used by your household per day?
a. Less than 3 [ ] b. between 4 and 5 [ ] c. Over 5 but less than 7 [ ]
d. Over 8 but less than 10 [ ]

5. What is the colour of the water you use in your house?
a. Cloudy [ ] b. Milky [ ] c. Clear [ ] d. Brown [ ] e. Other…… [ ]

6. Are you involved in water management in your area?
A Yes ( ) No ( )

7. Do you use different types of water for different purposes in your house?

a. Yes [ ] b. No [ ]

8. Do you buy water from water vendors?
   a. Yes [ ] b. No [ ]

FOCUS GROUP GUIDE

I would like to start by thanking you for coming today. My name is..... I am a Masters student at Bindura University of Science Education. I am conducting a research the challenges of water governance in Gimboki Township. Feel free to express your views, experiences and opinions. Different views will be accepted and respected.

Everything that we are going to discuss will be confidential and will be used exclusively for research and nothing else. Participation is voluntary and should feel the need to discontinue, you free to do so and I will respect your decision. During the discussion I will be taking down some notes and with your permission I will be happy to record the entire discussion so that I do not miss any of your opinions and any of opinions and views. The discussion will be for one hour 30 minutes.

Introductions: Group member's introductions will be done in the form of self-introductions.

1. How severe is the water situation in your area?
2. Who is the main collector of water for the household?
3. Has the provision of boreholes help in potable water collection?
4. What will you say about the quality of the water that you drink?
5. What caused the challenges?
6. Is the local government doing enough to address these challenges?
7. What do you think can be done to improve water supply and delivery services in your area?
8. Who is responsible for handling the water provision challenges?
9. What improvements if any have been there regarding water service provision in this area?

REFERENCE LIST

Alshenqeet, H. (2014). *Interviewing as a Data Collection Method: A Critical Review. English Linguistics Research Vol*. 3, No. 1; 2014

Argüeso, D., J. P. Evans, L. Fita, and K. J. Bormann, 2014: *Temperature response to future urbanization and climate change. Climate Dyn*., 42, 2183–2199, doi:10.1007/s00382-013-1789-6.

Anand, P.B (2007). *Scarcity, Entitlement and the Economics of Water Supply in Developing Countries*, Edward Elgar. Cheltenham.

Amron, M. (2009). *Stakeholder involvement in water resources management in Indonesia*; How can a stakeholder be involved in basin management and transboundary water cooperation? Istanbul. Indonesia.

Bhattacherjee. A. (2012).*Social Science Research: Principles, Methods, andPractices* University of Florida. Open Access Textbooks. Book 3.

Banda, I (2011) Zimbabwe: Filtering Fact from Fiction about D.I.Y. *Water Treatment. World Water Day*, Cape Town, South Africa. 20 - 22 March 2011

Boex, J., Lane, B., and Yao, G., (2013*) An Assessment of Urban of Urban Public Service Delivery in South Asia: An Analysis of Institutional and Fiscal Constraints. Urban Institute Center on International Development and Governance Research Report. Washington, D.C.: The Urban Institute*

Bhattacherjee A (2012) *Social Science Research: Principles, Methods, Practices*. Tampa: University of South Florida.

Brooke, K. M; Gerrity, D; Bruce E. R; Reisinger, D. & Brandt-Williams, S., (2013). *Innovative Strategies to Achieve Low Total Phosphorus Concentrations in High Water Flows*. Environmental Science and Technology, 43, 409-441.

Cooley H and Ajami N (2013) *Global Water Governance in the 21st Century. California*: Pacific Institute. http://www.pacinst.org/ publication/global-water-governance-in-the-21st-century

California Department of Finance, (2013) *Report P-1 (County): State and county total population projections, 2010–2060.* Available oonlinehttp://www.dof.ca.gov/research/demographic/reports/

Creswell, J.W. (2012). *Educational Research: Planning, Conducting, and Evaluating Quantitative and Qualitative Research (Fourth Edition)*, Lincoln: Pearson.

Creswell, J.W. (2007). *Qualitative inquiry and research design: Choosing among Five approaches (2nd ed.*). Thousand Oaks, CA: Sage

Creswell, J. W. (2011). *Controversies in mixed methods research.* In N. Denzin & Y. Lincoln (Eds.),
The SAGE handbook on qualitative research (4th ed., pp. 269–284). Thousand Oaks, CA: Sage.

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Upper Saddle River, NJ: Merrill.

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches*
(3rd ed.). Thousand Oaks, CA: Sage.

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research*
(2nd ed.). Thousand Oaks, CA: Sage.

Cooper, H. (2010). *Research synthesis and meta-analysis: A step-by-step approach* (4th ed.).

Thousand Oaks, CA: Sage

Dombrowsky, I. (2007). '*Institutions for International River Management- Is Integrated Water Resources Management a Viable Concept?*' in A. Schumann, M. Pahlow, J.J. Bogardi and P. van der Zaag (eds.). *IAHS IWRM 2006 Red Book*, Oxfordshire: IAHS Press.

Dikko, M. (2016). Establishing Construct Validity and Reliability: Pilot Testing of a Qualitative Interview for Research in Takaful (Islamic Insurance). *The Qualitative Report 2016 Volume 21*, Number 3, How To Article 2, 521-528

Dungumaro, W.E. (2006). '*Improving Water Resource Management in Tanzania,*' in *AJEAM-RAGEE*, 11(33): 33-41.http://www.srcosmos.gr/srcosmos/showpub.aspx?aa=8869 . Accessed on 20 May 2018

European Commission (2012*). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. A Blueprint to Safeguard Europe's Water Resources COM/2012/0673 final.* Brussels: European Commission

Fulkenmark, M., Gottschalk, L. Linguists, J. and Wouters, P. (2014) *towards integrated catchment management: Increasing dialogue between Scientists, policy makers and Stakeholders*. Water Resource development volume 20: 297 – 309.

Fink, A. (2012). *How to conduct surveys* (5th ed.). Thousand Oaks, CA: Sage.

Fainstein, S. (1996). '*City Planning and Political Value: An Updated View'*, in C.Scott and S.

Fainstein. (eds.). *Readings in Planning Theory*, Blackwell, Oxford.

GEMI. (2016). *Monitoring Water and Sanitation in the 2030 Agenda for Sustainable Development*: An introductory guide. GEMI, an inter-agency initiative composed of UNEP, UN-Habitat, UNICEF, FAO,UNESCO, WHO and WMO, operating under the umbrella of UN-Water.

Gupta, J and Pahl-Wostl.C. 2013. '*Editorial on Global Water Governance,' Ecology and Society,* 18 (4) 54. http://dx.doi.org/10.5751/ES-06115-180454

Guest, G., MacQueen, K. M., & Namey, E. E. (2012). *Applied thematic analysis.* Thousand Oaks,CA: Sage.

Gidey, B.K. (2006). '*Managing a Scarce Resource: DSM in Urban Water Governance'*, MSc. thesis, Roskilde University, Denmark.

Gleick, H. P. (1999). '*The human right to water', Water Policy*, 1(5): 487-503.

Gun, J. (2012). *Groundwater and global change: Trends, opportunities and challenges*. WWDR4 Side Publication Series No. 01. Paris, UNESCO

Gleick, P.H. (2000) *The changing water paradigm: A look at Twenty – first century water Resources Development*. International water Resources Association, 25, 1,127-136

Harris, L.M., Golden.J.A.and Sneddon, C. (2013) *Contemporary water governance in the Global South: Scarcity, Marketization and Participation*. Abingdon: Routledge

Hesse-Biber, S. N., & Leavy, P. (2011). *The practice of qualitative research* (2nd ed.). ThousandOaks, CA: Sage.

J-PAL (2012) "*J-PAL Urban Services Review Paper." Cambridge, MA: Abdul Latif Jameel Poverty Action Lab* http://www.povertyactionlab.org/publication/improving-access-urbanservices-poor

Kebede Kabiso (2015).*Urban water supply in hossana town of hadiya zone, SNNPR, a thesis, in regional and local development studies,* Haramaya University, Addis Ababa, Ethiopia

Kalu, F. A. and Bwalya, J.C. (2017). What Makes Qualitative Research Good Research? An Exploratory Analysis of Critical Elements. *International Journal of Social Science Research*, Vol. 5, No. 2.

Kothari, C.R. (1990).*Research methodology, methods and techniques*. (2nd ed). New Delhi: Wiley Eastern Ltd

Kothari, C.R. (2005). *Research methods in social science.* New Delhi: Sultan chand

Limbumba, T. M., & Ngware, N. (2016). *Informal Housing Options and Locations for Poor Urban Dwellers in Dar es Salaam City*. The Journal of Social Sciences Research, 2(5), 93–99

MacDonald, R.I and Weber, K. (2014). *Water on an urban planet: urbanization and the reach of urban water infrastructure.* Global Environmental Change, 27, 96–105.

Matsa, M (2012) *Urban Services Delivery in Limbo: A Provisional Assessment of Gweru's Water Supply System. Journal of Environmental Science and Engineering* A1 (2012) 993-1002
Mekonnen Abdisa and R.Uttama Reddy (2014). *Assessment of potable water supply, in Awaday Town, Ethiopia. The international journal of social sciences, 30th January 2014. Vol.19.No. (1*).www.Tijoss.com

Montogomery, A.M. and Elimelech, M. (2007). '*Water and Sanitation in Developing Countries: Including Health in the Equation: Millions Suffer from Preventable Illness and Die Every Year'*, American Chemical Society, World Bank, Washington

Mehta, L (2000) *Water for the 21st century: challenges and misconceptions, IDS working Paper*111.NewYork Institute of Development Studies

Misra, K. (2014). *From formal-informal to emergent formalization: Fluidities in the production of urban waterscapes.* Water Alternatives, 7, 15-34

Molle, F and Berkoff, J (2006) *Cities versus agriculture: Revisiting water transfers, potential gains and conflicts: Comprehensive assessment research:* Comprehensive Assessment Secretariat.

Maxwell, J. (1996). *Qualitative Research Design: An Interactive Approach*. Thousand Oaks, CA: Sage.
McCaig, C. (2010). Research and Evaluation Design, in L. Dahlberg and C. McCaig (eds.). *Practical Research and Evaluation: A Start-to-Finish Guide for Practitioners.* Sage Publications: Thousand Oaks, California: 29-40.

Marshal, C. and Rossman, G.B. (2006). *Designing Qualitative Research*, 4th edition. Thousand Oaks, CA: Sage

Maxwell, J. A. (2005). *Qualitative research design: An interactive approach* (2nd ed.). Thousand
Oaks, CA: Sage

Nastar, M. (2014) *what drives the urban water regime? An analysis of water governance arrangements in Hyderabad, India. Ecology and Society* 19(2): 57. http://dx.doi.org/10.5751/ES-06570-19025

Onda, K.; LoBuglio, J., & Bartram, J., (2012*). Global access to safe water: Accounting for water quality and the resulting Impact on MDG progress*. International Journal of Environmental Research and Public Health, 9(3), 880-894

Olsson, L., and Head B. W. (2015). '*Urban Water Governance in times of Multiple Stressors*: An Editorial,' Ecology and Society 20(1): 27. http://dx.doi.org/10.5751/ES-07300-200127.

Rijsberman, F (2006) *Water scarcity: Fact or Fiction? From Agricultural water Management*, 80:5 – 22: Darlo.
Wolfe, S and Brook, D.B (2007) *Water scarcity: An alternative view and its Implications for policy and capacity building.* Oxford: Blackwell.
Rahi, S. (2017). Research Design and Methods: A Systematic Review of Research Paradigms, Sampling Issues and Instruments Development. *Int J Econ Manag* Sci 6: 403

Rwegoshora, H. M. (2006). *A guide to Social Science Research.* Dar essalaam:
Mkuki na Nyota Publishers Ltd.

Rossman, G., & Rallis, S. F. (2012). *Learning in the field: An introduction to qualitative research*
(3rd ed.). Thousand Oaks, CA: Sage

Rogers, P. and Hall, A.W., 2003. *Effective water governance*. TEC background paper 7. Stockholm:Global Water Partnership Committee.

Satterthwaite, D., and D. Mitlin. (2014). *Reducing urban poverty in the global South.* Routledge, New York, New York, USA and Oxon, UK

Song,J., and Z.-H. Wang, 2015*: Interfacing the urban land–atmosphere system through coupled urban canopy and atmospheric models.Bound*.-Layer Meteor., doi:10 .1007/s10546-014-9980-9, in press

Schuck, C.E., Clark, D.C., and Russel, S.C. (2007). '*Economic Instruments for Water Management in the Middle East and North Africa', inInternational Journal of Water Resources Development*, 23(4): 659-677.

Van Leeuwen, C.J. (2013). *City Blueprints: baseline assessment for water management in 11 cities of the future. Water Resources Management, 27, 5191–5206*

UNDP (2013). *User's guide on assessing water governance*. Oslo: United Nations Development Programme

SIWI (2012). *Facts and Figures. Stockholm: Stockholm International Water Institute*. Retrieved from http://www.siwi.org/media/facts-and-statistics/ [Accessed 8 May 2018]

UNICEF (2014). *The Rights to Safe Water and Sanitation. Position Paper.*

Tashakkori, A., & Teddlie, C. (Eds.). (2010). *SAGE handbook of mixed methods in social and behavioral research* (2nd ed.). Thousand Oaks, CA: Sage.

Tampa Bay Water, 2011. *Governance* [online]. Available from: http://www.tampabaywater.org/about/governance/index.aspx [Accessed 6 August 2018].

USCB (United States Census Bureau). 2012. *International Programs. World Population*. http://www.census.gov/population/international/data/worldpop/table_population.php

. United Nations (2002). World Urbanization Prospects*:* The 2001 Revision, Economic and Social Affairs, United Nations Publication, New York.

United Nations (2007). *'World Population Highlights:* Key Findings from PRB's 2007 World Population Data Sheet', *Population Bulletin,* Population Reference Bureau, Washington.

WHO/UNICEF. (2015b). *WASH Post-2015: Proposed indicators for drinking water, sanitation and hygiene.*Geneva/New York: WHO/UNICEF Joint Monitoring Program.

WHO/UNICEF. (2015a). *Progress on Sanitation and Drinking-Water: 2015 Update and MDG Assessment.* Geneva and New York: World Health Organization and UNI CEF

World Water Assessment Programme, 2006. *Water: a shared responsibility*. The United Nations
World Water Development Report 2. UNESCO, Paris and Berghahn Books, New York.

UNDP, 2011. *Water governance facility. What is water governance?* [online] Available from: http://www.watergovernance.org/whatiswatergovernance [Accessed 12 August 2018].

United Nations (2008). *World Urbanization Prospects: The 2007 Revision*, United Nations Economic and Social Affairs. United Nations, New York.

United Nations Children Fund and World Health Organisation (2008). *Progress on Drinking Water and Sanitation: Special Focus on Sanitation*, UNICEP and WHO. Geneva, Switzerland.
United Nations Economic and Social Affairs (2008). *World Urbanization Prospects: The 2007 Revision*, United Nations Publications, New York.

Yang, J., and Z.-H. Wang, 2014: *Physical parameterization and sensitivity of urban hydrological models: Application to green roof systems*. Build. Environ., 75, 250–263, doi:10.1016/j.buildenv.2014.02.006

Yin, R. K (2009) *Case Study Research: Design and Methods*. Califonia: S

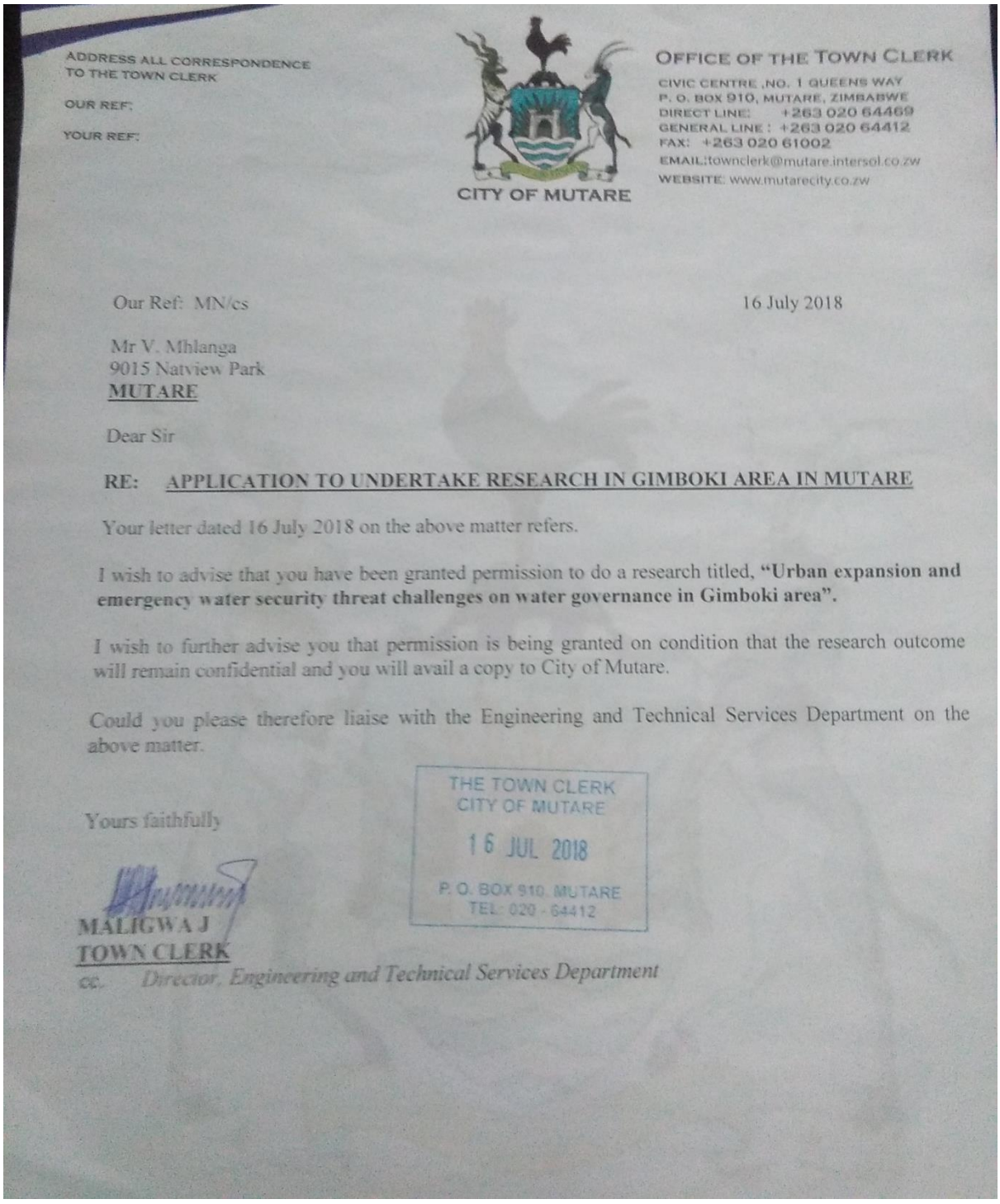
Pictures of the Area Understudy.

Picture 1. Picture shows a blair toilet close to a house

Picture 2. Picture shows a Blair toilet, a Hand dug well and a house close to each other.

Picture 3.An open well in Gimboki where people fetch water for domestic use

CLEARANCE LETTER FROM MUTRE CITY COUNCIL



ADDRESS ALL CORRESPONDENCE
TO THE TOWN CLERK

OUR REF:

YOUR REF:

CITY OF MUTARE

OFFICE OF THE TOWN CLERK
CIVIC CENTRE ,NO. 1 QUEENS WAY
P. O. BOX 910, MUTARE, ZIMBABWE
DIRECT LINE: +263 020 64469
GENERAL LINE : +263 020 64412
FAX: +263 020 61002
EMAIL:townclerk@mutare.intersol.co.zw
WEBSITE: www.mutarecity.co.zw

Our Ref: MN/cs

16 July 2018

Mr V. Mhlanga
9015 Natview Park
MUTARE

Dear Sir

RE: APPLICATION TO UNDERTAKE RESEARCH IN GIMBOKI AREA IN MUTARE

Your letter dated 16 July 2018 on the above matter refers.

I wish to advise that you have been granted permission to do a research titled, **"Urban expansion and emergency water security threat challenges on water governance in Gimboki area".**

I wish to further advise you that permission is being granted on condition that the research outcome will remain confidential and you will avail a copy to City of Mutare.

Could you please therefore liaise with the Engineering and Technical Services Department on the above matter.

THE TOWN CLERK
CITY OF MUTARE
16 JUL 2018
P. O. BOX 910, MUTARE
TEL: 020 - 64412

Yours faithfully

MALIGWA J
TOWN CLERK

cc. *Director, Engineering and Technical Services Department*