Practices and Challenges of Potable Water Supply in Bonga Town Administration

A Thesis Submitted to the School of Graduate Studies of Jimma University in Partial Fulfillment of the Requirements for the Award of the Degree of Master in Public Management (MPM)

BY:

GIZACHEW TESFAYE

JIMMA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF MANAGEMENT

PROGRAM OF MASTER IN PUBLIC MANAGEMENT

JULY 2021

JIMMA, ETHIOPIA

Practices and Challenges of Potable Water Supply in Bonga Town Administration

By

GIZACHEW TESFAYE

Under The Guidance of

Daniel Amente (Ph.D. Candidate)

And

Megersa Wedajo (Asistant Professor)

A Thesis Submitted to the School of Graduate Studies of Jimma University in Partial Fulfillment of the Requirements for the Award of the Degree of Master in Public Management (MPM)

JIMMA UNIVERSITY

MASTER IN PUBLIC MANAGEMENT (MPM)

JULY 2021

JIMMA, ETHIOPIA

DECLARATION

I hereby declare that this thesis entitled "*Practices and Challenges of Potable Water Supply in Bonga Town Administration*", has been carried out by me under the guidance and supervision of Daniel Amente (PhD candidate) and Megersa Wedajo (Assistant Professor). The thesis is original and has not been submitted for the award of any degree or diploma to any university or institution.

Researcher's Name	Date	Signature
_____	_____	_____

CERTIFICATE

This is to certify that the thesis entitles “Practices and Challenges of Potable Water Supply in Bonga Town Administration in Kaffa Zone”, submitted in partial fulfillment of the requirements for the Master of Public Management (MPM) in) and is a record of bona fide research work carried out by Mr.GizachewTesfaye, under our guidance and supervision.

Therefore, we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree or diploma

Main-Advisor Name	Signature	Date
_____	_____	_____
Co-Advisor Name	Signature	Date
_____	_____	_____
Internal Examiner Name	Signature	Date
_____	_____	_____
External Examiner Name	Signature	Date
_____	_____	_____
Chair Person Name	Signature	Date
_____	_____	_____

abstract

The purpose of this study was to assess the practices and challenges of Potable Water Supply in the Bonga Town Administration in Kaffa Zone. To this end, a cross-sectional descriptive survey design was employed and a purposive sampling technique was used to select the sample kebeles and community members. From probability sampling, the study was used systematic sampling to identify respondents from three kebeles of town administration. Accordingly, questionnaire were distributed to 204 heads of households, 7 interview participants' and 3 Focus Group discussions in three kebeles were taken as participants of this study. Consequently, the main findings of the study indicated that: the supply and distribution of potable water in the study area are insufficient. Because the perception of the respondents on the issue is almost negative. Regarding the major challenges that affecting supply and distribution of potable water supply in the study area; the findings of the study showed that shortage of budget, corrupted behaviors of officials, the technical problem of water service office workers, insufficiency of municipality office support and low public participation, weak political leadership, the bureaucracy of officials, improper plan of budget, the topography of the area is not suitable and population increase and lack of active project planner in the area were the reasons water service office was not able to overcome the potable water. The study was concluded that in Bonga town administration the challenges of water supply were many. The causes for these challenges were related to socio-cultural, economic, and political factors. It was concluded that the total of these challenges affected the sustainable use of water in the area. Finally, the researcher suggested that to improve the challenges of water supply in the study area, water service officials jointly with the municipality are expected to plan the project and search sponsors and allocate a sufficient budget to solve the problem of supply and distribution. To sum up, committed political leadership, public discussion and mobilization, prioritization of the problem, effective budget planning, and creating awareness to the public to use current water resources efficiently were suggested.

Key words: *Bonga town, Water supply, Practices, Challenge,* service provision

acknowledgements

I would like to thanks my advisors Daniel Amente (PhD Candidate) and Megersa Wedajo (Assistant Professor) for their valuable advisory support, comments, and suggestion to conduct this study.

And also, I would like to thanks my wife Meseret Busho and close friend Misganaw W/senbet. I have special respect for them for their support to the success of this study. I have also special thanks to all my friends who served me in idea, finance during the study.

Finally, I have also great respect and thanks to my respondents who were always happy and willing to share their knowledge and important information regarding issues under study.

Table of Contents

Contents Page

CHAPTER THREE

CHAPTER FOUR

CHAPTER FIVE

List of Tables

Table Page

List of Figures

Figure Page

ACRONYMS

ECOWAS	Economic Community of West African States
NGOs	Non-Governmental Organizations
OECD	Organization for Economic Development
SDGs	Sustainable Development Goals
SNNPR	South Nation Nationality People Region
SNNPRWNRA	South Nation Nationality People Region Water and Natural Resource Agency
SNNPRPDB	South Nation Nationality People Region Public Development Bureau
SPSS	Statistical Package for Social Science
UAP	Universal Access Program
UNDP	United Nation Development Program
UNICEF	United Nations Children's Fund
UNWWDR	United Nation World Water Development Report
UN DESA	United Nations Department of Economic and Social Affairs
UWSSP	Urban Water Supply and Sanitation Project
WASH	Water Sanitation Hygiene
WHO	World Health Organization
WSS	Water Supply and Sanitation
WSSD	World Summit Sustainable Development
WWAP	World Water Assessment Program

CHAPTER ONE

1. INTRODUCTION

This chapter deals with the background of the study, statement of the problem, research questions, objectives of the study, and delimitations of the study, significance, and organization of the study.

1.1. Back Ground of the Study

Urban issues have raised high on many agendas that deal with global questions. Most of the world's resources are consumed in cities, where the majority of people live. It has become obvious that the value of a single "green" building or eco-labeled product is marginal if it is not supported by sustainable urban infrastructure and a culture of sustainability (UNDP, 2019).

Infrastructure is a particular substructure, or subsystem of city shape which supports production and improvement of the city. It includes the basic set of technical amenities and its management institutions, indispensable for a sufficient monetary boom and development of inhabited area. Technical infrastructure systems are divided into: energy, sanitation and conversation structures. The systems furnish power and heat, water, drainage of rain wasters and wastewater treatment, management and disposal of municipal stable waste, communication and transport services, and growth of the street network cited by Chmielewski (2010).

Water is a basic requirement for the healthy functioning of the entire world's ecosystem UNDP, (2004) cited Yitayh, (2011). According to the World Book encyclopedia (vol. 21.2001), water helps to keep the earth's climate from getting too hot and too cold. Water is important for human beings at home and in our modern industries to manufacture different industrial products. Besides we also use water to irrigate dry farmlands and to produce electricity.

The problem of potable water scarcity is more acute in cities and towns of the developing world, where most of the challenges of water supply, sanitation, and environmental sustainability are still unanswered Bassi and Kumar, (2012). Eight-hundred eighty-four million people in the world do not have access to improved sources for drinking water. While access in rural areas is usually significantly lower than in urban areas, the increase in the use of improved drinking water sources is barely keeping up with the urban population growth WHO and UNICEF (2010). Therefore, the scarcity of potable water places a severe constraint on food production, economic development, and protection of the natural ecosystems. And as it is mentioned in the World Book encyclopedia (vol.21.2001) shortages of fresh water have troubled people throughout history and today, they trouble people more than ever because the water demand is growing rapidly.

Lack of access to a safe and adequate water supply and the health risks associated with water-related diseases are major public health problems in many developing countries. Today, more than 700 million people, who mostly live in developing countries, are without access to improved and adequate water (WHO/UNICEF, 2014).

Ethiopia is the water tower of the horn of Africa, yet in most parts of the country, water is still as precious as it's inaccessible. Ethiopia has set targets of 100% coverage of safe water supply in urban areas and 98% coverage in rural areas. These targets originated from the Universal Access Plan of 2005 and the Growth and Transformation Plan of 2010, and have been adopted by the One WASH National Program (OWNP), which is being implemented with major funding from government and international donors FDRE, (2013). The planning criteria for water supply coverage in the OWNP are Rural water supply: 15 liters/ person/day, within 1.5 km radius and Urban water supply: 20 liters/ person/day, within 0.5 km radius, (FDRE, 2013).

In this context, Southern Nations Nationalities and Peoples Regional nation has no exception. This region has massive water potential in the use of obtains from rivers, lakes streams, and ground water. However, the adequacy and accessibility of city water grant are at a toddler stage. The provision of water provider is now not balanced with the fastest charge of populace growth. This is basically due to negative finances utilization, regional topography, reduction of water from its sources because of climatic change, the contract form, and so forth SNNPRWNRA,

(2011). What has been mentioned so far it is possible to say that information about the availability of sources, treatment facilities, provide systems, distribution channels, demands, and consumption a device is very a good deal essential in studies about potable water supply; challenges of urban potable water furnish are an increasing number of turning into a big hassle of Bonga Town administration?

In light of this fact, this study intended to assess the practices and challenges of potable water supply in the Bonga Town Administration. Moreover, the study was focused on practices and challenges that existed which concerned bodies could have been used to enhance urban potable water service improvement in the study area.

1.2. Statement of the Problem

Water is at the origin of lifestyles on earth; no organism can live besides it. Although water is necessary to human lifestyles in it's a variety of dimensions, usual get entry to is some distance from being guaranteed, and amidst those communities which importance from this access, water is additionally a ways from being allotted fairly. According to (WHO-UNICEF, 2008) offering potable water safety is a serious task of the twenty-first-century world considering that greater than 2.5 billion human beings stay barring get right of entry to extended sanitation and about 0.9 billion continue to exist except access to the extended water supply. As WHO (2006) only 16 percent of humans in sub-Saharan Africa had get right of entry to ingesting water via a household connection which can be an indoor tap or a tap in the yard. Water provides has an necessary role in each social and financial development. Improved public health, higher dwelling standards, and financial traits are intimately related to the availability and accessibility of ample water grant with right best (Yitayh, 2011).

In Africa, nearly 87.5%of people do not have access to clean and safe water that is the equivalent of one in eight people on the planet. So with unclean water sources after miles from villages, many of able-bodied members of the community are forced to spend hours each day simply on finding and transporting water. The United Nations estimates that sub-Saharan Africa alone loses 40 billion hours per year collecting water. The economic and social effects caused by the lack of

clean water are often the highest priorities of African communities when they speak of their development. In economic terms for every $1 invested in water and sanitation, there is an economic return between $3 and $334.In Ethiopia, only 24% of the population has access to drinking water and only 13% of them have basic sanitation services. Access to potable water service is amongst the lowest in Sub-Saharan Africa and the entire world. Hundreds of people fail ill and die daily due to drinking contaminated water. That is why women and girls travel huge distances to fetch water (Chala, 2011).

Planning for the present and future demand has to consider population growth. The water demand is increasing in cities and towns due to an ever-growing population and the migration of people from rural areas to towns in search of jobs and a better life. There are also increasing demands from industrial and commercial development. The quantity of water required for domestic use depends not only on the number of people but also on their habits and culture, and on how accessible the water is. On average, Ethiopians in urban areas use only about 15 liters of water a day for their needs Ministry of Health, (2001). Water is the most important of all public services. It is the most necessary of life after oxygen. Anything that disturbs the provision and supply of water, therefore, tends to disturb the very survival of humanity. Water supply plays a significant role in the social, economic, and political life of people. Water supply shortages increase conflicts and public health problems, reduce food production and endanger the environment. However, the gap between water need and supply has widened steadily (Terfa and Ali , 2012).

South Nation, Nationalities, and People Regional State are relatively characterized by infrastructural developing regions in the country. However, in a region, there is a continuous problem of water supply and sanitation service provision. The region shares only 11.5% of water supply and sanitation service of the country's 39.4% and 63.9% of water comes from unprotected sources of water as compared to only 35% of water supply sources comes from protected springs, public and private tap (SNNPRPDB, 2013).

According to the researcher's preliminary test and practical observation, Bonga town has experienced the problems of adequate potable water supply and basic sanitation. The residents are forefront to be affected by the problem of poor access to potable water. In this town, the water demand is fast outpacing its availability for consumption, and the supply of domestic water

is constrained by the rapid growth of the population in and around the town. There is a shortage and frequent interruption of water supply in the town.

So far, in Ethiopia, different studies have been conducted by many researchers regarding potable water supply. For example, Getachew demonstrated that potable water supply in Ethiopia is very poor most of the population does not access to sufficient drinking water supply facilities. In Ethiopia, different studies indicate that coverage of water is importantly very low. It is estimated that many town dwellers have inadequate access to potable water service, and half of the country population remains excluded from official service networks, relying on alternative sources of potable water supply in its place (Getachew, 2002).

Zemenu, conducted practice and challenges of potable water supply in most urban areas is his major concern, in some areas more than two weeks would pass and communities would be running water. This problem is caused by many factors that include the availability of operators and municipal officials responsible for operation and maintenance. Challenges to providing water for productive purposes, food and livelihoods, the effective and efficient delivery of services also plays a key role, but the focus (compared with water supply) is primarily on the management of the resource. Also, the water challenge has two dimensions; one is the aspect of service delivery comparable to that of other utility services and the other is an aspect of managing the natural resources. Also, the practice and challenges of water supply are faced by a lack of good governance (Zemenu, 2012).

The above-mentioned researches have been carried out in widely wide-spread ways, they didn't tackle specially and in element the practices and challenges of potable water supply. Beyond this, there had been no preceding research conducted in Bonga city administration in this regard. Based on the above facts, the find out about used to be decided that there is a gap of studies on the practices and challenges of potable water supply in Bonga town administration. Therefore, this study used to be tried to fill the gap and served as a step forward or as a springboard for the different researchers.

1.3. Research Questions

The research questions were focused on Practices and Challenges of Potable Water.

What is the level of supply and distribution of potable water in the Bonga Town?

What are the challenges of the potable water supply in Bonga Town Administration?

What are the measures carried out to improve the level of potable water supply in Bonga Town Administration?

1.4. Objectives of the Study

1.4.1. General Objective

The general objective of this research is to assess the practices and challenges of potable water supply and distribution in Bonga Administrative Town in Kaffa Zone.

1.4.2. Specific Objectives

Specifically, the study was attempted:

To assess the level of supply and distribution of potable water in Bonga Town

To identify the challenges of potable water supply in Bonga Town

To address the measures carried out to improve the status of potable water supply in Bonga

1.5. Significance of the Study

Understanding the challenges of potable water supply help to address the problems related to the community in the study area. So that this study was the following contributions

It serves as a source of information for government officials and policy makers to reshape and develop out the latest scenario of development to address the problems of potable water supply in the study area.

It may help the public officials in the town to look back their gaps in performing potable water supply and thereby they may devote their time and effort to improve the quality of potable water supply.

It may motivate other researchers eager to deal with this area and conduct further studies.

1.6. Delimitation of the Study

The delimitation of the study was geographically and thematically. Geographically it is delimited on Kaffa Zone in Bonga Town administration, particularly, in Meskel Adebaby Kebele, Mehal Kebele, and Sheta Kebele. Thematically, the study was delimited on assessing the practices and challenges of potable water supply in Bonga Town administration.

1.7. Limitation of the study

The followings can be considered as the limitations of the study in conducting this research. Regarding to documents and secondary data, there were no adequate documents in Bonga town water service office and municipality, which were relevant to this study. Reference books for the study and study area were rarely available and this influenced the study to some extent to review the literature. Besides, reluctance of the targeted group in the cooperation with the researcher to provide reliable were also the major challenges to accomplish this thesis on time. However, the researcher tried to overcome these obstacles with the great efforts.

1.8. Organization of the Study

This research was organized into five chapters. The first chapter deals with the background of the study, statement of the problem, research questions, objectives of the study, significance of the study, delimitation of the study, and organization of the study. The second chapter provides a relevant review of the literature to concepts of the problem area. The third chapter presents research design and methods which included research method and design, population, sample and sampling techniques, sources of data, tools of data collection and procedures of data collection, data analysis, validity and reliability of the study, and ethical consideration. Chapter four includes discussion and results. The last chapter presents a summary of major findings, conclusions, and recommendations. Finally, references and appendixes are attached to the last part of the study.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

This chapter deals with a review of the literature and relevant concepts under the study. This part assesses a review of empirical works on the concerns of conceptual and theoretical approaches to the potable water supply.

2.1. Theoretical Review of Literature

2.1.1. General Concept of Potable Water Supply

The main components of water infrastructure are water collection and storage facilities at source sites, water transport via aqueducts from source sites to water treatment facilities, and storage and distribution systems. Pipe-supplied drinking water is one of the most important sources of urban water. Efforts to assess the challenges of urban potable water supply are important. Water restrictions involve complex rules which control the outdoor consumption of water by urban communities (Carter, 2009).

The challenges in urban potable water management are ample. Lack of skilled manpower, under pricing of water, and lack of a holistic approach and framework are the major challenges for urban potable water supply management. A major recent United Nations report on the state of water Supply in the world's cities found that water distribution systems in many cities in the developing world are inadequate, typically serving the city's upper and middle-class neighborhoods but not rapidly expanding settlements on the urban fringe (UNDESA, 2015).

Over the last 20 years, many urban areas have experienced dramatic growth, as a result of rapid population growth and as the world's economy have been transformed by a combination of rapid technological and political change. Around 3 billion people virtually half of the world's total population now live in urban settlements, and while cities command an increasingly dominant role in the global economy as centers of production and consumption, rapid urban growth throughout the developing world is seriously outstripping the capacity of most cities to provide adequate services for their citizens (Tegegne, 2009).

The availability and accessibility of clean water are most significant for the survival of human beings. Thus, the provision of quality and safe water services has become a major concern in both developed and developing countries said to Armstrong and kilter, (2008). However, in most developing countries there are deficiencies in the coverage, accessibility, and quality of water supply and sanitation services are common, OECD, (2010). For example, in the world, more than one billion people lack access to safe drinking water. As a result around 1000 children was died every day from diarrhea caused by contaminated water, poor sanitation, and improper hygiene, which is more than AIDS and malaria combined (WHO, 2012).

2.1.2. The Importance of Potable Water supply

Potable Water is essential to life. It is part of the physiological process of nutrition and waste removal from cells of all living things. It is one of the controlling factors for biodiversity and the distribution of Earth's varied ecosystems, communities of animals, plants, and bacteria, and they are interrelated physical and chemical environments. In terrestrial ecosystems, organisms have adapted to large variations in water availability. Water use by organisms in desert ecosystems is vastly different from those in forest ecosystems (Meseret, 2012).

2.1.3. The Level of Potable Water Supply Accessibility

To understand the best location, defining accessibility is probably the most complex and important of all tasks facing those concerned with the provision of any social service. Accessibility is the balance between the demand for and the supply of consumer services over geographic space and narrowing or bridging the gap between geographic spaces is all significance of transport. Accessibility can be seen within the context of the ease with the people can obtain the services of a facility and function. Accessibility increases with decreasing constraints both physical and social (Ademeyo and Afolabi, 2005).

Population using improved sources of drinking water are those with any of the following types of water supply; piped water (into dwelling yard or plot), public tap or stand pipe, tube well or borehole, protected well-protected spring, and rain water collection where as unimproved sources are unprotected dug well and spring, surface water (stream, canal, pond, dam, lake, river, irrigation channel), vendor-provided water(cart with small tank or dam, tanker truck), tanker truck provided water (UNICEF, 2006).

2.1.4. Challenges of Potable Water Supply in Global Perspective

2.1.4.1. Socio-cultural Challenges Influencing Accessibility of Potable Water Supply

Water supply has an important role in both social and cultural development. Improved public health, better living standards, and economic developments are intimately related to the availability and accessibility of adequate water supply with good quality by Hofkes, (1998), cited Yitayh, (2011). Improving water supply and distribution programs is crucial to spurring growth and sustaining economic development. Incorporating water improvements into economic developments is necessary to end the severe problems caused by water supply shortages and to improve public health and advance the economic stability of urban areas.

According to the World Health Organization, more than 3.5 million people die each year from water-related diseases, of which 84% are children by Prüss-Üstün, (2008). The same organization reported that nearly 90% of all death cases associated with diarrheal diseases occurs in the child population of the developing world (Pruss-Ustun, 2008).

The widespread failures in potable water supplies have been attributed to a number of flaws in the project's designs; the intervention not being desired by the community, high capital and/or recurrent costs for the community to bear or sustain, or lack of ownership, resulting in inability to bear the costs and therefore neglect of maintenance and repairs. The promised benefits don’t materialize, education programs to raise awareness are too short, and trained members of the community often move away or lose interest (Carter, 2009).

2.1.4.2. Political Challenges Influencing Accessibility of Potable Water Supply

Leaders of most developing countries lack a strong organizational framework and good governance that result in a weak policy environment for the water supply and sanitation sector. Underinvestment, undefined ownership, poor participation, weak regulations, and conflict priorities are the outcomes of weak policies by Francis, (2004) cited in Yitayh, (2011). Institutional issues of urban water supply are raised by WSP (2009) in such a way that the poor performance of water supply and sanitation services is often due to an inappropriate institutional framework, lack of regulatory mechanisms, an absence of appropriate attitudes and skills, and a lack of explicit directives and incentives to serve the poor.

Another barrier related to political will is inadequate consumer awareness of the health hazards associated with poor potable water quality and inadequate sanitation. Consumers in both industrialized and developing countries are generally not adequately informed about the impact of potable water on health or potential water and sanitation choices. Consumers may be more likely to value potable water taste and convenience or the perceived status of a flush toilet over health and sustainability concerns. Hence, consumers need to be educated not only about potable water and sanitation-related health risks but also about the range of corruption risks which is affecting the quality of safe potable water. Greater demand for safe potable water by well-informed consumers will force politicians and industries working in the potable water sectors to respond to this demand with appropriate and affordable products and solutions (Trop, 2005).

2.1.4.3. Economic Challenges Influencing Accessibility of Potable Water Supply

Significant investment is required to renew and upgrade infrastructure. Investment in water supply and sanitation alone will require trillion by 2050 and this bill could triple by 2030 if the investment is extended to a wider range of water-related infrastructure (OECD 2015).

Current levels of service delivery and water security in OECD and emerging economies should not be taken for granted. Although cities in the OECD area can provide high-quality water services, they cannot rely on current infrastructure and procedures to maintain acceptable levels of water supply and sanitation (OECD 2016).

Global agreements and frameworks, such as the 2030 Agenda for Sustainable Development, the Sendai Framework, and the New Urban Agenda call upon cities to be better prepared for water-related disasters and be more resilient and inclusive when providing water services. New socio-economic paradigms such as the circular economy are calling upon better use and re-use of natural resources, including water. The key question is how to accomplish these objectives? While technical solutions are well-known and available, they represent only part of the solution for cities to manage water in a sustainable, integrated, and inclusive way, at an acceptable cost, and in a reasonable timeframe. Therefore, beyond determining "what-to-do", it is important to know "who does what", "at which level of government" and "how" (OECD, 2015).

The financial cost to users is a less obvious barrier to the provision of potable drinking water. The per capita costs of providing potable water supply are highest in urban areas and sparsely populated rural areas on average, however, expanding coverage costs less in rural areas than in high-density urban areas. In much of sub- Saharan Africa, higher-income households with connections to utilities derive the greatest gains from water sold at prices far below the level needed to cover operations and maintenance costs (Collick, 2008).

The World Bank's the Future of Water in African Cities: Why Waste Water (2012) aims to change policy makers' thinking about urban water management, planning, and project design in Africa. (Water security), distribution and connection to users; poor water quality (unsafe or untreated); low levels of safe water consumption, and inequitable access to improved water supply services among urban and peri-urban areas and socio-economic groups.

2.1.5. Theories of Urban Service Provision

2.1.5.1. Public Choice Theory

Urban public choice theory attempts to understand how individuals' decisions to live within a jurisdiction and thereby 'vote with their feet' (Tiebout, 1956), affect local policymaking. Ostrom et al. (1961) argued that within a Western democracy with government revenue based on property taxes governments will favor policies to attract the highest property tax base. Peterson (1981) then argued that cities will not provide services that primarily benefit the poor. More recently, Craw (2008) argued that the regional context matters; cities with monopoly power within a region (i.e. no additional jurisdictions to compete for the property tax base) will provide

more urban services for poor residents. Public choice scholars also demonstrated that efficient urban public goods production varies according to scale. For example, policing includes a wide range of public goods (Ostrom et al., 1978), each of which can be more efficiently produced at different levels (for instance, expensive forensic services at the state level but 'cops on the beat' at the local level).

2.1.5.2. Critical Theory

Critical theory approaches services indirectly through the idea of 'collective consumption', the notion that modern urban residents rely on collectively provided goods, such as utilities and transportation networks, to survive and reproduce the existing array of capitalist socio-economic relationships (Castells, 1977). Collective consumption is interwoven with the contradictions internal to capitalism because, while the provision of general services is critical for the reproduction of labor and the continued functioning of markets, such service provision also represents a threat to capitalist profits if resources are diverted to collective (public) goods. Since collective consumption is 'at once in the general interest of the capitalist class and not in their general interest' (Merrifield, 2002), government-based service provision is portrayed as a disjointed, historically uneven process usually motivated by crisis and prone to the lowest expenditure. Critical theorists argue that the state assumes responsibility for urban service provision only when perceived as the best solution to the latest over-accumulation crisis. In this view, non-governmental service providers assume a greater burden in modern cities as governments abdicate their public responsibilities (Elwood, 2002; Leitner et al., 2007; Merrifield, 2002). As an offshoot of the critical approach, urban political ecology focuses more substantively on how: (a) the uneven distribution of political and economic power affects the distribution of crucial ecosystem services like water, food, and materials (Swyngedouw, 2004; Swyngedouw and Heynen, 2003); and (b) material exchange in urban environments is often structured to prioritize elites at the expense of marginalized groups.

2.1.5.3. Collective Action Theory

Collective action is a broad neo-Weberian concept used across the social sciences to describe how individuals act together to achieve goals not reachable by isolated individuals (Cronk and Leech, 2013). We limit consideration to the strand of collective action theory that focuses on the

provisioning of public goods by political regimes (Levi, 1988). Blanton and Fargher (2008) take fiscal organization as their starting point to analyze pre-modern state dynamics. They present a governance scale that runs from autocratic regimes to more collective or democratic regimes. In their causal model the internal vs. external origin of state revenues determines the scores on the governance scale. Reliance on internal revenue leads to greater bureaucratization, greater popular control over rulers, and more provisioning of public goods, whereas reliance on external revenue leads to the opposite because commoners have little economic leverage.

2.1.6. The Practice and Challenges of Potable Water Supply in Africa

The Potable Water supply situation in the Economic Community of West African States (ECOWAS) is far from satisfactory. The major factor responsible for this being the inability of member states to satisfy the potable drinking-water needs of their teeming populations. Water engineers and administrators in ECOWAS have been using the wrong scale of technology, always thinking "biggest". Unfortunately, the larger systems tend to carry with them a greater degree of vulnerability, since if they break down more people and more enterprises are adversely affected. In some states that are drought-prone, or do not have the infrastructural maintenance and repair support, the failure of one large water project can have immensely negative and sustained consequences. More important, perhaps, is the think big syndrome of aid agencies and consortiums, which has affected the psyche and performance of the potable water supply projects (R.Uttama, 2014).

2.1.7. Potable Water Supply in Ethiopia

First and foremost, poor accessibility of potable water supply is an issue of poverty. Unwholesome potable water and lack of sanitation are the destiny of poor people across the world. One in five people in Ethiopia lack access to sufficient clean potable water. In addition, the poor pay more. A recent report by the United Nations Development Program shows that people in Ethiopia typically pay 5-10 times more per unit of water than do people with access to piped water (World Bank, 2011).

The economic backwardness and topographical features of the land determined the supply of potable water for consumption in Ethiopia. The amount of income; working conditions and

education were indicators and influenced the potable water supply. Inadequate water supply, poor standards, and absence of correct allocation were caused due to high interruptions in electric power supply and administration problems (Mekonnen 2014).

2.1.8. Challenges of Potable Water Supply in Ethiopia

Access to potable water supplies services in Ethiopia is among the lowest in Sub-Saharan Africa. Systems are however frequently broken and not functioning with poor arrangements for maintenance and repair. Poor hygiene practices continue to cause illness contributing to poverty in urban areas. Water-related diarrheal disease is among the top three causes of all deaths in Ethiopia that have faced this life-threatening challenge for many years. Increasing the number of people with access to safe potable water supply has proven to be a tremendous challenge throughout the developing world. Despite huge investments over the years in the potable water supply millions of urban poor communities remain without adequate potable water supply services (Collick, 2008).

Although numerous schemes have been planned and implemented in Ethiopia, only a proportion of these schemes continue to provide potable water supply to the communities that they were intended to serve. The failure in service may have been caused by a multitude of reasons including, poor technology selection, insufficient maintenance, malfunctioning equipment, inadequate community planning or participation, and many others. By recognizing the combination of factors that have led to the success or failure of a water scheme, more meaningful and enhanced strategies can be arranged and employed for the preparation and implementation of more successful schemes. Therefore, the chief factors of each potable Water supply should be fully documented by implementers, other partners, and the communities being served by them to better explore a scheme's likelihood of remaining functional and challenges to its sustainability (Carter, 2009).

2.1.9. Local Potable Water Supply

Local Water Resources Development Offices are responsible for the monitoring of construction done by the regional bureau or private contractors contracted by the bureau, investigation, design, and implementation of small-scale water supply schemes, while study and design of big

schemes are undertaken by bureaus of water. Moreover, local level offices are responsible for providing technical support to town water supply offices. Such teams are responsible for planning and implementation of water and sanitation activities (MoWR, Local Water Resources Development Offices responsibility , 1999).

Local potable water supply means the source and infrastructure that provides water to households. A local potable water supply can take different forms: a stream, a spring, a hand-dug well, a borehole with a hand pump, a rainwater collection system, a piped water supply with a tap stand or house connection, or water vendors. Households use potable water for many purposes: drinking, cooking, washing hands and body, washing clothes, cleaning cooking utensils, cleaning the house, watering animals, irrigating the garden, and often for commercial activities. Different sources of water may be used for different activities, and the water sources available may change with the seasons. There is always some kind of water source present where people live, as they could not survive without one. The source may be inadequate, however; it may be far away, difficult to reach, unsafe, or give little water, making it inaccessible or unavailable (IR, 1983).

2.1.10. Urbanization and Potable Water Resources

The health and function of urban aquatic systems are vital for ensuring the health, sanitation, and overall quality of life in fast-growing urban areas. In the urban setting, the protection of valuable systems should be coupled with the restoration of degraded systems. Concerted efforts to improve waterways and bodies of water are an important strategy for contributing to human development in cities (A.Harvey, 2007).

Urban settlements are the main source of point source pollution. More than 80% of sewage in developing countries is discharged untreated, polluting rivers, lakes, and coastal areas. Even in some developed countries, the treatment of urban wastewater is far from satisfactory. Urban wastewater constitutes a significant pollution load and is particularly hazardous when mixed with untreated industrial waste a common practice. Many large cities still have no treatment plants or plants quickly become undersized as urban population growth outpaces investments (Ibid).

Water professionals need to understand that the keys too many of the solutions to their problems are held by decision-makers across the spectrum of other parts of society and the economy.

Likewise, recognizing water as 'the lifeblood' implies that all major decisions, wherever they are taken, should factor in their potential impact on water. In addition to the sociological and health implications, increasing population density in urban settlements presents serious environmental impacts. The transformation of natural land surfaces into impervious surfaces such as streets, parking lots, and building blocks, rainwater, and snowmelt from reaching the soil. It also increases the flow velocity of water, carrying pollutants into receiving water systems and further degrading water quality. This urban drainage effect increases the frequency of flash floods, causing casualties and infrastructure damage (MoWR, 2007).

As Bassi and Kumar (2012) urban areas are increasingly facing water crises due to mounting water demand and inadequate measures to meet the demand. This particular situation is arising because of the increase in urban population, inefficient management of water supply systems, inefficient use of water, and multiple institutional arrangements.

2.1.11. Demand for Potable Water in Urban Area

The size of a proposed potable water supply project is usually based on an average annual per capita consumption rate. Therefore, forecasts of the population for the design period are of the greatest importance and must be made with care to ensure that components for the project are of adequate size. The water demand projections should not include any provision for irrigation besides for very limited garden watering which is included in the per capita consumption rates (Ministry of water and irrigation, 2008).

Demand can be described in economic terms as a willingness to pay for a particular service. Demand expressed in this way is known as effective demand. Effective demand may be relatively high for the service people want (Ibid). The term 'service' not only refers to a particular level of service, but also how it is paid for, and how the project is implemented and managed. Achieving a consensus on what is understood by demand has been made difficult by the fact that engineers, economists, and social scientists tend to have different points of view. Most of the engineers that were consulted and those interviewed by Boss in South Africa equate the demand for water with consumption (World Bank, 2011).

Potable water demand projections should normally; be made for the initial future and the ultimate year. The initial year is the year when the supply is expected to be taken into operation

that may be assumed to be 0-5 years from the date of the commencement of the preliminary design. The future is 10 years and the ultimate year 20 years from the initial year. A potable water supply should normally be designed for the ultimate demand (Ministry of water and irrigation, 2008).

2.1.12. Potable Water Supply in Urban Area

It refers to access to a variety of water sources mainly surface, underground, rainwater that is used for various household purposes, like drinking, food preparation, hygiene-related purposes, washing cloths and body, as well as for livestock drinking, etc by Forrest and Wright, (1977 cited in Yitayh, (2011).

Urban potable water supply management has become a growing concern in many developing economies. Ongoing urbanization and rapid population growth mean increasing demand for water and declining supplies. Trends reflect continued water demand and supply imbalances, compromise on quality, and equitable distribution of water, in the wake of a growing population of cities. Formulation and implementation of effective water management policies have become imperative for ensuring efficient water delivery to the urban areas, which is essential for socio-economic development (Ibid).

2.1.13. Potable Water Governance in Urban Area

It is becoming increasingly recognized that the so-called 'water crisis' is essentially not a result of absolute water scarcity but a crisis of governance. In water services, this manifests itself in the fragmented institutional structures, the lack of clarity of roles and responsibilities, questionable resource allocation, patchy financial management, and the low capacity of implementing organizations (GDN, 2009).

This crisis is also apparent in the pervasive leakage of sector resources, weak accountability of politicians, policy-makers, and implementing agencies, unclear or non-existent regulatory environments, and unpredictability in the investment climate for private sector actors. Potable water governance is defined as 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 (Ibid).

Potable urban water supply management has become a growing concern in many developing economies. Ongoing urbanization and rapid population growth mean increasing demand for water and declining supplies. Trends reflect continued water demand and supply imbalances, compromise on quality, and equitable distribution of water, in the wake of a growing population of cities. Formulation and implementation of effective water management policies have become imperative for ensuring efficient water delivery to the urban areas, which is essential for socio-economic development. Inefficient use of water in urban areas is a key concern in developing countries, like Pakistan. Identifying inefficiencies in water supply and usage, and other affiliated environmental and health-related issues can help in soliciting policy response and decision making, regarding efficient potable water supply to urban households (UNESCO, 2014).

2.2. Empirical Literature Review

Fenta et al. (2007) concluded that many housing units connected to water supply system get water during the night when there is less competition from hotels, industries, and other sectors. Finding from the survey indicated that 63% of respondent in Addis Ababa reported that they get water on an irregular basis; moreover, it is common to see broken water lines in which water is wasted, in the period 2007-2010, on average only 56% of the water produced in Addis Ababa was delivered to users. Fenta et al., (2007) found that access to water refers to the degree of difficulty for customers to get water from the source as well as their meter connection, evidence shows that the city far from away ensuring universal access to safe drinking water because of expansion and population growth. According to data obtained from water agencies access to safe drinking water reached 75% of household respondents were asked to evaluate access to safe drinking water. About difficulty in getting water from the source 45.4% of respondents indicated that it is easy. Some 26% and 24.7% of the respondent reported it is to be difficult/very difficult and modest respectively. Household respondents were asked to indicate whether they know any clear legal system and practical mechanisms put in place to ensure accountability of the water supply agencies, only 12.2% of the respondents replied “yes” while 16.5% replied“ no”. The majority (71.3%), however, did not have any knowledge of whether existing or not (Fenta, 2007)

Fitsum et al. (2014) found that the social and economic importance of the provision of potable water supply is widely recognized. Water supply projects have impacts on people's lives, which extend far beyond the expected improvements to health and reduction in time spent to collect

water. Improving, rural water supply coverage is found to be a challenge; and so it is time to assess the conditions in different parts of the country. From the findings of the study, it can be concluded that the water supply in the study area, Gonji Kolela Woreda, is far less adequate due to multiple reasons. The study elicited the main reasons why water supply systems have become inadequate in the area. The woreda technicians or experts are few and thus are not able to provide technical support in all sites of the woreda's water supply schemes. Moreover, the institutional, technical, material, and financial support to the woreda water bureau was found to be very weak, which highly deter the capacity of the bureau (Fitsum, 2014).

Conducting on practices and challenges of water service delivery in wolaita sodo town, Ethiopia, they concluded the level of water distribution was around 89% of households have no access to water service daily whereas the rest 11% of households have access to water daily. This means water is accessible to households (HHs) every three days/week, twice/week, once/week and once per two weeks mostly due to power break down and the summer overflow of water into the treatment plant (Naol Soboksa, Feleke Solomon, and Temesgen Tilahun, 2019).

The review report of (Minwuye, 2015) confirm on Assessing potable water supply and distribution problems of Rebu Gebeya Town, Amhara Region (Ethiopia),the majority of household respondents about 47(39%) reported that, despite sharply increasing demands for urban water supply services has been constrained by financial problems .

According to (Ermias, 2016) conducting about urban water supply and sanitation: The case of Bedesa Town, Damot Woyde Woreda of Wolaita Zone, Southern Ethiopia. The survey result revealed that majority 95.4% of the respondents are not satisfied with the water supply, while 4.6% of the respondents were satisfied with it.

2.3. Conceptual Framework

The conceptual framework is developed by the student researcher from different reviewed literature such as socio-cultural, economic, and political factors/ challenges influencing the supply and distribution of potable water. Variable**:** is anything that can take on differing or varying values. The dependent variable is the variable of primary interest to the researcher. Independent variable is the variable that influences the dependent variable in either a positive or negative way. The dependent variable of the study is a supply of potable water in urban areas and independent variables are challenges influencing the supply and distribution of potable water.

(Figure 2-1)

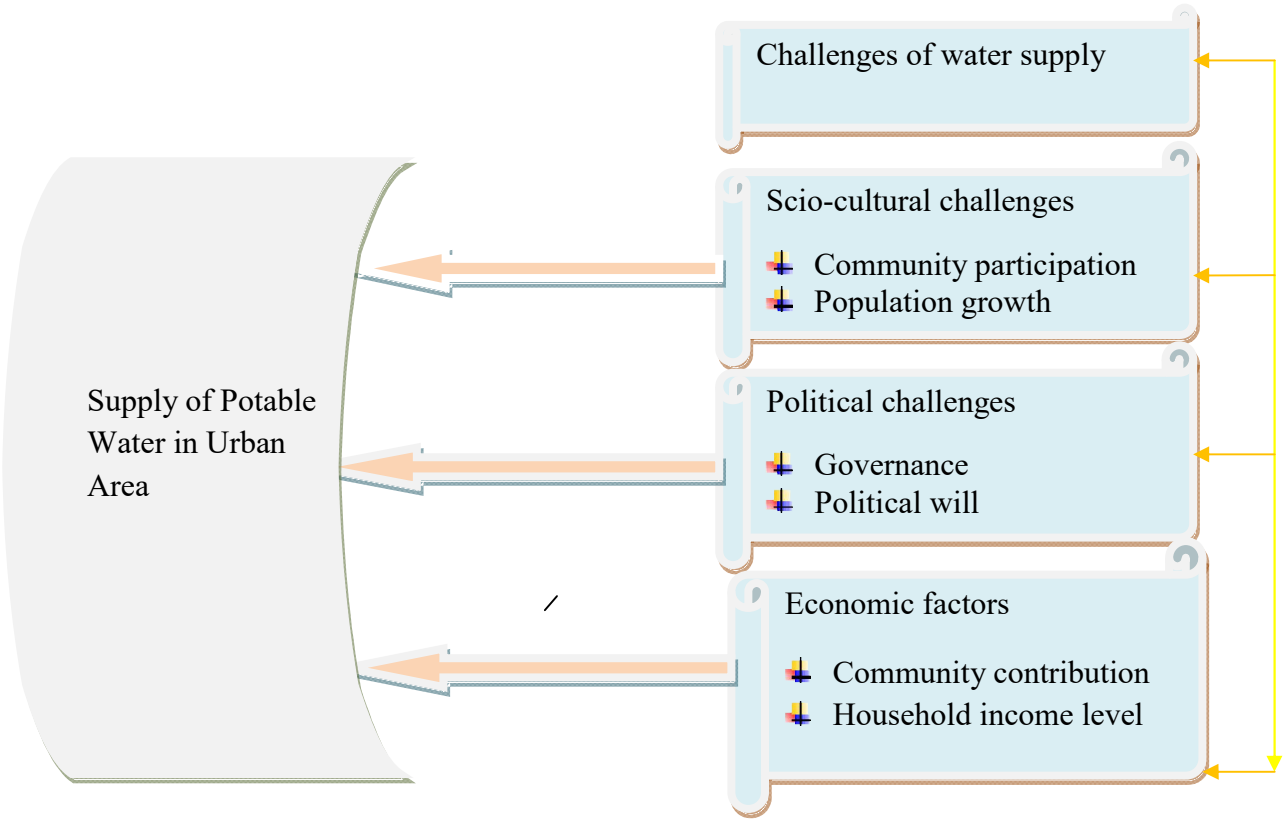

Figure 2-2: Conceptual Framework

Source: Conceptual framework developed by the researcher from different reviewed literature

CHAPTER THREE

3. RESEARCH DESIGN AND METHODS

This chapter deals with the description of the study area, research approach, research design, target population of the study, source of data, sample size determination, sampling technique, methods of data collection, methods of data analysis, validity, and reliability of the data and ethical considerations.

3.1. Description of the Study Area

The study was conducted in kaffa Zone, Bonga Town Administration. The Town was established before 1887 G.c. Bonga has located 449 km from the capital city Addis Ababa, 729 km away from the regional City of Hawassa, and 115 km away from Jimma City. Bonga Town municipality was established 1934 E.C, Town has one main municipality, two sub-municipally and each sub-municipally has 3 kebeles/Ketenas/, totally six kebeles are there. Based on the 2013 Central Statistical Agency on Population Projection, this town has a total population of 51,279 of whom 25,270 men and 25,889 women; Bonga Town Administration is share boundary with two woredas Gimbo and Decha. Bonga, has a latitude and longitude of 7°16′N36°14′ECoordinates: 7°16′N36°14′E with an elevation of 1,714 above sea level (Source; Bonga Town Municipal and Finance office2016).

Bonga town like other urban centers of Ethiopia includes different institutions and infrastructures. This town was going to be selected for the fact that the water supply problem is a critical and burning issue requiring urgent attention in the area but probable causes, challenges, and impacts of the water supply problem in the town were not yet assessed.

(Figure 3-1)

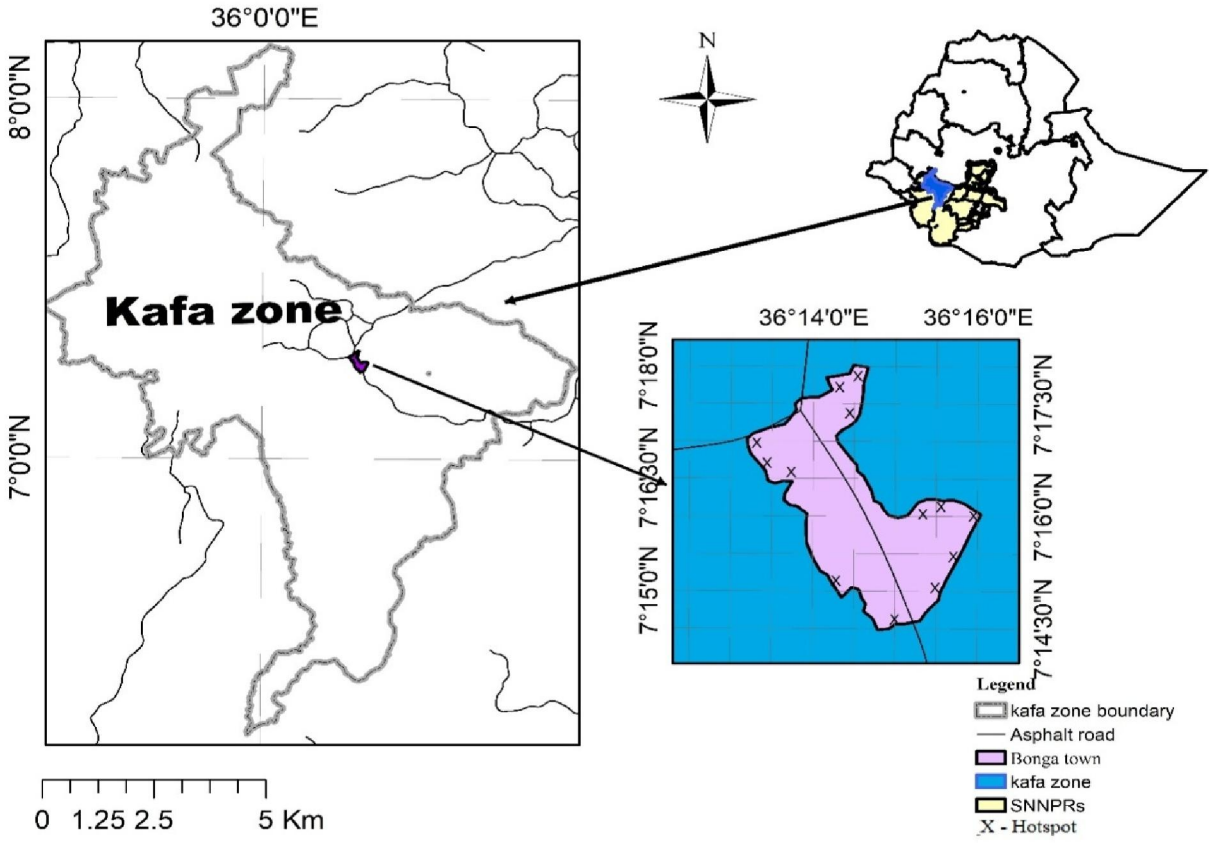

Figure 3-1: Map of Bonga Town Administration

Source: Bonga Town Municipal office 2016

3.2. Research Approach

In this study mixed research approaches were used with the assumption that using a mixed research method could neutralize the biases of any simple method; the more dominant approach used in the research was a quantitative method. But the qualitative data obtained from interviews and document analysis was applied to support quantitative data. It has been used as a means for convergence and integrating qualitative and quantitative data (Creswell, 2012).

The quantitative research approach was used for summarizing a large amount of data and reaching generalization base on statistical estimation whereas the qualitative approach validates and triangulates the quantitative data. The researcher has preferred this approach because it helps to assess the practices and challenges of potable water supply in Bonga Administrative Town in Kaffa Zone.

3.3. Research Design

In this study, a cross-sectional descriptive survey research design was employed with the assumption that it is helpful to obtained sufficient information from a large number of respondents and to describe and explain the prevailing current situations and practices. It also helps to describe the attitudes, opinions, behaviors, or characteristics of the population on the issue. Moreover, the cross-sectional descriptive survey research design also helps to gather data at a particular point in time to describe the nature of the existing conditions or identify standards against which existing conditions can be comparing. Because the major purpose of this study is, to describe the practices and challenges of potable water supply. It also helps to draw valid general conclusions on practices and challenges of potable water supply in Bonga Administrative Town Kaffa Zone by Creswell, (2012). Additionally, the design was preferred because of its being economical in terms of time and money in as far as a lot of credible data could be collected from a large population in a comparably short time with minimal resources (Kan, 2006).

3.4. Target Population of the Study

The population is the universe of residents or peoples from which the sample is drawn from. The target population for this study consisted of the head of households which is use potable water in the town. According to the data obtained from the municipality, the number of household heads in the town is a total of 10,442. So the study target population was 5,280 head of households which are 1,780 from Meskel-adebaby kebele, 1,500 from Mehal kebele, and 2,000 from Sheta kebele (Bonga Town Municipality, 2020).

3.5. Source of Data

In this study, both primary and secondary data sources were used to obtain adequate and reliable information about the practices and challenges of potable water supply in Bonga Administrative Town in Kaffa Zone.

3.5.1. Primary Sources of Data

The primary data was collected from sample kebeles head of households and government officials that are living in the Town/ Kebeles. The rationale that the researcher was selected these populations as primary sources of data because they are directly affected by the issue.

3.5.2. Secondary Sources of Data

The secondary sources of data were used to strengthen the primary sources of data. Secondary data collected from related published and unpublished materials, which are available in the form of books, journal articles, policy briefs, and performance reports.

3.6. Sample Size Determination

Bonga town has six kebeles /ketenas among six kebeles the study was included only three kebeles to make the representative sample. Purposive sampling was employed to select sample kebeles. Consequently, 3 kebeles of the town administration were used purposively to conduct the study due to two reasons. First, three of them have a serious problem with potable water supply in the town of administration. Second, they also have a serious complaint about the existing administrative practice of their leaders within potable water supply service situation. The names of those selected kebeles are Meeskel-adebabay, Mehal, and Sheta. The total sums of household heads of the three kebeles are 5,280 from the Municipality office, (2020). From probability sampling, the study was used systematic sampling to identify respondents from three kebeles of the town administration, because systematic sampling spread more evenly over the population. Systematic sampling involves a random start and then proceeds with the selection of every K^{th}term from then onwards. (K=N/n). Where, N=population size; *n*=sample size.

Therefore, the sample size of the respondent was determined using the formula developed by **Yamane** (1967).

$$n = \frac{N}{1 + N(e^2)}$$

Where:

n = number of samples

N = total no of household heads

e = margin of error size or the precision level (7%) with the confidence of (93%)

$n = 5{,}280/\ 1 + 5{,}280(0.07)^2 = 204$

NB: The sample size of the study was taken as 204 only for questionnaire respondents. This is because the current situation, time, money, and the respondents' availability are considered due to unmanageability.

According to the given formula, a total of 204 sample of household heads were selected. Based on this, Meskel-adebbay kebele (204/5280) 1780= 68, Mehal kebele (204/5280) 1500= 58 and Sheta kebele (204/5280) 2000= 78

Table 3-1: Sample Distribution of Household heads for selected kebeles

Name of kebele	Targeted population	Share of each kebele from the total sample size
Meskel-Adebaby	1780	69
Mehal	1500	58
Sheta	2000	77
Total	**5,280**	**204**

Source: Own Survey Result (July2021)

3.7. Sampling Technique

Purposive sampling was employed to select sample kebeles. Consequently, 3 kebeles of the town administration were used purposively to conduct the study. From probability sampling, the study was used systematic sampling to identify respondents from three kebeles of the town administration, because systematic sampling spread more evenly over the population. Systematic sampling involves a random start and then proceeds with the selection of every K^{th}term from then

onwards, (K=N/n) (Kothari, 2004). Seven interview participants were selected, one Bonga Town Administration water service office leader, three kebele administrators/chairmen, and from each kebele one community participant who has various responsibilities, knowledge, and experience about the practices and challenges of potable water supply from three kebeles. These key informants were selected by purposively believing that they have deep and relevant information about the study issues from their responsibilities. Therefore, participant of the study for questionnaires was selected using simple random sample technique. According to Kothari (2004) random sample refers to the method of sample selection which gives each possible sample combination an equal probability of being picked up and each item in the entire population to have an equal chance of being included in the sample. The simple random sampling technique gives each unit of the population equal opportunity of being selected. Members for focus group discussion were selected by using the purposive sampling technique from three kebeles and they included men and women having 8 participants in each kebeles. It was conducted with community participants from the three kebeles. The researcher has organized the participants into three groups to get information on the practices and challenges of potable water supply from each kebele (Kothari, 2004).

3.8. Methods of Data Collection

The researcher went authorization letter from Jimma University and went to the town administration water service office for getting permission. Then the researcher directly went to three sample kebeles for approval and agreement. After agreeing, the researcher was introduced to the objective and purpose. The expected data was collected by using questionnaires, interviews, and focus group discussions from sample units. Includes:

3.8.1. Questionnaire

The study was used questionnaires to collect data from, kebele's head of household respondents. The questionnaire is better to get a large amount of data from a large number of respondents in a relatively shorter time with minimum cost. Hence, questionnaires were prepared in the English language and translate into the Amharic language, for gathering information. The questionnaire has four parts. The first part deals with the general background of the participants. The second part deals level of supply and distribution of potable water. The third part deals with factors

affecting the supply and distribution of potable water. The fourth and last part deals with measures to overcome challenges affecting the supply and distribution of potable water. It is designed to collect data from 204 sample kebele respondents with the assumption that they can understand the language to gather data concerning the issue assessing practices and challenges of potable water supply in Bonga Administrative Town in Kaffa Zone. The participants were allowed to give their answers to each item independently as need by the researcher. Finally, the questionnaires were collected and offer to the researcher.

3.8.2. Key Informant Interview

The researcher used in-depth interviews to collect data. According to Creswell (2009) in-depth interview describes that it is used to collect the data through conducting in the face to face encounters (between the researcher and the informant) and in a place where convenient for the interviewees. The method is appropriate as the study on assessing the practices and challenges of potable water supply, allows the study to acquire more information and enables exploration of various opinions and attitudes from key informants regarding the issue. The interview questions were constructed to obtain detailed information about the issue under study. It was conducted with seven kebele interview participants. These seven interview participants were one Bonga town administration water service office leader, three kebele administrators/chairmen and from each kebele one community participant who has various responsibilities, knowledge, and experience about the practices and challenges of potable water supply from three kebeles. These key informants were selected by purposively believing that they have deep and relevant information about the study issues from their responsibilities. An interview was conducted with each of the key informants to acquire the necessary information for the study. The interview was raised issues such as understanding the essence of potable water supply, factors influencing potable water supply, and examining the measures were carried out to improve the status of potable water supply. While the interview was conducted, to minimize loss of information, the obtained data carefully record with an audio recorder.

3.8.3. Focus Group Discussion

Members for focus group discussion were selected by using the purposive sampling technique from three kebeles and they included men and women having 8 participants in each kebeles. It

was conducted with community participants from the three kebeles. The researcher has organized the participants into three groups to get information on the practices and challenges of potable water supply from each kebele. Hear, the researcher has introduced the objectives of the study and information focus group participants to discuss the issue, the practices and challenges of potable water supply in Bonga Administrative Town. During this FGD session, the researcher has invited the participants to discuss the issue base on basic research questions turns by turn. The group discussion was recorded on the consent of the groups to analyze the data. FGDs raised issues such as understanding the essence of potable water supply, factors influencing potable water supply, and examining the measures carry out to improve the status of safe potable water supply.

3.9. Methods of Data Analysis

The analysis of the data was done based on the responses collected through a questionnaire; interview and focus group discussions. The goal of data analysis is to describe accurately what happens in the data gathered from respondents. Based on the nature of item and variables use, current version SPSS, descriptive statistics like frequency and percentages were determined the existing practices and challenges of potable water supply in the study area. In addition, the gathered data open-ended questions, interview and focus group discussion from different sources were analyzed by narration and description by words in line with a questionnaire.

3.10. Validity and Reliability of the Data

3.10.1. Validity of the Data

Validity implies the extent to which the research instrument measures, what it is intended to measure. A statistical instrument can measure what it is designed to measure (for example, the research question), which can be either in terms of content. Validity refers to the degree to which an instrument measures what it is supposed to measure. Therefore, the validity of the study was achieved by undertaking multiple methods to investigate the problem from different angles and strengthen the validity of the findings. The entire questions posed in the interviews were directly linked to the research's aim and objectives and cover all aspects of the topic. Data were

transcribed and analyzed with a high degree of accuracy. Moreover, the transcriptions were rechecked by giving to advisors, seniors and making a pilot study to ensure the correctness and the accuracy of the data. Finally, the secondary source of data was used initially assess in the beginning to determine the validity of the information given.

3.10.2. Reliability of the Data

Reliability refers to the degree to which scale produces consistent results when repeat measurements are making. It shows the extent to which a variable (or a set of variables) is consistent with what they measure. According to measure Best and Kan, (2006) reliability has to do with the consistency or repeatability of a measure or an instrument, and high reliability is obtained when the measure or instrument gives the same results if the research is repeated on the same sample.

Several measures were carried out to enhance the reliability of the current research, including all discussions to avoid any bias which might happen if the researcher attempts to remember. Also, all the questions were worded clearly and ask in a natural tone of voice. The questions were repeated to enable the interview to understand what the question would have been any misunderstanding. Moreover, all interviews were allowed to explain their own beliefs and thoughts freely. It recognized that the conditions surrounding the research might be different when replicating the current study but in an attempt to help others understand the various decisions and processes that were adapted along the research journey and increase the probability of replicating the present study, all decisions and procedures were set clearly. The study was provided detailed information about the aim and objectives of the research, how the study was undertaken, and the justification of the adopted research strategy and methods.

The researcher was checked the reliability estimate for the total questionnaire computed by using version 2025 SPSS computer software to know the internal consistency of the questionnaire. According to Cohen et al., (2007), a reliability coefficient greater than 0.90 is considered to be very high reliability, 0.80-0.89 high reliable, 0.70-0.79 reliable, 0.60-0.69 minimally reliable, and less than 0.60 is unacceptable low reliable. In addition to this, to make sure the reliability of

the data collection tools, the reliability coefficient value above 0.70 is generally considered sufficient and reliable (Kimondo, 2013).

Results from reliability statistics of Cronbach's alpha showed that the instrument was very high reliable at 0.96. Depending upon the pilot test comments raised and it resulted in improvement of clarity of statements, grammar, and punctuation was corrected. The draft questionnaires were modified, in light of a reliability check. Then the modified questionnaires were distributed to 204 to the sample heads of households in the study area.

3.11. Ethical Considerations

In the process of the study, ethical issues were considered. To give priority to the participants' welfare, major ethical consideration was made while conducting this study. Research ethics refers to the type of agreement that the researcher enters into his or her research respondents. Ethical considerations play a role in all research studies. Before starting the study, the researcher was taken an official letter and permission from the university where the study was conducted. Then, permission from the town water service office and Kebele administrative bodies by telling the aims of the study. After permission, the study area was visited and observed base on social, economic, and political events. The researcher was started an informal interview to select formal informants by considering the ethical values of persons who are subject to the study.

Then, communicating with respondents legally and smoothly/politely. And, also inform that the main purpose of the study to make it clear for all participants. Communicate with the concerned bodies to accomplish their voluntary agreement without harming and threatening personal and institutional wellbeing. The identities of the respondents were kept confidential. Hence, the research process was begun by informing the respondents of the aim of the study. Then, before the conduct of the interview, all the respondents were provided with information about the objective of the study.

CHAPTER FOUR

4. RESULTS, DISCUSSIONS, DATA PRESENTATION, ANALYSES, AND INTERPRETATION

4.1. Introduction

This chapter deals with the presentation, analyses, and interpretation of facts gathered from the respondents through questionnaires, interviews, focus group discussions. Learn about tried to check the practices and challenges of potable water supply in the Bonga Town Administration, in the Kaffa Zone. Thus, the quantitative, as properly as qualitative analysis of information was included in this chapter. The qualitative part was once supposed to be complementary to the quantitative analysis

The first area of this chapter deals with the historical past of the respondents and the second part provides effects and discussions of the major data. The essential data have been gathered from a total of 204 respondents. The approach used to collect the facts from the total sample size by way of recruiting records collectors and taking part intellectuals that have valid contribution to the study.

4.2. Demographic Characteristics of the Respondents

Before discussing the statistics associated to the primary questions, the characteristics of the respondents was once introduced below. Description of the characteristics of the goal populace offers some basic records about sex, age, and marital status, and schooling level, length of dwellers stay in the study area, contemporary occupation, and income level per month of the sampled populace worried in the study. Thus, the following desk describes the regular heritage of respondents concerned in the study.

Table 4-1: Gender Distribution of Respondents

Sex		Frequency	Percent
Valid	Male	145	71.1
	Female	59	28.9
	Total	204	100.0

Source: Own Survey Result (July2021)

From table 4-1, it is possible to deduce the following facts. The statistics exhibits that 145(71.1%) of the respondents had been men and the rest 59(21.9%) were lady respondents. This shown that female contribution on this questionnaire was less compare to male.

Table 4-2: Age of Respondents

Age		Frequency	Percent
Valid	<21 Year's	17	8.3
	21-30 Year's	32	15.7
	31-40 Year's	98	48.0
	41-50 Year's	47	23.0
	>51 Year's	10	4.9
	Total	204	100.0

Source: Own Survey Result (July2021)

Table 4.2, illustrates that the age interval of the respondents. In this regard, the highest number were, 98(48.0%) and 47(23.0%) of the respondents in the study site found in the age interval of 31-40 and 41-50 years respectively which signifies that the respondents have mature and well experienced to explain practices and challenges of potable water supply in the study area. The rest of the respondents with age groups 21-30 represent 32(15.7%, less than 21 years count 17(8.3%) and with age group 51 and above count for 10(4.9%). Thus it can be concluded that the majority of the respondents fall under the age group of 31-50 year's. Thus, this implies that the majority of respondents were adults; this show adult has needs to leave their family and live independently in their home rental or building their own home and they needs access of water for their day to day life activities

(Figure 4-1)

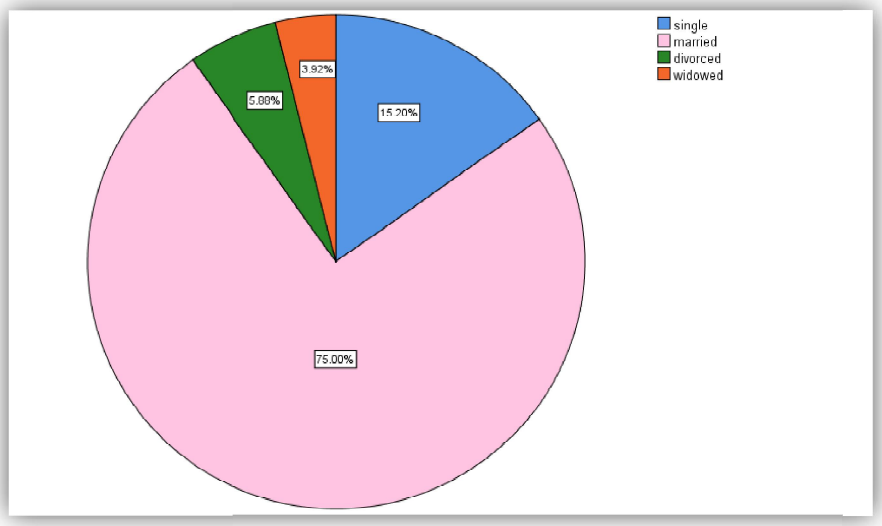

Figure 4-2: Marital Statuses of Respondents

Source: Own Survey Result (July2021)

Marital status has to do with family size and family heads, which in turn, has an impact on water consumption and participation in projects targeted to water supply. Regarding the marital status of the respondents; their response revealed that 153(75.0%) of them were married, 31 (15.2%) were single, 12(5.9%) were divorced and 8(3.9%) were widowed. The data shown, the majority of the respondents were married. Marital status was considered important because it falls within the cultural factors that are considered to influence household consumption, and who are married take the lion share from the whole sample of respondents. Therefore, they are responsible for acquiring residence for their family by any means compare to single and divorced.

(Figure 4-2)

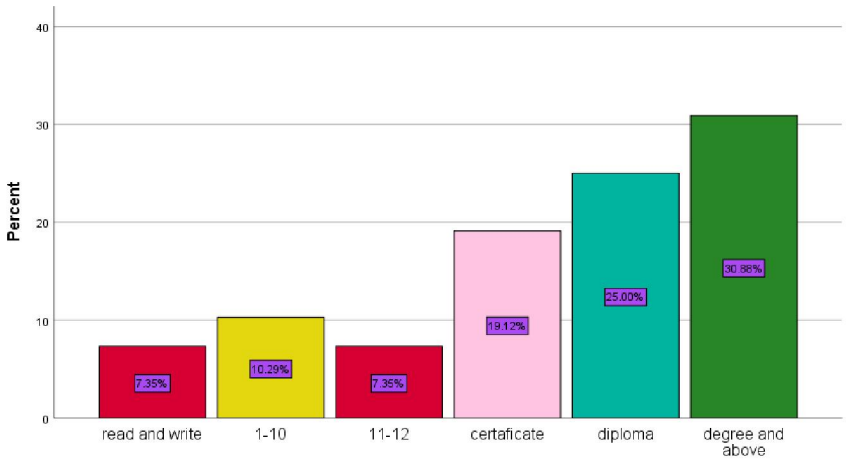

Figure 4-3: Respondents Educational Level

Source: Own Survey Result (July2021)

Education is an instrument used to create educated citizens who works for the socio-economic development of a nation. It is a fundamental parameter for any improvement pastime as in water supply and distribution programs. This is because literate residents can be higher individuals and contain in tasks centered to water supply and distribution. Knowledge and technology transfer are also easier in a neighborhood that constitutes skilled peoples. Educated people demand for better services and towards improvement of their dwelling condition. As it is shown in determine 4-2, the instructional stage of respondents 15(7.4%) were could study and write, 21(10.3%) have been grade 1-10, 15(7.4%) had been grade 11-12, whereas, 39(19.1%) were certificate awarded, 51(25%) had been diploma holders and 63(30.9%) have been diploma and above holders. Majority of the respondents keep diploma, degree, and above degree, lack of accesses to education and decrease stage of educational fame one of the purpose to earn low earnings and that causes go through from poverty. Besides, education determines household heads falling below the poverty line (Dionysia, 2007).

(Figure 4-3)

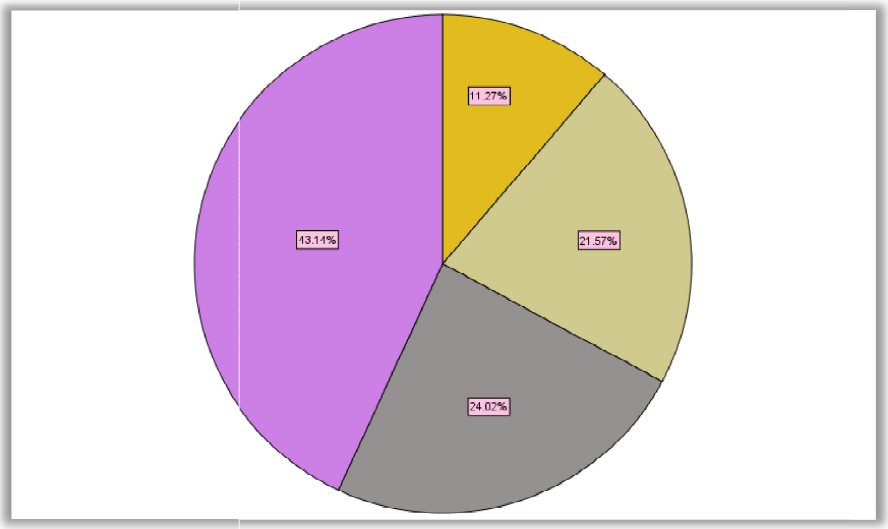

Figure 4-4: Duration of Residence

Source: Own Survey Result (July2021)

Concerning residence, 88(43.1%), 49(24%), and 44(21.6%) of the respondents have stayed in the study site for a period of above 15 years, 11-15 years, and 5-10 years respectively. This enables them to give a reasonable response on the issue, the rest 23(11.3%), of the respondents stayed less than 5 years. From the above data the researcher concluded that the majority of respondents stayed in the study area above 15 years. So, they know about the challenges and practices of potable water supply in the study area.

Table 4-3: Occupational Background of Respondents

Current occupation		Frequency	Percent
Valid	Salaried	122	59.8
	Self Employed	61	29.9
	Retired	13	6.4
	Unemployed	8	3.9
	Total	204	100.0

Source: Own Survey Result (July2021)

Regarding the occupation of the respondents, salaried persons have dominated the sample with 122(59.8%) respondents, whereas, 61(29.9%) respondents were self-employed, 13(6.4%) were retired and the rest 8(3.9%) of the respondents are classified as unemployed. From this data we can inferred that majority of respondents in one or other way are working or active group and are not economically dependent.

(Figure 4-5)

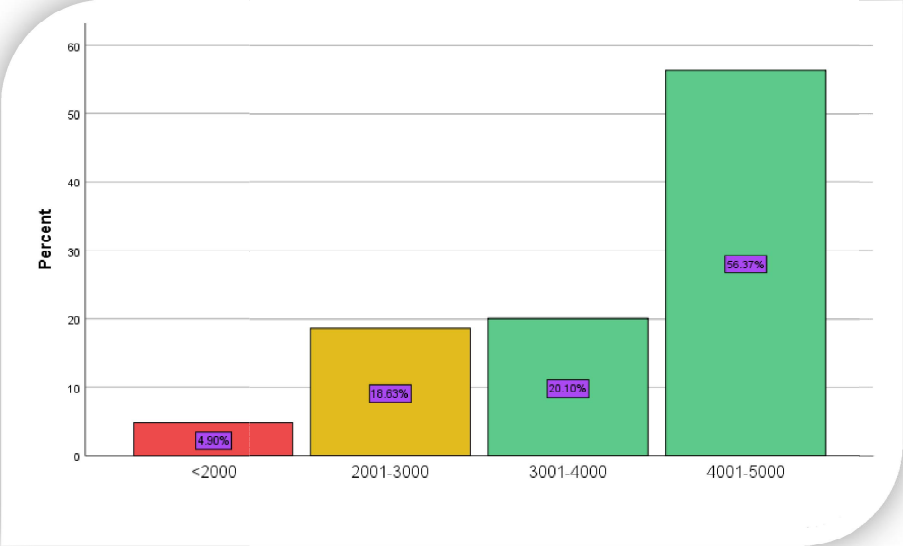

Figure 4-6: Head of Household Monthly Income Level

Source: Own Survey Result (July2021)

Household income is one of the most determinant factors of individuals' living standard in general and consumption in particular. As indicated in figure 4-4, out of the total households, about 115(56.4%) were earned 4001-5000 birr per month, 41(20.1%) earned 3001-4000 Birr per month, 38(18.6%) earned 2001-3000birr per month and 10(4.9%) of the respondents indicate that their family earned less than 2000 birr per month. Therefore, based on the data shown above it can be inferred that, majority of respondents have monthly income range were 4001-5000 birr

per month. Money is power to buy or to do things as an individual wish. As the data shown majority of the respondents earn better income to fulfill their basic need.

According to Coleman & Woldeyesus (1995), the minimum existence threshold is 3240 Birr. This shows that the lower middle-income and especially low-income population is the main victim of the water supply problem. As there are still no fundamental policies to improve the socio-economic conditions of the urban poor, there exists a big disparity between provision of basic needs (such as living space, water and employment) and demographic growth.

4.3. Water Supply and Distribution Level in Bonga Town

Assessing the current situation of urban water supply helps to know the supply and distribution level, challenges against the provision, and to set directions aimed at adequate water supply to the target urban community on sustainable basis. Accordingly, data on water supply and distribution status, access to get water per-week, causes of water supply interruptions, public officials how to encourage citizens in descion-making process, how long to fix broken water line, and examines possible measures carried out to improve the status of potable water were gathered to look at the existing water supply and distribution in the Bonga Town Administration.

.

According to (UN-HABITAT, 2011), water accessibility can be explained as an adequate amount of water which is needed to satisfy metabolic, hygienic and domestic requirements at least 20 liters of safe water per person per day. In urban areas the water source may be either a public fountain or a stand pipe at least 20 liters of safe water per person per day and not more than 200 meters away from the dwelling place.

4.3.1. Households' Perception on the Potable Water Supply and Distribution

Assess the current perception of the sampled respondents on weekly access water supply, public officials encourage citizens in descion-making process, and how long to fix broken water line were gathered to look at the existing water supply and distribution in the Bonga Town Administration.

Table 4-4: Respondents get access of water supply

	Water access	Frequency	Percent
Valid	One-two day's	127	62.3
	Two-three day's	60	29.4
	Three- four day's	11	5.4
	Five-six day's	6	2.9
	Total	204	100.0

Source: Own Survey Result (July2021)

The above Table 4-5, revealed that 127(62.3% of them were provided that supply of water is one-two days in a week, 60 (29.4%) two-three days, 11(5.4%) three-four days, and 6(2.9%) of them were provided that five-six days. Conducting on practices and challenges of water service delivery in wolaita sodo town, Ethiopia, they concluded the level of water distribution was around 89% of households have no access to water service daily whereas the rest 11% of households have access to water daily. This means water is accessible to households (HHs) every three days/week, twice/week, once/week and once per two weeks mostly due to power break down and the summer overflow of water into the treatment plant (Naol Soboksa, Feleke Solomon, and Temesgen Tilahun, 2019). From the above comparison of Sodo and Bonga town, the result shown that Bonga town had severe conditions in accessing water daily. This data revealed that there was a water supply and distribution problem in the study area, respondents were obtained water one-two per week or around 62.3% of households have no access to water service daily whereas the only 2.9% of households have access to water daily. Similarly, the data obtained from the key interviews shown that there was a great water supply and distribution problem in the town.

(Figure 4-5)

Figure 4-7: People queuing and waiting for turns to fetch water from spring and private tap

Source: Own Survey Result from Filed Observation (July2021)

Furthermore, the FGD explained that the distribution of water was one-two days per week; even the distribution at the water flow time fluctuated. Concerning this, (Kenway and Lant, 2015), noted that water demand is increasing throughout the world for different activities such as agricultural, recreational, and domestic consumptions. Water uses for basic domestic activities, such as sanitation, drinking, bathing, and food preparation needs of residents. The role of the potable water supply has a vital contribution to development activities and the health of the society, for that reason availability of drinkable water is an important component in poverty mitigation. Adequate and reliable water supply is critical for coping with everyday urban life. Poor access to potable water harms development. The majority proportion of the drinking water supply is consumed almost exclusively by household users. From this, the researcher concluded that there is a shortage of water supply and distribution problems in the town.

Table 4-5: Are the provisions of drinking water sufficient and equally distributed for all dwellers in the town?

Response		Frequency	Percent
Valid	Yes	6	2.9
	No	198	97.1
	Total	204	100.0

Source: Own Survey Result (July2021)

As shown in table 4-5, the respondents were asked the provision of drinking water sufficiency and equally distributed for all dwellers in the town. Accordingly, their response revealed that 198(97.1% of them were replied no and the remaining 6(2.9%) provided positive responses. The data shown that majority of the respondents were believed that there is no sufficient and equal distribution of water in the study area. Additionally, most of the interviewee participants indicated that there is an insufficiency of water distribution in the town. They also reported that as they told the issue to the concerned bodies such as Bonga town administration political leaders and water service office. But the concerned bodies did not consider solving the problem rather bringing reasons related to the budget.

Table 4-6: The reasons for the unequal distribution of water

Reasons		Frequency	Percent
Valid	Low participation of stakeholders'	11	5.4
	Lack of coordination among concerned bodies	27	13.2
	Lack of attention to this service	39	19.1
	Lack of budget	100	49.0
	Insufficient water sources	4	2.0
	Topography of the area	6	2.9
	Lack of technological capacity	11	5.4
	Total	198	97.1
Missing	System	6	2.9
Total		204	100.0

Source: Own Survey Result (July2021)

According to WHO and UNICEF (2013), there is a considerable funding gap to achieve full water coverage; hence, more has to be invested in developing sector capacity through strengthening institutional structures especially at regional, district and community levels. Based on Schuster-Wallace et al. (2008), water has suffered from severe under financing. This result from inadequate internal financial capacity in the poor countries to achieve water goals, poor political decisions for allocation of development aid, an overall reduction over time in development aid, and the limited cost recovery potential in poverty stricken regions.

From the above table 4-6, the respondents were asked the reason for the unequal distribution of water in the area. To this end, 11(5.4%) of them agreed to low participation of stakeholders, 11(5.4%) lack of technological capacity, 27(13.2%) lack of coordination among concerned bodies, 39(19.1%) lack of attention to this service and 100(49.0%) lack of budget. This data shows that the major obstacles for unequal distribution of water in the study area were lack of budget and lack of coordination among concerned bodies.

The review report of (Minwuye, 2015) confirm on Assessing potable water supply and distribution problems Of Rebu Gebeya Town, Amhara Region (Ethiopia),the majority of household respondents about 47(39%) reported that, despite sharply increasing demands for urban water supply services has been constrained by financial problems . In line with this, the participants of focus group discussion also indicated that, there is low prioritization of spending money, which is assigning only a small fraction of money in to water supply and distribution service compared to other infrastructures and they stated as the town water service office is an autonomous body responsible for working independently and there is no assigned budget except the grants given by Woreda water service office during water system failure for repairing and maintenances of non-functional water supply schemes.

From the above comparison of Rebu Gebeya and Bonga town, the result shown that Bonga town had 100(49.0%) unequal distribution of water is constrained by lack of budget. This data revealed that there was a water supply and distribution problem in the study area. Similarly, the data obtained from the focus group discussion shown that; there is a great water supply and distribution problem in the town. Thus, lack of finance to be used is one of the major bottlenecks stopping water supply and distribution in Bonga and Rebu Gebeya town.

Table 4-7: Do public officials encourage citizens' participation in the decision-making process in potable water supply and distribution

	Response	Frequency	Percent
Valid	Yes	10	4.9
	No	194	95.1
	Total	204	100.0

If your answer is No, for the above question, what do you think the reason?

	Reasons	Frequency	Percent
Valid	The framework for participation is not practical	114	55.9
	The society/ service takers are not ready to participate	14	6.9
	No favorable conditions on the part of the institution	42	20.6
	Officials of the town disfavor customer's participation	24	11.8
	Total	194	95.1
Missing	System	10	4.9
Total		204	100.0

Source: Own Survey Result (July2021)

The sample households were asked whether public officials encourage citizens' participation in the decision-making process in potable water supply distribution in the town or not? Concerning this, as it is indicated in Table 4-7, the majority 194(95.1%) of the respondents replied that there is no participation of beneficiaries in the decision-making process in water supply and distribution.

In the same table, respondents were asked to reply the reason lack of public participation in the decision-making process in potable water supply and distribution. Regarding this,114(55.9%) of the respondents replied that the framework for participation is not practical, 42(20.6%) said no favorable conditions on the part of the institution, 24(11.8%) officials of the town disfavor customer's participation and 14(6.9%) the society/ service takers are not ready to participate. The data shown that the major reasons for the lack of public participation in the decision-making process in potable water supply and distribution were the framework for participation is not practical and no favorable conditions on the part of the institution.

Furthermore, the participants of the FGD confirmed that corruption, a loose organization of water service officials, lack of coordination among, the bureaucracy of officials were other challenges affecting water supply and distribution in the study area.

As stated in the empirical review, participation comprises the notion of contributing, influencing, sharing, or redistributing power of control, resources, benefits, knowledge, and skill to be gained through beneficiaries' involvement in decision making. Water supply project activities are not likely to achieve their objectives without the active and continuous participation of the users. Users would have to be involved directly or indirectly in the development, planning implementation, operation and maintenance. It is a fundamental element of sustainability of water supply schemes. The water supply agencies have to initiate proactive measures like awareness building, community mobilization, constitution of community-based institutions like water user association and water committees, strengthening democratic process in them and broad basing involvement of community by transferring responsibility and authority to them in all aspects during water supply development, operation and maintenance of schemes (IRC, 1987 cited Yitayh 2011).

Table 4-8: Are you satisfied with the potable water supply service provision in the town?

Response		Frequency	Percent
Valid	Yes	19	9.3
	No	185	90.7
	Total	204	100.0

Source: Own Survey Result (July2021)

At the above table 4-8, the respondents had been requested whether they have been cozy with the potable water furnish service provision or not. Accordingly, the majority 185(90.7%) of the respondents have been disenchanted with a supply of carrier provision of potable water. The closing 19(9.3%) replied that they were at ease with the water grant of carrier provision.

According to (Ermias, 2016), conducted about urban water supply and sanitation: The case of Bedesa Town, Damot Woyde Woreda of Wolaita Zone, Southern Ethiopia. The survey result revealed that majority 95.4% of the respondents are not satisfied with the water supply, while 4.6% of the respondents were satisfied with it. Accordingly, in the case of Bonga town the above

table 4-8 revealed that 90.7% of the respondents are not satisfied with water supply, only 9.3% respondents satisfied with water supply. From the above results Bonga and Bedesa town's water supply and service provision are the same because the response majorities are not satisfied with the water supply of service provision.

While expanding improved water source schemes is generally essential, it is equally important to ensure that the schemes have increased users' satisfaction with water quality and availability for everyday use (UNICEF, 2010). All of focus group discussion, members replied that the water distribution is unfair and variable; some area may be served water frequently while other areas stay without water service at all. Consequently, the town water supply service office should devise a mechanism so as to minimize the inequitable distribution of water among the residents of the town.

(Figure 4-6)

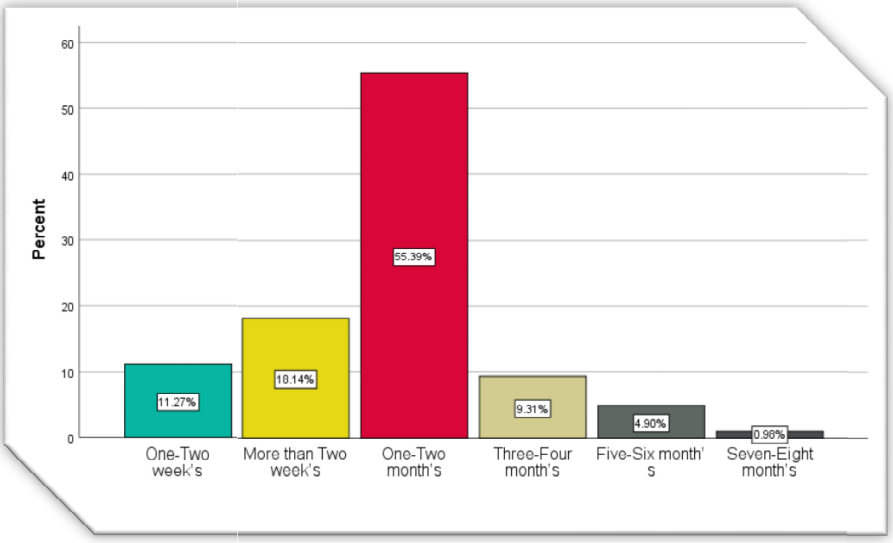

Figure 4-8: How long will it take to fix a broken line of water in the town?

Source: Own Survey Result (July2021)

As shown in the figure 4-6, the respondents asked the time interval take to fix a broken line of water in the town. Accordingly, their response revealed that 113(55.4%) replied one-two months, 37(18.1%) more than two weeks, and 23(11.3%) of them were replied one-two weeks. This shown that the town water service office it takes time to fix the broken water lines.

Similarly one of the interviewee participants explained that:

> *It is a series of a problem we are facing in this town especially water supply and distribution. To fix a broken line of water pipe takes time. When we inform the issue by physically to the office, the officials reply unreasonable reason by saying lack of necessary materials, as they convince a soon as it would be fixed as the materials bought, but it is none functional. Another time they raise another reason as a result; there is a strong challenge in the town in case of water supply and distribution.*

Furthermore, the FGD participants discussed that the concerned bodies of the water service office, as well as political leaders, tell as the issue would be solved within a short period. But its functionality is not practical it takes time. They present different reasons what delayed the process this cannot solve the problem of the community. Thus, it can be concluded that the beneficiaries were not satisfied with the water supply and distribution. It is also possible to conclude that supply of potable water supply and distribution is not implemented properly in the town.

4.4. Factors that Influencing Potable Water Supply in Bonga Town

This section assesses and examines the major challenges or constraints that influencing potable water supply in Bonga Administrative Town. As it was revealed from the questionnaire, interview, and FGD sources some challenges encountered to the supply of potable water service are indicated in the table below.

4.4.1. Households' perception on the challenges of potable water supply

Access to water supply is a fundamental human right. However, water supply and distribution is constrained by multiple factors related to socio-economic (population growth, lack of technological capacity and financial problems), institutional (lack of institutional capacity and weak sector coordination) and environmental (topography of the area and insufficient water resource).

Table 4-9: Are there problems with potable water supply in Bonga town administration?

Response		Frequency	Percent
Valid	Yes, there are problems	176	86.3
	No, there is no problem	28	13.7
	Total	204	100.0

Source: Own Survey Result (July2021)

Inconsistency of water supply is another factor that causes water supply shortage. In most of the developing countries, the water supply system is not continuous but intermittent. According to Vairamoorthy (2007) intermittent supply leads to many problems including severe supply pressure losses, great inequalities in the distribution of water and contamination.

As indicated in above figure 4-5, one can understand that 176(86.3%) of respondents replied there was a problem with potable water supply in the study site. The remaining 28(13.7%) were replied as there was no problem with the potable water supply. As many of the participants of focus group discussion stated during a time of water shortage the urban dwellers collect water from the traditional sources such as unprotected well, protected and unprotected springs which are not safe for drinking. From this one can deduce that the majority of household respondents have no a reasonable access, and thus, they buy water at relatively high cost from a nearby water vendor. As a result, the high cost of water may force households of the lower income to use small quantities of water and alternative of poorer quality that brings a greater health risk too.

Table 4-10: If your answer is yes for the above question, what factors contribute to the problem?

	Factors	Frequency	Percent
Valid	Corrupted behavior of officials in the town	60	29.4
	Scarcity of water in the town	10	4.9
	Population growth in the town	59	28.9
	Scarcity of finance	9	4.4
	Lack of institutional capacity	28	13.7
	Weak sector coordination	10	4.9
	Total	176	86.3
Missing	System	28	13.7
Total		204	100.0

Source: Own Survey Result (July2021)

Water is quite literally a source of life and prosperity and a cause of death and devastation. Aside from the air we breathe, freshwater is our most precious resource, something upon which all life depends. Throughout history humans have tended to take fresh-water for granted, generally assigning little value to it beyond their immediate needs. That is probably because it seemed to be in abundant supply (Caso, 2010).

According to the study result shown in the above table 4-9, corrupted behavior of officials in the town 60(29.4%), Population growth in the town 59(28.9%), lack of institutional capacity 28(13.7%), and weak sector coordination 10(4.9%). The increasing number of people living in urban areas is associated with increasing water demand and difficulties for many people to access adequate supply of clean water and sanitation (Post, 2002). Increased population led to an increased pressure on the limited amount of available fresh water. Based on the 2013 Central Statistical Agency on Population Projection, this town was a total population 51,279. In this town, the water demand is fast outpacing its availability for consumption, and the supply of domestic water is constrained by the rapid growth of the population in and around the town, for this reason there is problem of water supply in the town.

Similar study have been carried out by Asefa Delesho(2006). He also reported the difficulties in unavailability of water supply in Asosa town of Ethiopia. The town was unable to the demand

for water mainly because of institutional, financial, human and mater resources constraints. Chala Deyessa (2011) and Mokenonen and R.Uttama(2014) have reported the shortage of water supply, high cost of piped water connection, length process during connection and frequent interruption.

Table 4-11: Which one of the following explains the causes of potable water supply interruption in Bonga town administration?

	Water interruption causes	Frequency	Percent
Valid	Scarcity of water at source	3	1.5
	Totally, pipeline is not installed	20	9.8
	Budget problem	10	4.9
	Technical problems	88	43.1
	Topography of the area	70	34.3
	Population growth and urbanization	13	6.4
	Total	204	100.0

Source: Own Survey Result (July2021)

From the above table 4-11, the respondents shown that the causes of potable water supply interruption in the study site were technical problem 88(43.1%), the topography of area 70(34.3%), and population growth and urbanization 13(6.4%). As Sijbemsa (1989) innovative technologies are essential to overcome barriers to water supply and distribution problems. Technological capacity includes the development and application of new technologies, the technical skills needed to efficiently construct, operate and manage a technical solution, the translation of information regarding to promote informed decision-making when implementing a technical solution, the availability and accessibility of spare parts.

Thus, 43.1% of the sample household respondents reported technical problem is one of the main causes of water supply interruption in the town. Topography or relief also affects water supply and transmission of water and the pressure maintained in pipe lines which determines the efficiency of the distribution system. Thus, 34.3 % of the sample households reported that, the topography of the town influences water supply and distribution since the landscape of the town area is known by undulating slope and between plain and undulating slope.

Therefore, to alleviate the problems of water supply interruptions in the town, both the concerned government offices, Bonga town water service office and the community should work together to answer the questions of water supply and distribution shortage.

Similarly Chala Deyessa (2011) and Mokenonen and R.Uttama(2014) have reported the shortage of water supply, high cost of piped water connection, length process during connection and frequent interruption.

(Figure 4-7)

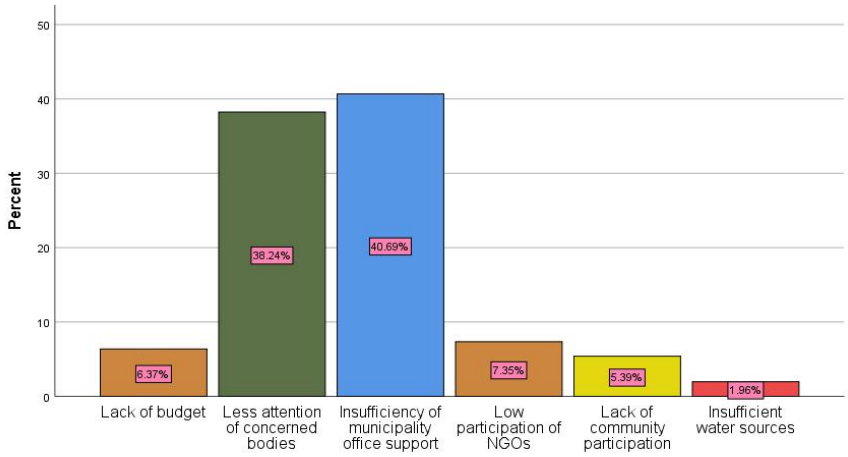

Figure 4-9: Water service office is not able to overcome the potable water supply problem.

Source: Own Survey Result (July2021)

Above figure 4-7 shown that, the respondents were asked the reason why the Bonga town administration water service office was not able to overcome the potable water supply problems, Accordingly, 83(40.7%) insufficiency of municipality office support, 78(38.2%) less attention of concerned bodies, and 15(7.4%) low participation of NGOs and community. This means, municipality office support was less, the community affected by distribution of water supply in the town.

In most cities surveyed in the 2016 OECD report, local governments (municipalities) are the primary sub-national authorities in charge of designing and/or implementing policies for drinking water supply. Less attention of concerned bodies was another factor that challenged the supply of water in the study area. NGOs have valuable experience in the implementation of good practices for water resource management, including water sources protection; there are no any NGOs which are working with water projects in the town. Nevertheless, governments should

support and encourage community for management of water services, in particular by setting up formal mechanisms for interaction between the community and the municipal authorities.

Accordingly, with this finding, Collick, (2008), (Kahariri Morris Maina, 2014), described that the major challenges influencing potable water supply in urban areas were due to poor community participation, rapid population growth, shortages of budget, lack of NGO involvement.

Similarly, the interview and FGD participants confirmed that weak political leadership, the bureaucracy of officials, improper plan of budget, lack of public mobilization and population increase and lack of active project planner in the area are reported as one of the reasons water service office was not able to overcome the potable water. So, the town water service office jointly with the municipality are expected to plan the project and search sponsors, and allocate a sufficient budget to solve the problem of supply and distribution of potable water.

Table 4-12: Do you have private water supply connection for the households in the town?

	Response	Frequency	Percent
Valid	Yes	53	26.0
	No	151	74.0
	Total	204	100.0

If you don't have a private connection so far, what is the reason?

	Reasons	Frequency	Percent
Valid	Distance from main line	16	7.8
	Unable to meet the cost	70	34.3
	The inefficiency of municipality	25	12.3
	House related factors	3	1.5
	Planning problems of water service office	37	18.1
	Total	151	74.0
Missing	System	53	26.0
Total		204	100.0

Source: Own Survey Result (July2021)

According to UN-HABITAT (2011) water accessibility can be explained as an adequate amount of water which is needed to satisfy metabolic, hygienic and domestic requirements at least 20 liters of safe water per person per day. In urban areas the water source may be either a public fountain or a stand pipe at least 20 liters of safe water per person per day and not more than 200 meters away from the dwelling place. The sample households were asked whether they had private water supply connection for the households in the town or not, and from the total 204 sample households, about 151(74%) of the respondents have negative response on the issue and 53(26%) positive response (Table 4-12).

From the above table 4-12, the respondents asked the reason for the lack of private water supply connection for the households in the town. The data shows that the inability to meet the cost 70(34.3%), planning problems of water service office 37(18.1%), and inefficiency of municipality 25(12.3%). People of the town get water from both piped system and /or non-piped system. Piped water supply is the fastest and reliable sources of water while non-piped system are unprotected and un safe, which includes rivers, lakes hang dug wells and other un protected sources.

Hence, Bonga town is an old and moderate growing town, Bonga water supply and distribution is only producer and supplier of pipe and tap water service to urban dwellers. So, 34.3% sampled household respondents replied that the inability to meet the cost for instilling new water line to the home and 18.1% planning problems of water service office. For this reason most of the people rely on public tap and water vender that exist in the town because of lack of finance, more complicated procedures of the sector in getting private connection and unavailability of public tap at nearly and installation material and connection tasks involve much higher costs which depend on the location of house from their water networks.

Table 4-13: Does politics have any influence in clean water supply and accessibility?

	Response	Frequency	Percent
Valid	Yes	147	72.1
	No	57	27.9
	Total	204	100.0

Source: Own Survey Result (July2021)

In table 4-13 shown that, the respondents requested whether politics influence potable water supply and distribution in the town or not. The response shows that 147(72.1%) of the positive on the issue and 57(27.9%) negative response. The political background to enhance potable water supply was present in the study area and some division among the society if the town also challenged the residents of the study area; however, the community who were relatives of some officials of the town benefitted from the water supply compared with others. So, politics are influence in clean water supply and distribution of the town.

(Figure 4-8)

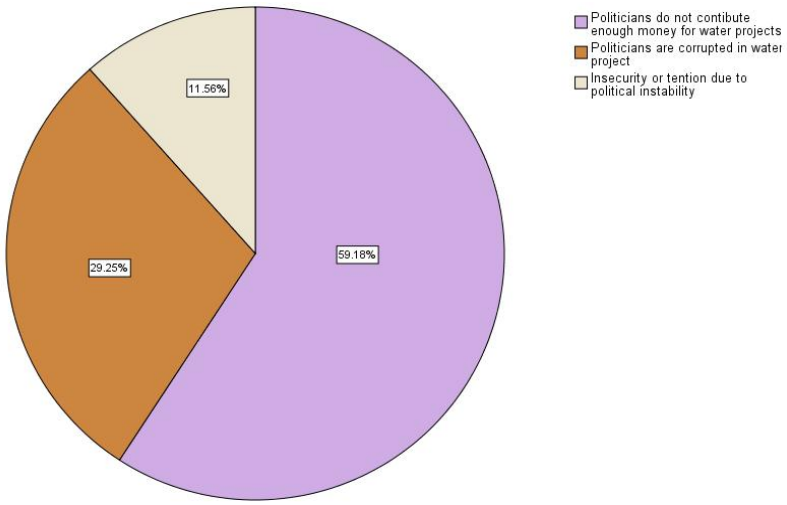

Figure 4-10: How does politics influence in clean water supply and distribution in the area?

Source: Own Survey Result (July2021)

The above figure 4-8 deals that, the respondents asked how politics influence clean water supply and distribution. Regarding this, the data indicated that politicians do not contribute enough money for water projects 87(42.6%), politician's corruption 43(21.1%), and insecurity or tension due to political instability 17(8.3%). From the above statement, the town politicians cannot dedicate the necessary resources for safe. 21% of the respondents replied that the town politicians corrupt the water project budget or they implemented the budget for unwanted issues.

Political will is also needed to institute and enforce policies which promote water conservation, and equitable water sharing. The town politicians they can't do fruitful thing on water supply

and distribution due to the current political instability according to the sampled respondents' response.

4.5. Measures carried out to improve the Status of Potable Water Supply

This section saw that possible measures were carried out to improve the status of a safe potable water supply in the town. As it was revealed from the questionnaire, interview, and FGD sources some solutions encountered to the supply of potable water service indicated in the table below.

4.5.1. Opinion of Households in Potable Water Service Delivery

This part deals with possible suggestions to solve potable water supply, opinion on the responsibilities and duties of water committees, non-governmental organizations, and civic societies and finally, what measures to improve the current status of potable water supply service in the town.

Table 4-14: Are the mechanisms put in place to forward your suggestions, questions and complaints about service provision?

	Response	Frequency	Percent
Valid	Yes	151	74.0
	No	53	26.0
	Total	204	100.0

Source: Own Survey Result (July2021)

Based on the above table 4-14, the respondents were asked whether they have suggestions, questions, comments, and complaints about the water service provision, 151(74%) of the respondents agreed as there have suggestions, questions, comments, and complaints about the water service provision and 53 (26%) were said no, because the status of water supply is very low in the town. Moreover, due to inadequate water supply, large number of people waiting for private connections in the town, traveling every day to fetch water at the tariff that could not

afford the poor and riches fairly, Therefore, water supply in Bonga town in general is unsustainable; it is socially inequitable, economically inefficient and environmentally unsound.

Table 4-15: Which one is the requisite suggestion to overcome potable water service delivery problems in the town?

Response	Frequency	Percent
Continuous training which insures the community maintenance team	11	5.4
Increase the number of system in the town	96	47.1
Efficient/committed leader's required	41	20.1
Improve the support of municipality	17	8.3
Design appropriate strategy to improve water supply	30	14.7
Mobilize the community to participate in water project	9	4.4
Total	204	100.0

Source: Own Survey Result (July2021)

The respondents were asked to forward the requisite suggestion to overcome potable water service delivery problems in the town. Accordingly, 96(47.1%) increasing the number of systems in the town, 41(20.1%) appointing efficient/ committed leaders, and 30(14.7%) design appropriate strategies to improve water supply (Table 4-15). From the above table we deduce that, the Bonga town water service office allocate sufficient budget to increase the number of water system like, installing new water line connections, maintaining the broken water line, and design appropriate strategy to improve to existing water supply and distribution, there should be an urgent need for planned action to manage urban water resources and construction of additional water sources and simultaneously improving the current coverage of private pipe water distribution and also public fountains in favor of lower income groups. This is enhanced by committed leaders of the town administration.

Table 4-16: Do you think that the water committees, governmental organization, non-governmental organization, civil societies and citizens in your town have an adequate capacity to function their duties and responsibilities?

	Response	Frequency	Percent
Valid	Yes	31	15.2
	No	133	65.2
	I don't know	40	19.6
	Total	204	100.0

Source: Own Survey Result (July2021)

The respondents were asked in the above table 4-16, to give their response whether water committees, governmental organizations, non-governmental organizations, civil societies, and citizens in their town have an adequate capacity to function their duties and responsibilities or not. Concerning this, 133(65.2%) of the respondents gave negative responses and 31(5.2%) gave a positive response. The rest 40(19.6%) replied as they did not know, which means the water service office was not transparent to the public. From this one can deduce that, water committees, governmental organizations, non-governmental organizations, civil societies, and citizens in the town have no adequate capacity to function their duties and responsibilities. But 19.6% of the respondents they did not know about the issues. In other words local communities' knowledge through their experiences is not considered in the planning phases which can have impact on sustainability.

Table 4-17: Do you think community forum is expected measures to overcome potable water service delivery problems?

	Response	Frequency	Percent
Valid	Yes	39	19.1
	No	165	80.9
	Total	204	100.0

Source: Own Survey Result (July2021)

In the above table 4-17, the respondents were asked to give their response whether community forum is an expected measure to overcome potable water service delivery problems or not. Concerning this, 39(19.1%) of the respondents gave positive responses and 165(80.9%) give negative responses. This means community water forum engagement in the water service delivery very less according to the sample household's response. The Community forum engagement can help build trust and ownership, secure willingness to pay for water services, ensure the accountability of water service office and service providers to end-users and citizens, set convergent objectives across policy areas and prevent and manage conflicts over water allocation. The Community forum engagement is important to raise awareness about current and future water risks and to build the social and political acceptability of reforms.

(Figure 4-9)

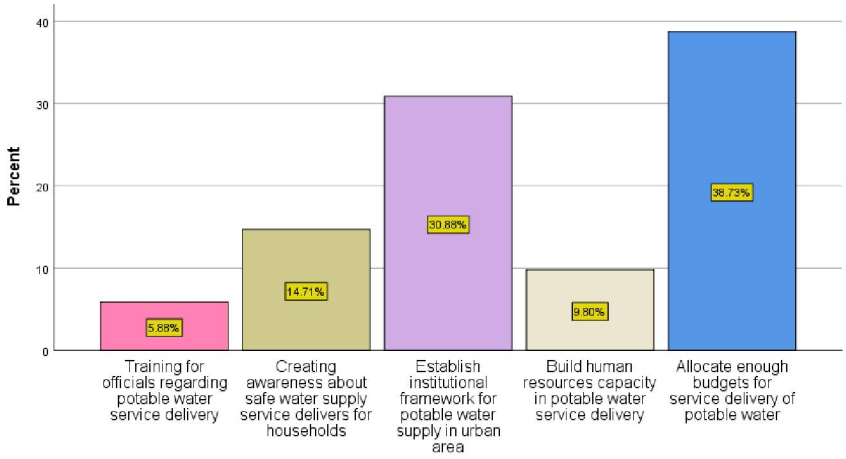

Figure 4-11: To improving the status of safe potable water supply service in the town

Source: Own Survey Result (July2021)

Figure 4-9 shown that, the respondents was asked to give their suggestions to improve the status of a safe potable water supply service in the town. Accordingly, allocate enough budget for the delivery of potable water 79(38.7%), establish an institutional framework for potable water supply in urban area 63(30.9%), creating awareness about safe potable water supply service delivers for households 30(14.7%), building human resources capacity in potable water service delivery 20(9.8%), and training for officials regarding potable water service delivery12(5.9%).

According to WHO and UNICEF (2013), there is a considerable funding gap to achieve full coverage on water; hence, more has to be invested in developing sector capacity through strengthening institutional structures especially at regional, district and community levels.

Since the delivery of urban water supply require high level of investment. But, lack of sufficient funding has limited the quantity of water supply service of Bonga water service office. Even though, the current cost recovery mechanism of the sector seems better and able to cover expenditure cost, but it is not sufficient enough to invest in some area and to sustain even the existing service and discharging its obligations or mandates. The sampled household respondents 38.7% confirmed that, the town water service office must allocate sufficient budget to alleviate the current water supply and distribution.

Establish an institutional framework of rules and regulations should be in place to address various issues like a water resources inventory, planning, use, and protection. So, 30.9% of the respondents replied that, establish an institutional framework for potable water supply in urban the study area. One authority with power should be designated for the administration and implementation. In addition, there are several acts covering water resources. They fall under the jurisdiction of different agencies and are not directly related to the general concept of water resources management. In order to address the various issues and problems related to water resources development, a new law on water resources management is essential.

An effective water resources management is the existence of sufficiently well trained personnel in all the disciplines in the planning, development and management process. Accordingly, 9.8% replied building human resources capacity in potable water service delivery and 5.9% answered giving training for officials regarding potable water service delivery.

Besides, according to the in-depth interview with key informants and FGD reason out that the way the water service office using to solve potable water supply and distribution in the town is inefficient. For this, they suggested that committed political leadership, public discussion and mobilization, prioritization of the problem, effective budget planning, and creating awareness to the public to use current water resources efficiently were suggested. Similarly, (Bovaird, 2007), suggested that community participation in planning, designing, delivering, monitoring, and evaluating services has been deemed a critical component for local development. The water supply agencies have to initiate proactive measures like awareness building, community

mobilization, the constitution of community-based institutions like water user association and water committees, strengthening the democratic process in them and broad basing involvement of community by transferring responsibility and authority to them in all aspects during water supply development, operation and maintenance of schemes (IRC, 1987 cited Yitayh 2011).

CHAPTER FIVE

5. SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1. Introduction

This chapter summarizes the main findings of the study and provides research recommendations based on the findings and conclusion. The main purpose of this study was to assess the practices and challenges of potable water supply in the Bonga Town Administration. In this regard, this part deals with the summary of findings, the conclusion drawn based on the findings, and the recommendations forwarded based on findings.

5.2. Summary of Major Findings

The findings reported in chapter four summarized the following themes that reflect the research questions. Potable water supply and distribution are one of the most crucial resources among the basic need for life, water means life because it is hard to live in this world without a supply of need potable water for domestic use. Potable Water is an essential life-sustaining element on earth and is deeply embedded in our cultural backgrounds. Being an integral part of the environment, the range of services that are provided by water, dictate economic growth and environmental sustainability. However, it is indicated that there is a problem of potable water supply and distribution in the study area.

Therefore, based on the analysis of data, the findings of the study summarized as follows:

The study shown that, the supply and distribution of potable water in the study area is insufficient. Because the perception of the respondents on the issue is almost negative. Because respondents were obtained water one-two days per week or around 62.3% of households have no access to water service daily whereas only 2.9% of households have access to water daily, 97.1% respondents were believed that there is no sufficient and equal distribution of water in the study area. In general 90.7% of the respondents were dissatisfied with service provision of potable water.

Regarding the major challenges that affecting the supply and distribution of potable water in the study area; the respondents confirmed that insufficiency of municipality office support, the technical problem of water service office workers, the topography of town was not suitable for water distribution, corrupted behaviors of officials, shortage of budget, population growth , urbanization, and low public participation. Besides interview and FGD participants were reported as weak political leadership, the bureaucracy of officials, improper plan of budget, lack of public mobilization, and lack of active project planner in the area were one of the reasons water service office was not able to overcome the potable water.

The findings of the study shown that, the mechanism being used by the concerned bodies to alleviate the supply and distribution of potable water problem in the study site is inadequate. Because almost all respondents reason out that the way water service office using to solve potable water supply and distribution in the town is inefficient.

5.3. Conclusion

Based on the finding of the study the following conclusions were drawn:

This study has been established that practices and the challenges of potable water supply in Bonga town administration in Kaffa zone. Potable water is essential to public life. However, the findings of the study revealed that the supply and distribution of potable water in the study area are insufficient the findings of this research have been mainly focused on the socio-cultural, economic, and political factors that affecting/challenging the supply and distribution of potable water in Bonga town administration. The socio-cultural factors that are hindering or challenging the community of the town were resulted due to different socio-cultural and political factors.

Some of the factors which are hindering the supply and distribution of clean water in the study area were more related to inadequate community participation in the management and utilization of water sources. The other and the big factor for the challenge of potable water supply is related with less focus of local government on the distribution of water source for the community of the

study area. The increase in population, which reduced the quantity of water to be accessed by the entire population, hindered the residents from consuming safe water for their day-to-day activities. This meant that there was a need for the government and implementing partners to sensitize the community on the importance of treating unsafe water and enhance management skills for water committee members to properly manage existing water resources.

While government support was less there that affected the distribution of water supply in the town, inadequate management of the water sources, water committees have been challenged the community in water supply in the study area. The weakness of stakeholders was another factor that challenged the supply of water in the study area. The political background to enhance potable water supply was present in the study area and some division among the society if the town also challenged the residents of the study area; however, the community who were relatives of some elites/officials of the town benefitted from the water supply compared with others

It was found that the problem of inadequate water supply was mainly propagated due to increased population in the area as the chief main cause. The role of government, the role of stakeholders, and NGOs regarding overcoming the challenges of water supply in the study area was less. Thus the challenges of water supply affecting the residents of the study area. It was established that existing water committees of the study area were not functioning properly to manage the existing water sources problem and that they were not actively engaged.

The study attempted to refer to other researchers' findings to make implication with this study finding. Based on collected primary and secondary data as well as by application of selected data collection tools the objectives of the paper have been achieved in the following manner. It was also found that there was a significant relationship between economic factors and access to a potable water supply. The study also found that there was a relationship between political and cultural factors for the accessibility of potable water supply development, hence political will, and governance had a weak influence on the potable water supply.

In the study area, there was inadequate community participation in the management and utilization of water sources, less focus of local government on the distribution of water source for the community of the study area, the increase in population which reduced the quantity of water to be accessed by the entire population hindered the dwellers from consuming safe water for

their day to day activities and the effort of adequate government and other stakeholder involvement in the goal of ensuring water supply and solving the challenges of adequate water supply was the challenges which are hindering the supply of water for the residents of the study area. Therefore, the study was concluded that in Bonga town administration the challenges of water supply were many. The causes for these challenges were related to socio- cultural, economic, and political factors. It was concluded that the total of these challenges affected the sustainable use of water in the area. Finally, this study was related to enhance Collective action theory concept because collective action theory used across the social sciences to describe how individuals act together to achieve goals not reachable by isolated individuals. So the problem of potable water supply is solving by government and the public participation.

5.4. Recommendations

Based on the findings of the study, the following practical suggestions are forwarded to improve problems of water supply and distribution in the study area.

- 90.7% of the respondents were dissatisfied with service provision of potable water. From the result the researcher recommended that the concerned government body should prepare sustainable strategies to provide access of potable water in the study area. In addition to this, Bonga Town water service officials jointly with the municipality are expected to plan the project and search sponsors and allocate a sufficient budget to solve the problem of supply and distribution of potable water in the town and water access and access to water services in the town need to be improved dramatically and urgently.
- From the result of interview and FGD participants were reported as weak political leadership, the bureaucracy of officials, improper plan of budget, lack of public mobilization, and lack of active project planner in the area were one of the reasons water service office was not able to overcome the potable water supply. Initializing the preceding findings the researcher recommended that the government should recruit energetic skillful manpower; establish strong political structure, and allocating reasonable budget to access potable water in the study area.
- To sum up, the researcher recommended that committed political leadership, public discussion and mobilization, prioritization of the problem, effective budget planning, and creating awareness to the public to use current water resources efficiently were suggested.

5.5. Future Research Direction

At last, to better address the problems, it can be suggested that further studies needed to be conducted in this area about; water supply and distribution for public benefit; access quality of potable water; and factors hindering effective potable water supply and distribution, etc.

Bibliography

A.Harvey (2007), Community-Managed Water Supplies in Africa: Sustainable or Dispensable Community Development Journal VO 42 No 3.

Ademeyo and Afolabi (2005), The Level of Potable Water Supply Accessibility .

Best & Kan (2006), *Research Approach.*

Bovaird (2007), Beyond Engagement and Participation: User and Community Coproductionof Public Services. Public Administration Review 67 (5): 846–860.

Carter (2009), *Operation and maintenance of rural water supplies: Urban Water Supply network Perspectives no 2.*

Chala (2011), Access to potable water service is amongst the lowest in Sub-Saharan Africa and the entire world.

Collick (2008), Community Water Use in the Yeku Watershed and Hydrological Modeling in Watersheds of the Upper Nile Basin, Northern Ethiopia.

Creswell (2012), *Research Design: Qualitative, Quantitative, and Mixed Methods.*

Dionysia (2007), Informal settlement problems, characteristics and new technology contributed to its solution in Greece.

FDRE (2013), *Unuvesal Access plan of 2005 and the Growth and Transformation plan of 2010, and have been adopted by One WASH Nationa; Program .*

Fenta (2007), Many housing units connected to water supply system get.

Fitsum (2014), Challenges of Potable Water Supply System in Rural Ethiopia: The Case of Gonji Kolela Woreda, West Gojjam Zone.

GDN (2009), *Global Development Network; Working Paper Series Governance in Water Supply Stéphane Straub Working.*

Getachew (2002), Potable water supply in Ethiopia .

J.W, C (2012), *Research Design: Qualitative, Quantitative, and Mixed Methods.*

JMP (2014), *The change in drinking water sources in Ethiopia between 1990 and 2012 for urban rural .*

Kahariri Morris Maina (2014), *Assessment of the challenges of water supply and sanitation in uncontrolled residential developments of Huruma estate, Nairobi, Kenya.*

Kenway and Lant (2015), How does energy efficiency affect urban water system? In Grafton Q., Daniell, K., Nauges, C., Rinaudo J. & Chan, N W, editors. Understanding adManaging Water in Transition (Eds.), Springer.

Kimondo (2013), *reliability coefficient .*

Kothari (2004), *Research Methodology, Methods and Techniques, second revised edition, New Delhi. New age International Publisher: India.*

Maina, K. M (2014), Assessment of the challenges of water supply and sanitation in uncontrolled residential developments of Huruma estate, Nairobi, Kenya.

Mekonnen (2014), Assessment of potable water supply in Awaday town in Ethiopia.

Meseret (2012), Assessment of Drinking Water Quality and Determinants .

Ministry of water and irrigation (2008), *Demand of Potable Water in Urban Area.*

MoWR (2007), *Ethiopian Water Sector Strategy. Federal Democratic Republic of Ethiopia Ministry of Water Resources.*

MoWR. (1999). *Local Water Resources Development Offices responsibility .*

Naol Soboksa, Feleke Solomon, and Temesgen Tilahun (2019), Practices And Challenges Of Water Service Delivery In Wolaita Sodo Town, Ethiopia.

OECD (2015), *Global agreements and frameworks, the 2030 Agenda for Sustainable Development.*

Pruss-Ustun (2008), Improving water supply and distribution programs is crucial to spurring growth and sustaining economic development.

R.Uttama (2014), Potable Water supply situation in Economic Community of West African States .

Risks, G (2015, *The Global Riskk perception survey by World Economic Forum, level of Sociatal Impact over the next 10 years fro water crises.*

Tefera, M. o (2012), *Planning for present and future demand potable water supply to consider population growth.*

Tegegne (2009), Rapid urban growth throughout the developing world is seriously outstripping the capacity of most cities to provide adequate water services for their citizens.

Terfa and Ali (2012), Ethiopia's urban centers despite continuous efforts by the government in providing potable water supply to the rapidly growing urban population.

Trop (2005), Greater demand for safe potable water by well-informed consumers.

UN (2010) *General assembly explicity recoginezed the human right to water and sanitation.*

UNDESA (2015), The Critical Role of Water in Achieving the Sustainable Development Goals: Synthesis of Knowledge and recommendations for Effective Framing, Monitoring, and Capacity Development.

UNESCO (2014), *Potable urban water supply management has become a growing concern in many developing economies.*

UN-HABITAT (2011), United Nations Human Settlements Program; improving the lives of 100 dewellers.

UNICEF (2006), *Improved sources of drinking water.*

WHO (2012), *In most developing countries there is deficiencies in the coverage, accessibility and quality of water supply and sanitation services are common.*

WHO/UNICEF (2014), *Global Water Supply and Sanitation Assessment. .*

WHO-UNICEF (2008), *Providing potable water security is a serious challenge of the twenty-first century.*

World Bank (2011), *Water Supply and Sanitation in Kenya, Turning Finance into Services for 2015 and Beyond an AMCOW Country Status Overview.*

Yitayh (2011), *Sub-Saharan Africa had access to drinking water through a household connection which can be an indoor tap or a tap in the yard.*

Zemenu (2012), Practice and challenges of potable water supply in most urban areas .

Appendices

JIMMA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF MANAGEMENT

PROGRAM OF MASTER IN PUBLIC MANAGEMENT

Appendix I

Dear respondents:

First of all, I would like to forward my sincere greetings and appreciation to you for your willingness to share your understanding/experience about the Practices and Challenges of Potable Water Supply in Bonga Town Administrative, give your response according to below mentioned research questionnaire.

This questionnaire was designed to gather relevant data for the research entitled "Assessing the Practices and Challenges of Potable Water Supply in BongaTown Administration. The study will be carried out as partial fulfillment of the requirement for the master of "Public Management". Therefore, you are kindly requested to read the questions carefully and give accurate and real data which exists on the ground. The response that you reply will be not used for any other purpose only for this study, so be free and give your honest and genuine response.

Gizachew Tesfaye

Thank you for your cooperation in advance!

General Direction

- ✓ No need of writing your name
- ✓ Put (√) mark for the correct answer inside the box
- ✓ It is possible to mark more than one answer

Part I: Socio-Demographic Characteristics of Respondents

1. Sex :

   A. Male □ B. Female □

2. Age

   A. Below 21 □ B.21-30 □ C.31-40 □ D.41-50 □ E.51 and above □

3. Marital Status :

   A. Married □ B. Single □ C. Divorced □ D. Widowed □

4. Educational level:

   A Read and write □ B. Grade1-10 □ C. Grade 11-12 □ D. Certificate □ E. Diploma □ F. Degree and above □

5. How many years you have been life here?

   A. below 5 years □ B. from 5-10 years □ C. 11-15 years □ D. more than 15 years □

6. What is your current occupation?

   A. Salaried □ B. self-employed □ C. Retired □ D. Unemployed □

7. How much money did you get monthly?

   A. <2000 ETB □ B. 2000-3000ETB □ C. 4000-5000ETB □ D. >5000ETB □

Part II: to assess the level of Supply and Distribution of Potable Water in Bonga Town Administration.

1. Households' perception of the potable water supply and distribution in Bonga Town Administration.

1.1. On average, how many days per week can you get access to the supply of water?

A. One-two day's □

B. Two-three day's □

C. Three-four day's □

D. Five-six day's □

E. All days

1.2.Are the provision of drinking water sufficient and equally distributed for all dwellers in the town?

A. Yes □

B. No □

1.3. If your answer for question 1.2 is yes, how? _____

1.4. If your answer for question 1.2 is No, what is the reason for the unfair distribution?

A. Low participation of stakeholders' □

B. Lack of coordination among concerned bodies□

C. Lack of attention to this service□

D. Lack of budget□

E. Insufficient water sources

F. Topography of the area

G. Lack of technological capacity

1. 5. Do public officials encourage citizens' participation in the decision-making process in potable water supply distribution in the Town?

A. Yes□

B. No□

1.6. If your answer is yes, for question 1.5 how?_____

1.7. If your answer is no, for question 1. 5, what do you think the reason?

A. The framework for participation is not practical □

B. The society/ service takers are not ready to participate□

C. No favorable conditions on the part of the institution □

D. Officials of the town disfavor customer's participation□

E. If other specify _____

1.8. Are you satisfied with the Potable Water Supply service provision in the town?

A. Yes □

B. No□

1.9. How long will it take to fix a broken line of water in the town?

A. One-Two week's□

B. More than Two week's □

C. One-Two month's □

D. Three-Four month's □

E. Five-Six month's □

F. Seven-Eight month's □

G. Nine-Ten month's □

H. More than ten month's □

Part III: to identify the factors that influencing potable water supply in Bonga Town Administration

2. Households' perception of the challenges of potable water supply in the town

2.1. Are there problems with potable water supply in Bonga Town Administration?

A. Yes, there is a problem □

B. No, there is no problem □

2. 2. If your answer is yes, for question 2.1, what factors mainly contribute to the problem?

A. Corrupted behavior of officials in the town□

B. Scarcity of water in the town□

C. Population growth in the town□

D. Scarcity of finance□

E. Lack of institutional capacity

F. Weak sector coordination

G. If others specify _____

2.3. Which one of the following explains the causes of Potable Water Supply interruption in the Bonga Town Administration?

A. Scarcity of water at the source□

B. Totally, pipelines are not installed □

C. Budget problems□

D. Technical problem □

E. Topography of the area □

G. Population growth and urbanization □

H. If other specify _____

2. 4. Why Bonga Town Administration Water service office is not able to overcome the potable water supply problems?

A. Lack of budget□

B. Less attention of concerned bodies □

C. Insufficiency of municipality office support□

D. Low participation of NGOs □

E. Lack of community participation □

F. Insufficient water sources □

G. If other specify _____

2. 5. Do you have a private water supply connection for the households in the town?

A. Yes□

B. No□

2. 6. If you don't have a private connection so far, what is the reason?

A. Distance from the mainline□

B. Unable to meet the cost□

C. The inefficiency of a municipality □

D. House related factors □

E. Planning problems of water service office □

F. If other specify _____

2. 7. Does politics have any influence on the clean potable water supply and accessibility in the town?

A. Yes

B. No

2.8. If yes, how does politics have an influence on the clean potable water supply and accessibility in the area?

A. Politicians do not contribute enough money for water projects □

B. Politicians are corrupted in water projects □

C. Insecurity or tension due to political instability□

D. If other specify _____

Part IV: to examine the possible measures carried out to improve the status of potable water supply in the town.

3. Opinion of households in potable water service delivery

3.1. Are the mechanisms put in place to forward your suggestions, questions, comments, and complaints about the service provision?

A. Yes□

B. No□

3. 2. Which one is the requisite suggestion to overcome potable water service delivery problems in the town?

A. Continuous training ensures the community maintenance team□

B. Increase the number of system in the town □

C. Efficient/ committed leader's required□

D. Improve the support of municipality office □

E. Design appropriate strategy to improve water supply

F. Mobilize the community to participate in water project

G. If others specify_____

3. 3.Do you think that the water committees, governmental organizations, non-governmental organizations, civil societies, and citizens in your town have an adequate capacity to function their duties and responsibilities?

A. Yes□

B. No□

C. I don't know□

3.4. Do you think a community forum is an expected measure to overcome potable water Service delivery problems?

A. Yes□

B. No□

3. 5. What measures do you suggest to improve the status of a safe potable water supply service in the town?

A. Training for officials regarding potable water service delivery

B. Creating awareness about safe water supply service delivers for households

C. Establish an institutional framework for potable water supply in an urban area

D. Build human resources capacity in potable water service delivery

E. Put enough budget for service delivery of potable water

F. If other specify _____

3.6. What do you recommend to alleviate the problems of water supply and distribution in the Bonga Town Administration?_____

_____

_____

_____

_____

_____

_____

_____

Appendix II

INTERVIEW QUESTIONNAIRE FOR KEY INFORMANTS

I: General Information

1. Sex:----------
2. Age:----------
3. Marital Status: ----------
4. Educational level:----------
5. How many years you have been life here? ----------
6. What is your current occupation? ----------
7. How much money did you get monthly? ----------

II: Interview Questionnaire

1.Do public officials encourage citizens' participation in the decision-making process in potable water supply distribution in the town?----------
---
---

2. Do you think the provision of potable water supply is sufficient and equally distributed for all dwellers in the town?----------
---

3.Does increase population affect accessibility to clean potable water supply in your community?----------
---

4.How does increased population affect accessibility to clean potable water supply?----------
---
---

5. Are there problems with potable water service delivery in Bonga Town Administration? If your response is "yes" what are the problems? ----------
---

---

6. What factors negatively contribute to the problem of potable water service delivery in Bonga Town Administration ? ----------
---
---

7. What factors mostly affect the participation and coordination of stakeholders in potable water service delivery in your town? ? ----------
---

---

8. What factors mainly causes potable water supply interruption in Bonga Town Administration?----------
---

9. Why Bonga Town Administration water service office is not able to overcome the potable water supply problems? ----------
---

10. Do you think that the water committees, governmental organization, Non-governmental organization, civil societies, and citizens in your town have an adequate capacity to function their duties and responsibilities?----------
---

Appendix III

GUIDELINE FOR FOCUS GROUP DISCUSSION

1. Is the decision-making process on potable water distribution the office is communicated to residents in your town? Your response is yes, how? ----------

2. Is the decision-making process on potable water distribution the office is communicated to residents in your town? If your response is no, what the reason behind it? ----------

3. Is the provision of drinking water supply is sufficient and equally distributed for all dwellers in the town? Your answer is yes, how? ----------

4. Is the provision of drinking water supply is sufficient and equally distributed for all dwellers in the town? If your answer to the above question is No‟, what is the reason for the equitable or equal distribution?----------

5. Is there reporting mechanism when water lines are broken or services are interrupted in the town? If your answer is yes, explain it.----------

6. Is there reporting mechanism when water lines are broken or services are interrupted in the town? If your answer is no, explain it.----------

7. Do public officials create awareness about rules and regulations in potable water service delivery? If your response is yes, how?----------

8. Do public officials create awareness about rules and regulations in potable water service delivery? If your response is no, what is the reason? ----------
---

9. What factors negatively contribute to the problems of potable water service delivery in Bonga Town Administration ?----------
---

10. In your opinion, what do you think factors that hinder potable water supply in the town? What solution do you suggest for the challenges encountered?----------
---

Appendix IV:

Photos from field Observations

Source: Own Survey Result (July 2021)