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# An Exploratory Study on Water Scarcity and Coping Mechanisms among Women Households with Special Reference to Chidothe Village in Zomba, Malawi

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### Abstract

Accessing clean and pure water is a crisis for women and families all over the world. Without the proper resources to receive water can lead to the fatality of women and their families. This paper explores water scarcity and household coping mechanisms to water scarcity with special reference to women households in Chidothe village. It identifies the sources of water in Chidothe village, understands the challenges faced by women in fetching water and explores household coping mechanisms to water scarcity with the purpose of raising awareness to the community's situation. Although the water supply system was expanded in 2001, many areas including Chidothe village are still experiencing water problems. In the past years' researchers and policy makers have focused on improving the performance of water utility infrastructure in order to eliminate this threat. However, little efforts have been made to understand social issues to water shortage and how people respond to them. Data gathering methods were individual interviews and focus group discussions. All interviews were audio recorded. The data was processed manually and analyzed thematically. The results were analyzed through insights and arguments from Feminist Political Ecology (FPE). The study reveals that women and girls in Chidothe Village have a greater responsibility to fetch water, are facing challenges to access portable water such as lack of money to connect to tap water, the absence of water kiosks in the village further worsens the problem and circumstances force them to draw water from unsafe sources, hence, exposing themselves to diseases. The results imply that there is an urgent need to address water supply systems in order to prevent people from water borne diseases. The study concludes that there is need to incorporate women in decision making to articulate their concerns and interests at local level and also water aid stakeholders should use gender sensitive approaches when planning, designing and implementing water projects.

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### 1. Introduction

Water scarcity is a global problem. Environmental degradation and rapid population growth exacerbates water scarcity forcing many people to drink dangerously polluted or salty water (Boyd, 2021) [4]. Water supports our lives by providing essential inputs to agriculture, industries, health, social well-being, and the economy (Abedin *et al.*, 2014) [1]. The global water demand has been growing at an increasing rate, forecasted to rise by 55% in the next few decades (Abedin *et al.*, 2014 [1]; Schlamovitz & Becker, 2021).

Around two billion people cannot safely access drinking water, and approximately 2.3 billion people lacked safely managed sanitation in 2020 (UN, 2021). For sustainable human development, access to adequate and safe drinking water is essential, and it must be available for all (Mustari & Karim, 2016) [20].

Household water supply problems remain one of the major challenges facing development countries (Palamuleni, 2002) [23]. More than 90% of urban water supply and sanitation services in developing countries have been provided by public

utilities for many years (UNDP, 2003). In Sub-Saharan Africa, the water services sector has for long suffered from poor performance of its public water utilities including water supply service coverage of less than 60%, high unaccounted for water often averaging between 40% and 60% and overstaffing. UN, (2023) <sup>[38]</sup> urges that, despite concentrated efforts and commitments of African countries to solve the challenges of access to safe water and sanitation, the continent is lagging in progress towards many SDG targets and Agenda 2063 objectives because of the increase in population numbers, development demands and climate change impacts. According to USAID Malawi (2022) <sup>[43]</sup>, about 80% of the population in Malawi has access to an improved source of drinking water. This poses doubt on Malawi's chances of achieving sustainable development goal number 6, which focuses on ensuring a clean and stable water supply for all by 2030. Currently Malawi is facing serious problems in development of water resources that can match the rapid water demand in urban and peri-urban areas due to rapid population growth. GoM (2008) <sup>[13]</sup> adds that high rural-urban migration has led to the continued growth of unplanned housing areas. Women and girls are victims of such water crisis and they are inherently vulnerable to the burdens (Pommels, 2015) <sup>[25]</sup>.

### 1.1 Statement of the Problem

Amongst 28 districts in Malawi, Zomba is one of the districts affected by water problems. For instance, in May, 2023 main water supply pipes were vandalized at Mulunguzi Dam where the southern region water board taps water for distribution in Zomba city. Life came to a standstill contributing a fertile ground for water borne diseases. Chipeta, (2009) <sup>[6]</sup> urges that in addition, due to deforestation many rivers and streams have dried up and women as water users are disadvantaged when water is scarce or when there are disruptions in the supply systems.

Chidothe as one of the informal settlements in Zomba city, due to its proximity from the city, its population is anticipated to increase and therefore demand for water is also expected to rise. Approximately, Chidothe has approximately 500 households and about 80 of these households rely on piped water as a source of portable water (based on figures from the Zomba, Water Board, 2023) while the other households have no access to piped water and rely on other sources. Besides, in extreme cases, households with access to piped water stay for a number of days without water supply due to water supply interruptions and women opt for other unprotected sources. The village has only one borehole within the group village head's compound where women can at least access safe water. In the past years' researchers and policy makers have focused on improving the performance of water utility infrastructure in order to eliminate this threat. However, little efforts have been made to understand social issues to water shortage and how people respond to them therefore, there is a need to interrogate more water scarcity issues with special attention to vulnerable groups especially women.

### 1.2 Statement of the Problem

The study focused on water scarcity and coping mechanisms adopted by women households in Chidothe village in Zomba. With much emphasis on domestic water consumption in Chidothe village with 20 women from different women households the study sought to understand the causes of water scarcity, water sources and coping mechanisms employed by the women.

### 1.3 Objectives of the Study

- To assess the causes of water scarcity in Chidothe village.
- To identify the sources of water in Chidothe Village.
- To understand the challenges faced by women in fetching portable water in Chidothe
- To explore households coping mechanisms to water scarcity in Chidothe village.

### 1.4 Significance of the Study

With the water sources dwindling in volume, rapid population increase and droughts persisting water scarcity can be expected to deepen and severely impact women and affect sustainable development as well. By exploring water scarcity challenges the study would help to identify women households coping mechanisms to water scarcity in the semi-urban areas during water crisis situations. Therefore, the Government of Malawi and all stakeholders will be able to design alternative approaches to expanding access to clean and affordable water, especially to urban dwellers where the problem is most severe.

It would also identify Gender-Based Violence (GBV) that women and girls encounter in households and society due to water problems therefore it will help in raising awareness among the community on the GBV they face and also help the government to create awareness raising campaigns to impart knowledge in the community on gender-based violence and how to avert the problem.

## 2. Literature Review

Water scarcity is the shortage of required safe water resources to meet demand (Damkjaer & Taylor, 2017) <sup>[7]</sup>. The Global Commission on the Economics of Water, (2023) narrates that water can be scarce for many reasons: demand for water may be exceeding supply, water infrastructure may be inadequate, or institutions may be failing to balance everyone's needs. Water scarcity is an increasing problem on every continent, with poorer communities most badly affected.

### 2.1 Causes of Water Scarcity

According to Hoko and Chipwaila (2017) <sup>[15]</sup> water problems such as tank overflows, leakages and stuck meters, and bursting of water pipes contribute to water scarcity. Non-revenue water (NRW) often constitutes a major problem in water supply systems, resulting in considerable loss in revenues (SIDA 2000) <sup>[32]</sup>. Unaccounted for Water (UFW) forms a significant portion of NRW. Schwartz (2006) <sup>[30]</sup>, says high levels of NRW indicate inefficiency on the side of a water utility. Operation and maintenance of water supply infrastructure in developing countries is poor, and is usually not given adequate attention. Ngben and Yakubu (2023) <sup>[47]</sup> study on every day experiences of piped water in Tamale, Ghana, through participant observation and in-depth interviews found that piped water rationing in tamale has created a default situation where households do not get regular and continuous supply of water.

Furthermore, UN-Habitat (2011) conducted an assessment of urban condition of water and sanitation. The study found that the majority of the population in Zomba, Malawi lives in impoverished informal settlements where they mainly rely on communal water points, and if these run dry they are forced to use non-controlled potentially importable water sources, they also found that water challenges are due to high population growth and rapid urbanization. The water supply capacity is further constrained by among other factors such as climate

change (Roberts, 2008), old and weak water infrastructure (Padowski, Carrera, and Jawitz, 2016), poor governance and weak institutions (Adams and Zulu, 2015) [3].

## 2.2 Coping Mechanisms

According to Dutta and Tiwari (2005) [8], households respond to unreliable water supplies through various coping strategies. Parallel to this is the costs that are associated with the various coping strategies. Chipeta (2009) [6] in her study found that most of the households in Ntopwa community depended on unprotected wells due to almost nonexistence of portable water supply. The households store water in large 50-100 liters' containers, they buy water from privately owned taps, and they recycle the water for washing dishes and for bathing children. Tshabata, (2020) [36] says women have prioritized several adaptation and coping strategies at household level such as storage of water in buckets and containers, purchasing, reusing water.

Hoko and Chipwaila, (2017) [15] further states that 40% of the population in Malonje relies on boreholes to supplement inadequate water supply from SRW however, in other areas there no boreholes making it difficult for women to access water. From all the studies reviewed some were gender sensitive as both men and women were recruited as participants of the study while others were gender bias for example, the study of Hoko and Chipwaila (2017) [15] in Zomba city, the participants were only WORKING-CLASS men with high positions in water provision institution scheme. Obviously, men are not water users at household level and they do not have enough knowledge on challenges of water problems unlike women. Women are the ones mostly affected due to water scarcity as they are water managers at house hold level.

## 2.3 Theoretical Framework-Feminist Political Ecology

The study uses the feminist political theory (FPE). The theory explains gender as a crucial variable that that plays a critical role in determining water management, use, control and access (Elmhirst, 2011). Social and structural norms categorize what counts as women's work and men's work (Robbins, 2020). Women have a greater responsibility and obligation to provide and manage resources at family, household and community level (Rocheleau *et al*, 1996). Women's reproductive work is not accounted for and does not belong to the realm of productive forces. This creates exploitative relationships (Robbins 2020 [26], p. 63; Mies 2014, pp. 45-46). Environmental responsibilities refer to the provision of productive resources for domestic use (such as firewood, water, etc).

## 3. Research Methodology

The study used a qualitative exploratory design to enable the researcher gain insights to the problem. A nonprobability form of sampling was used. For example, using purposive sampling the researcher identified key informants like the village chief and women (married, single or widowed) that were responsible for domestic chores. Bryman, (2012) [5] adds purposive sampling helps to sample research respondents in a strategic way so that those sampled will be relevant to the research. Further, convenience sampling was also used in the study the research included women households as its population aged between 18-60 and responsible for water management within the household. The study included 25 participants (married, widowed, divorced and single). The study excluded participants below the age of 18 as they are

minors and those above 60 years. Primary data was collected from individual interviews and FDGs using semi-structured questions while secondary data was collected from different journals and books with related literature to the study topic. FDGs consisted of 8 women who were divided within age groups and three FDGs were conducted (18-30) (31-40) (41-60) labeled F1 to F8 for the first focus group, F9 to F16 for the second and F17 to F24 for the third focus group. In-depth individual interviews were also used in the study and they consisted of 12 participants labeled P1 to P12 to obtain individuals' perspective.

Data collected was organized by transcribing. The data was assigned codes, examined for patterns or repeated ideas that emerged and themes were drawn in relation to the objectives of the study. The study ensured ethics were followed by; seeking permission from the Group Village Head (GVH) Chidothe. Participants were provided with information sheets that contained the aim and objectives of the study so that they had enough information about the study to enable them to decide whether to participate or not and everyone signed a consent form prior to the interview. To ensure confidentiality, no names were used, instead letters were used combined with numbers such as F1 to F24 for FDG participants and P1 to P12 for individual interview participants among others.

## 4. Results and Discussion

### 4.0 Demographic Characteristics of the Participants

The study findings are discussed in line with the study's objectives. Majority of the participants were middle aged participants aged between 31-40 years (10) representing 40% and some of these participants were married women. The young participants aged between 18-30 were (6) representing 24% and participants aged 41-60 years were (9) representing 36%. This implied that water scarcity affects all women regardless of age.

### 4.1 Assessing the Causes of Water Scarcity

One major problem of many urban areas, especially developing countries is the rapid rate of urban growth. The study found that Chidothe is one of the peri-urban communities that is growing so fast. Between 2015 and 2023 the area has had a significant increase in number houses being built as many people are purchasing land to build houses. This growth in housing structures and households puts pressure on water sources as the village now has many people. Many households are not connected to tap water and they have to queue for the available free water sources for their daily needs. Senna, (2021) [28] in his study explained that one major problem of many urban areas, especially in developing countries, is the rapid rate of urban growth. This relatively high growth rate puts much pressure on social services such as water supply. One Respondent explained that; "I was born in this village 45 years ago, the village has always had very few houses that we could know each other here. But nowadays there many houses being built in the village. All these houses want water." (FDG 3 F17).

Poverty has also been identified as one of the factors contributing to water scarcity as many residents cannot afford to connect to tap water or drill boreholes within their households since many men in the village rely on wage labor (Ganyu). Some households are female headed they cannot afford more extensive storage facilities and they cannot afford to get connected to tap water. Ferguson and Mulwafu, (2005) [11] noted that overpopulation and poverty are the root causes of environmental problems which needs to be tackled. Senna,



(2021) <sup>[28]</sup> added that poverty was one of the factors contributing to the water problem and the inability of residents to have adequate access to water.

Increasing human activities have also affected water availability for example one participant noted that men and women use the water from the borehole to mold bricks for housing construction and water their crops during the dry season affecting the availability of water. This was not discovered in earlier studies reviewed at local level.

#### 4.2 Exploring the Sources of Water

The research found that some households had wells dug within their compounds but these wells were not protected sources as they were not covered which made the water to be contaminated with foreign particles. These households dug wells because they cannot afford tap water connection from the water board. Other neighboring houses could draw water from these households especially when they are in a cordial relationship. For example, if any member from the household that had a well was not in good relationship with a member from a household without a well they could not be allowed to draw water from their well. A few houses (6) had water wells that were built with bricks from the inside and had proper covering to protect the water although this was not enough to protect the water from contamination. But some of the households did not allow anyone from the village to draw water from their water well and they locked the covering of the water well. One female respondent from individual interview said though she uses water from a well, the water was not safe for drinking because the well was surrounded by toilets and water might be contaminated.

The study also found that women from the village rely on one water fountain (Kasupe) that is found within the village. "The fountain is indeed a blessing from God" said one of the women. The fountain is not owned by anyone but all the villagers use its water for both domestic and other purposes like molding bricks and building houses although it is not a protected source.

Women also wash their clothes and other household items at Namiwawa River which is situated 2 kilometers from the village as they cannot afford tap water due to high water tariffs and the fountain water could not cater for their washing needs. The river water was not safe to use as it was contaminated with moss (ndeke). One of the respondents said: 'we use the river though it is mixed with ndeke and we squeeze the ndeke so that we may get good water to wash our clothes.' (FGD 3, F 22).

Some of the households are connected to water supply from Southern Region Water Board but these are few as compared to those which are not connected. Even though they are connected to a portable water supply still the connection is often disrupted due to maintenance issues. This makes women to use water from the other unprotected sources. In an interview with the village headwoman, it was revealed that the whole village has one borehole at the village head's house which makes it difficult for those not connected to portable water supply to access the water easily as it is often congested. "In my village indeed, we have a very serious water problem as you can see this is the only borehole for the entire village, women rise early in the morning to get water." (Key informant interview P1)

Unlike Adams (2017) <sup>[2]</sup> and Chipeta, (2009) <sup>[6]</sup> who explained that women relied on communal water kiosks, it was noted from the study that in Chidothe village there are no communal water kiosks which would have eased the problem.

Instead, women use other sources of water which are not clean and hazardous to their health. Cardoba and Grabinsky, (2020) also added that millions of people around the world rely on private water providers, including tanker trucks, small carts and packaged bottled water, for clean water needs but these were not used in the village.

#### 4.3 Understanding the Challenges Faced by Women in Fetching Portable Water

Pommels (2015) <sup>[25]</sup> writes that women are often the primary collectors, transporters and users of water and they are inherently more vulnerable to the risks and burdens associated with water problems.

Financial constraints to connect tap water or buy portable water, the study found that households were less likely to have access to portable water due to lack of money to connect themselves to water board supply. Many women were dependent economically on their husbands or sons. As a result, the volume of water consumed by the household was quite small because women lacked money to buy portable water. One respondent indicated that: 'Am old and my husband passed away many years and I rely on my son who gives me money to feed the family but now he hardly earns the money.' (Individual interview, P4). Further some respondents said: 'We depend on our husbands to give us money since they have no money we cannot afford tap water supply.' (FGD 3, F 18 and F20). The cost of water is a growing issue, affecting women more than men. An analysis of data from 22 countries shows that women are more likely to say they struggled financially to pay utility bills, including the water bill (UN Women, 2023) <sup>[38]</sup>. Some women in the area explained that water scarcity affects their livelihoods, due to lack of water they are often late for their businesses and some fail to cook their products for example some women sell cookies (mandasi) while some travel to the 6 miles' market to sell their products. But due to time lost fetching water they arrive at the market very late. As a result, they struggled financially to buy water from nearby houses. Nordstrom and Widman, (2022) <sup>[21]</sup> in their study also found that the lack of water supply affects how the women can engage in different income-generating activities. The majority of the income-generating activities revolve around cooking for selling. Shiriyeete, (2022) adds that national economy, individuals and households are affected by the water crisis situation.

Low water pressure, the study also revealed that low water pressure is a challenge. Some scholars in literature review argued that low water pressure might be caused by pipe leaks. The participants complained that sometimes water might not be available for whole day due to low water pressure. Chipeta (2009) <sup>[6]</sup> added that the problem has been related to use of materials of varying quality and substandard workmanship which has led to leaks, wastage and lack of pressure. According to Hoko and Chipwaila, (2017) <sup>[15]</sup> most of the utility network is old and is in need of repairs and upgrading. Spending long time to collect water, in Malawi, UN estimates that women who collected water spent 54 minutes on average, while men spent only 6 minutes due to lack of safe drinking water in their households (UNICEF, 2016) <sup>[45]</sup>. This shortens time they have available to spend with their families, on child care, other household tasks and even leisure activities (UN Women, 2023) <sup>[38]</sup>. The study found that women in Chidothe walk along distance to Namiwawa River in order to have water to wash their clothes and other items this affects their time to do other equally important chores. Since the village

has one borehole it is also a major challenge to access water in good time for households that are not connected. Women have to rise very early to queue at the borehole and they spend hours. "I have to walk for twenty minutes to get to the borehole and I also have to wait on the queue to get water" (FDG 1 F6).

Insufficient water storage facilities, the study found that many households store water in buckets. For household to have sufficient water for whole family, they need enough water storage facilities so that they should minimize time spending at water points. Some participants also narrated that they use one bucket for bathing and after cleaning it, they use it to store water for washing plates and moping. A participant said: 'I need five buckets of 40 liters each to store enough water for whole family, but I have only one bucket which forces me to fetching water for 3- or 4-times day.' (FDG 3 F21). She added that it is a duty of her husband to buy more buckets for the household. This concurs with the feminist political ecology theory where it states that men and women have different roles in the household.

Health problems due to untreated water sources and long-distance sources, globally, mortality and disease due to the lack of safe water disproportionately affects women. Every year, an estimated 660,000 women lose their lives prematurely to unsafe water sources compared to 570,000 men (IHME, 2020) <sup>[17]</sup>. Households' health risks are considerably increasing due to lower living standards, insufficient water resources, and an unhygienic sanitation system (Pasakhala *et al.*, 2013). The study found that of the water sources in the village are UN treated and unprotected for example the fountain and women use unclean utensils to draw water. The wells in households are also unprotected as some are close to pit latrines which contaminates the water. This results in various diseases for example people experience diarrhea and cholera. Many households did not put a cover on their water when it is being stored at home, allowing for contamination from the air or children dipping their hands in the containers.

When women's and girls' bodies serve as the infrastructure that supports the supply of water to households, their chance of experiencing adverse physical and mental health outcomes grows. Musculoskeletal injury, particularly in the back and neck, is one risk (Geere *et al.*, 2018) <sup>[12]</sup>. Long distance water fetching often results in poor health of women. Many of the women expressed that they are always tired, have back pain and fatigued. Pregnancy puts women in a further vulnerable position. One respondent said "I have chronic back pains; my health is dwindling as I am now aged and water collecting really affects my health" (Individual interview P2)

Borehole breakdown, the study revealed that the borehole is often dysfunctional hence perpetuating water problems. This shows that the local people are not effectively involved in the management of their community borehole either due to lack of proper knowledge to maintain the borehole or lack of interest.

Gender based violence (gbv), their physical and emotional sufferings of women are related to going long distances with heavy pots for water collection (Hoque *et al.*, 2019) <sup>[16]</sup>. The study acknowledged both physical and psychological violence experienced by women. Women fight for water at borehole when other women come with more buckets and wanted to collect water for all buckets at once denying other women accessing same resource. Further, women also experienced psychological violence at home by their husbands as they were given clothes to wash despite that there was no water.

Pommells, Wallace, Watt, and Mulawa (2018) added that when women are unable to provide water, or complete water related tasks, they risk experiencing spousal abuse. Katrapati, (2020) <sup>[18]</sup> also explains that as the women risk being raped or sexually harassed during their travels to and from water points. One respondent added that "I nearly got raped one day as I were coming from the river to wash clothes." (Individual interview P4).

#### 4.4 Identifying Households Coping Strategies to Water Scarcity

The study revealed that households in Chidothe cope with water scarcity challenges by;

Storing water in buckets known as dishes. Many of these dishes were 40 liters each and were also nicknamed as Obama. The study also found that many of the households had one dish of 40 liters to store water for whole family. Chipeta (2009) <sup>[6]</sup> also found that households store water in large 50-100 liters. One participant from in-depth interview narrated that her house had one dish to store water and she could recycle the water for domestic purposes. Senna, (2021) <sup>[28]</sup> says it is important to note that the cost involved in acquiring some of these storage facilities is relatively high. Only those with financial means are able to acquire these facilities. On the other hand, many households stored water in Ndowa, and Mtsuko these strategies were not taken into account by some scholars. The advantages of these storages were that they are affordable, locally available and easy to use.

Digging water wells, the households that could not afford to get connected to tap water dug a well as a way of coping with the water stressful situation. But this required money to hire someone to dig the well. Some households that had tap water also could dig a well in their compound to supplement the water supply as they often experience poor supply. Other households made sure that they stayed in good relationships with them while some households payed an agreed amount of money in order to access water, but this strategy becomes a problem when they do not have money. A respondent explained that "if your neighbor has a well in her compound you can agree to pay her some money to access the water. (Individual interview P9). Senna, (2021) <sup>[28]</sup> added that in the absence of flowing taps, many residents depended on water from vendors. These vendors supply their water with water tankers and often fetch from unknown sources. However, in Chidothe the residents did not use sachet water or buy water from vendors, no respondent explained that water sachets were being sold in the area.

Water reuse, most of the household with no enough storage containers could recycle the water for example, use the water to wash dishes and later use the same water to mop the house and flush in-house toilets. But still this affected the hygiene of the house because in most cases the reused water was already dirty and contaminated. Contrary, to Senna (2021) <sup>[28]</sup> who found that many residents tend to prefer public toilet facilities? This was because household water closets (W.C) will increase the amount of water needed for household use, as each individual has to flush the toilet each time, he/she visited the bathroom. In Chidothe there are no public toilets where people could go to relieve themselves. The only options were to have a pit latrine within the compound or use the bush nearby or reuse water to flush the toilets.

Although some women suggested about having water kiosks in the village to ease the water problem, Chipeta, (2009) <sup>[6]</sup> reports that communities in Mbayani indicated that they face

a number of problems with the operation of the communal kiosks. Some problems include lack of access at particular times, high water charges and disconnections. The kiosks are not opened on 24-hours basis therefore both women and men have problems to access the kiosks especially early in the morning and after work. They would open at 8.00 am and close at 5.00 pm. Some employees manning these communal kiosks and water points indicated that they close because they want to rest.

Based on the FPE, this study argues that the social construction of gender is highly reflected in the experiences of water scarcity. The challenges faced by women provide an illustrative picture of how gender influences the extent to which the female participants experience many aspects of water scarcity differently from men (Truelove 2019, p. 4). Although the entire population in Chidothe village suffer from effects of water scarcity, women suffer from more burdens due to gender roles and its consequences as they are responsible for water fetching. Mies (2014, pp. 45-46), this shows the burdens of engaging in both reproductive and productive work. On top of being responsible for water collection the women of Chidothe also engage in productive work such as selling cookies (Mandasi).

Helping wives with water collection would label a man as weak and threat his pride. This is a significant example of how gender is a crucial variable determining water management and water responsibility and how social roles shape the relationship to environmental resources (Elmhirst 2011, p. 129; Van Houweling 2016, p. 1067; Robbins 2020 [26], pp. 62–63). A respondent explained that “my husband would never go to the borehole or the fountain and fetch water since” the other men will tease him and say that the wife is controlling him.” (Individual interview P 12)

## Conclusions

In conclusion, it has been observed that women are more vulnerable to water scarcity as primary water resource managers. For example, spending long hours fetching water and lack of sufficient water storage facilities were among the women's concerns. Additionally, fetching water from unprotected premises such as water fountain and wells risks women's and girls' lives to diseases such as cholera and diarrhea. The paper has shown that residents in unplanned settlements are facing a lot of challenges in accessing water. The interviews declare that women are associated with both productive and reproductive sectors while men are rarely associated with the latter this leads to a significant difference in terms of workload. Women have to travel 2 kilometers just to wash clothes. In regards to this, even young girls have to leave school early in order to venture off with their mothers to fetch water. Though water scarcity has been recognized as social problem that affects individuals, community and countries' economic, political and social development, it requires collaborative efforts by different stakeholders to deal with water problems. For women's conditions to improve there is need to unveil ideologies, social power abuse, hegemony and dominance.

## Recommendations

From the study findings it is recommended that more boreholes should be drilled in convenient places for example one borehole for every 20 households rather than having one borehole for the entire village. The government and other stakeholders must intervene to provide the boreholes they can also mobilize recourses to provide communal water points

(water kiosks) that can be built on designated places within the village to enable the resident's access portable water at a reasonable monthly price. The water kiosks and boreholes must have management committees comprising of equal numbers of women and men.

The study also recommends capacity building on poverty alleviation programs that will assist the households to be financially independent and sustainable. The Zomba city council must empower local communities by training them in different skills (sowing, baking, shoe making) to get proper employment. Government social grants (ntukula pakhomo) should continuously be made available to the poor and disadvantaged as most residents in informal settlements depend on the government grant every month for survival to provide their families with basic needs like water storage facilities and individual water connection. The study also recommends the Zomba city council to provide chemicals in cleaning the toilets and treat water since most of the water sources are contaminated so that the settlement can mitigate and protect themselves from infectious diseases. Government and other stakeholders must raise awareness on gender-based violence issues in the community.

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