

**WATER ACCESS, HYGIENE, AND SANITATION AMONG REFUGEE
HOUSEHOLDS IN KYANGWALI SETTLEMENT, KIKUUBE DISTRICT**

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2022/HD03/1397U

**A DISSERTATION SUBMITTED TO THE DIRECTORATE OF GRADUATE
TRAINING IN PARTIAL FULFILLMENT OF THE AWARD OF A DEGREE OF
MASTER OF ARTS IN SOCIOLOGY OF MAKERERE UNIVERSITY**

FEBRUARY 2026

DECLARATION

I, **Nakimuli Shadiah Shatrah**, hereby declare that the work presented in this dissertation is my original work, except where referenced, and that it has not been published or submitted for any other degree to any university or institution of higher learning.

Signature.....



Date.....

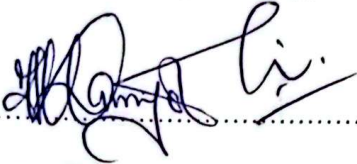
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APPROVAL

This dissertation, titled "Water Access, Hygiene and Sanitation among Refugee Households in Kyangwali Settlement in Kikuube District," has been reviewed and approved for submission by my supervisors, whose signatures appear below.

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DEDICATION

I dedicate this dissertation to my husband, Kalanzi Fahad, for his constant support and encouragement. I also extend this dedication to my sisters, Hanifah N. Lubega and Nakakawa Salma, whose constant inspiration sustained me throughout this journey. Finally, to my children Ayman, Nkwanzi, and Habeel, whose joy and love gave me strength.

ACKNOWLEDGEMENT

I want to acknowledge the contributions and guidance of Innocent Kanya (PhD) and Nicholas Mugabi (PhD), my research supervisors, whose critical input and effort ensured the completion of the study.

I also wish to thank all the faculty members in the Department of Sociology and Anthropology at Makerere University for shaping me through training in diverse areas. The knowledge and skills imparted were instrumental in preparing this research.

My deepest and sincere appreciation goes to my sisters, Hanifah N. Lubega and Nakakawa Salma, for their unwavering financial and emotional support. I am especially grateful to my dear husband, Kalanzi Fahad, who not only supported me emotionally and financially but also ensured I never missed my lessons by dropping me off whenever needed, and lovingly caring for our newborn during my examinations.

I also extend my sincere thanks to the Office of the Prime Minister, all district officials in Kikuube, the staff of Kyangwali Refugee Settlement, the local officials in the selected villages, and the resourceful respondents from the areas where I conducted fieldwork. I also thank my research assistants, whose dedication and active participation made this study possible.

Lastly, I sincerely appreciate my classmates' teamwork and cooperation, with special thanks to Barbra Nganda and George Lumiisa.

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LIST OF ACRONYMS

CRRF	Comprehensive Refugee Response Framework
CSOs	Civil Society Organizations
DV	Dependent Variable
FGD	Focus Group Discussion
GBV	Gender-Based Violence
IDI	In-depth Interview
IOM	International Organization for Migration
IV	Independent Variable
KII	Key Informant Interview
MoWE	Ministry of Water and Environment
MV	Moderating Variable
NGOs	Non-Governmental Organizations
OPM	Office of the Prime Minister
RWC	Refugee Welfare Council
RWSN	Rural Water Supply Network
SDG	Sustainable Development Goal
SSA	Sub-Saharan Africa
UGX	Ugandan Shillings
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WASH	Water, sanitation, and hygiene
WHO	World Health Organization
WUCs	Water User Committees

ABSTRACT

This study investigated how access to water affects the hygiene and sanitation of refugees in the Kyangwali settlement, Kikuube District. It examined the social factors that influence access to water; documented the current state of water access in terms of availability, functionality, and accessibility for refugees; explored how refugees' perceptions of water quality influence utilization patterns; and analyzed the effect of water access on refugees' hygiene and sanitation. The study was guided by social capital theory and the theory of access. The research employed a mixed-methods approach with an explanatory sequential design. Quantitative data were collected through semi-structured questionnaires from 377 respondents, while qualitative data were obtained from nine key informants and three focus group discussions. Quantitative data were analyzed using SPSS version 20, whereas qualitative data were analyzed manually using thematic analysis. Findings revealed that boreholes (41.9%) and public yard taps (34.7%) were the primary sources of water. Distance, congestion, and unreliable maintenance emerged as significant constraints to water access, in some areas, three villages relied on a single borehole. Coping strategies for water challenges were widespread, including rationing, borrowing, reliance on unsafe alternatives, and advance storage, reflecting constrained access to materials and use. Perceptions of water quality were largely positive but based on sensory judgments such as taste, color, and smell, which fluctuated seasonally. While 62% reported treating water before use, this was undermined by fuel costs, beliefs, and taste concerns, and unsafe storage posed a risk of recontamination. Social factors also mediated access: women and girls bore over 90% of the collection burden, exposing them to strain and harassment. Leadership and community initiatives helped regulate access. The findings indicate that limited and unreliable access to water constrained household hygiene and sanitation practices, including reduced bathing, inconsistent handwashing, and difficulties maintaining clean sanitation facilities; in this context, water-related illness, predominantly diarrhea, was commonly reported. The study recommends training and sensitizing refugees on water treatment methods and safe storage practices. Furthermore, appointing refugees to water management committees can help sustainably maintain water points.

INTRODUCTION

1.1 Background to the Study

Access to water is fundamental to human survival, social organization, and economic activity; however, the mere presence of water resources does not necessarily guarantee equitable or adequate access for all populations (Agnew & Woodhouse, 2010). In many settings, particularly in humanitarian contexts, access to water is shaped not only by physical availability but also by social, institutional, and economic factors that determine who can access water, in what quantities, and under what conditions (Swyngedouw, 2009). In Kyangwali Refugee Settlement, for example, the presence of River Nkusi may suggest water availability, yet access to safe, reliable water remains constrained by infrastructure limitations and institutional arrangements.

Water, sanitation, and hygiene (WASH) are fundamental determinants of health, well-being, and socio-economic development. Access to water that is available, safe, acceptable, equitable, and affordable is recognized as a basic human right essential for the full enjoyment of life (WHO, 2022). Water access extends beyond physical availability to include on-premises accessibility, affordability, reliability, and the safety of water, all of which are essential components of safely managed water services (UNICEF & WHO, 2023).

Uganda is recognized as one of the most progressive refugee-hosting nations globally, accommodating 1.7 million refugees by the end of 2023, making it the largest refugee host in Africa. Refugees in Uganda primarily originate from South Sudan, the Democratic Republic of Congo, Burundi, Somalia, and other neighboring countries affected by conflict and instability. Uganda's refugee policy framework is distinctive in that it grants refugees freedom of movement, the right to work, and access to public services, including health care and education, while settling them in designated refugee settlements within host districts (Betts & Collier, 2017).

Unlike restrictive encampment models adopted in many host countries, Uganda implements a settlement-based approach that promotes social integration and refugee self-reliance through interaction with host communities. Refugees are allocated plots of land and are encouraged to engage in livelihood activities alongside local populations. While this model has been widely praised for its inclusivity, it places considerable pressure on already constrained public services, particularly water supply, sanitation, and hygiene infrastructure in refugee-hosting districts (Betts & Collier, 2017; Isingoma et al., 2021).

Uganda currently hosts refugees across 13 districts: Adjumani, Isingiro, Kampala, Kamwenge, Kikuube, Kiryandongo, Kyegegwa, Koboko, Lamwo, Madi-Okollo, Obongi, Terego, and Yumbe, and manages 13 officially recognized refugee settlements, including Kyangwali, Bidibidi, Nakivale, Kyaka II, and Rhino Camp, alongside urban refugees mainly residing in Kampala (UNHCR & OPM, 2018). The scale and geographic spread of refugee hosting significantly increase demand for basic services, especially water, within both refugee settlements and host communities.

Uganda's refugee response is guided by the Comprehensive Refugee Response Framework (CRRF), which seeks to address refugee needs through five mutually reinforcing pillars: (i) Admission and Rights, (ii) Emergency Response and Ongoing Needs, (iii) Resilience and Self-Reliance, (iv) Expanded Solutions, and (v) Voluntary Repatriation (OPM, 2017). Access to water, hygiene, and sanitation services is primarily addressed under Pillars (i) and (ii), emphasizing refugees' fundamental rights and immediate humanitarian needs. In addition, humanitarian action in refugee settings is guided by international standards such as the Sphere Standards, which outline minimum requirements for water supply to ensure dignified living conditions for displaced populations (Sphere Association, 2018).

Water service delivery in Uganda's refugee settlements is primarily driven by humanitarian efforts, relying on international agencies such as UNHCR, UNICEF, and NGOs to provide and manage water access (Isingoma et al., 2021). The humanitarian model ensures immediate access to water through boreholes, piped water systems, and water trucking during emergencies. However, the long-term sustainability of this model is questioned, as dependence on donor funding creates vulnerabilities when financial support decreases (Van et al., 2019). Recent initiatives seek to transition from purely humanitarian-driven systems to development-oriented solutions that integrate national water infrastructure with the needs of refugees.

From a sociological perspective, access to water in refugee settlements is not merely a technical or health-related issue but is embedded within social structures and power relations that shape everyday life (Farmer, 1996; Swyngedouw, 2009). Water access is socially mediated through institutional arrangements, household dynamics, and inequalities related to gender, age, ethnicity, and socio-economic status, which influence who accesses water and under what conditions (Mehta, 2014). Consequently, hygiene and sanitation outcomes among refugee populations are not simply biological consequences of unsafe water but are shaped by broader social determinants of health and structural vulnerability (Farmer, 2004).

In refugee settlements, humanitarian governance systems determine the placement of water points, allocation of resources, and rules governing water use. These institutional arrangements often result in uneven access to water among refugee households, reflecting power relations and administrative priorities rather than household needs alone (Cronk et al., 2015; Semyalo et al., 2024). Such inequalities directly affect household hygiene and sanitation practices, particularly in densely populated settlements where water demand frequently exceeds supply (Hunter et al., 2010).

Gender relations play a central role in shaping access to water and domestic hygiene practices. Women and children are typically responsible for water collection and sanitation-related tasks, reflecting entrenched gender norms and household divisions of Labor (Sorenson et al., 2011). This responsibility exposes them to physical strain, time poverty, and safety risks, while limiting opportunities for education, income generation, and social participation (Bisung & Elliott, 2017). These gendered burdens have direct implications for sanitation maintenance, handwashing practices, and water storage behaviours at the household level (Dreibelbis et al., 2013).

Globally, access to safe water is a key development priority under Sustainable Development Goal 6 (SDG 6), which aims to ensure universal and equitable access to safe and affordable drinking water by 2030 (UN, 2021). Despite these commitments, progress remains uneven, with at least two billion people worldwide still relying on contaminated water sources (UN, 2021). Inadequate access to WASH services is estimated to contribute to approximately 1.4 million preventable deaths annually, disproportionately affecting vulnerable populations such as refugees (Gordon et al., 2023).

In this study, the focus is on the Kyangwali refugee settlement. This is because, as of August 2025, the Kyangwali refugee settlement hosted 152,394 refugees (UNHCR & OPM, 2025). The settlement is situated in Western Uganda near the border with the Democratic Republic of Congo. Due to its geographical location, Congolese refugees constitute the majority of the population, but there are also Rwandans, Burundians, South Sudanese, Somalis, and Kenyans (UNHCR & OPM, 2018).

Despite humanitarian interventions, access to water in Kyangwali remains a critical challenge. Inadequate infrastructure, long distances to water points, seasonal variability, and reliance on water trucking undermine consistent access to sufficient quantities of water (Hutton & Chase,

2016; Tumwine et al., 2020). These constraints have direct implications for household hygiene and sanitation practices, including handwashing, latrine cleanliness, and safe water storage.

Social factors further shape access to and use of water in Kyangwali Settlement. Women and children bear primary responsibility for water collection, reinforcing gendered labor divisions and increasing vulnerability to physical strain and safety risks (Geere et al., 2018). Perceptions regarding water sources influence water utilization patterns, contributing to variation in hygiene and sanitation practices among refugee households (Sorenson et al., 2011).

Given the social dimensions of water access in refugee settings, this study examines water access, hygiene, and sanitation among refugee households in Kyangwali Settlement, Kikuube District. By adopting a sociological perspective, the study seeks to understand how access to water interacts with social factors and household dynamics to shape hygiene and sanitation practices among refugees.

1.2 Statement of the Problem

Global initiatives, such as SDG 6, emphasize the importance of ensuring universal access to safe water and sanitation for all by 2030. However, achieving this goal in a refugee context remains a significant challenge. Uganda, one of the largest refugee-hosting countries globally, has adopted the CRRF to address the needs of displaced populations (OPM, 2017). Access to water in refugee settings is particularly addressed under Pillars (i) and (ii), reflecting their critical role in safeguarding rights and meeting ongoing needs.

Despite these frameworks, stark inadequacies in access to water persist in Uganda, particularly in refugee settlements. Settlements such as Kyangwali, Adjumani, Rhino, Nakivale, and Kiryandongo receive less than the recommended minimum of 20 liters of water per person per day (UNHCR, 2024). These disparities raise critical concerns about the equity and adequacy of water provision. Inadequate water access has far-reaching implications for refugees' quality of life, particularly in relation to household hygiene and sanitation practices, which are essential for maintaining dignity and reducing health risks in displacement settings (The Sphere project, 2011).

While existing studies and humanitarian reports document deficits in water access and associated hygiene and sanitation risks in refugee settlements, they primarily emphasize technical supply indicators and infrastructure challenges. There is limited empirical and theoretical attention to how social factors, particularly refugees' perceptions of water quality, shape households' ability to benefit from available water. Little is known about how

perceptions of water quality and trust in water sources influence water utilisation patterns, hygiene, and sanitation practices among refugee households.

1.3 Purpose and objectives of the Study

The study examined access to water and its influence on hygiene and sanitation among refugee households in Kyangwali Settlement.

1.3.1 Specific objectives

1. To explore the current state of water access for refugees in Kyangwali during the study period.
2. To assess the social factors that influence access to water in Kyangwali Settlement.
3. To examine the influence of refugees' perceptions of water quality on water utilization patterns.
4. To analyze the relationship between access to water, household hygiene, and sanitation among refugee households in Kyangwali Settlement.

1.4 Research questions

1. What social factors shape water access and distribution in Kyangwali Settlement?
2. What is the nature of the water sources in Kyangwali Refugee Settlement?
3. Are the available water sources in the Kyangwali settlement functional?
4. How do refugees perceive the quality of water in Kyangwali Settlement?
5. In what ways does the perceived quality of water influence its usage?
6. How does access to water influence household hygiene practices among refugee households in Kyangwali Settlement?
7. What is the relationship between access to water and sanitation practices among refugee households in Kyangwali Settlement?

1.5 Significance of the study

The findings could inform refugee-focused policies and programming in the WASH sector by highlighting refugees' perceptions of water quality and identifying barriers to water access. These insights could guide the development of more effective and culturally sensitive interventions, including ensuring reliable, stable access to safe water; involving key stakeholders in training and sensitization; supporting the construction, maintenance, and repair of water sources; and monitoring the consistency of water supply and quality. Additionally, the study can advance empirical knowledge in migration studies by examining the relationship between access to water, hygiene, and sanitation in displaced communities.

1.6 Study Rationale

Having worked on the Nkusi River Water Source Protection Plan, I became aware of the pressure placed on water resources. I sought to determine whether refugees' interactions with the river, including practices sometimes considered polluting, stemmed from inadequate access to safe water. This experience motivated me to analyze the relationship among access to water, hygiene, and sanitation among refugee households in the Kyangwali Settlement.

1.7 Structure of the dissertation

This dissertation is structured into six chapters. Chapter One introduces the study by outlining the background, problem statement, objectives, research questions, significance, rationale, theoretical and conceptual frameworks, scope, and key operational definitions. Chapter Two reviews the relevant literature on water access in refugee settlements, with a focus on the study objectives. Chapter Three describes the methodology, including research design, study area, sampling procedures, data collection methods, data analysis techniques, ethical considerations, and limitations. Chapter Four presents the research findings in alignment with the stated objectives, while Chapter Five discusses these findings in relation to existing literature and explores their broader implications. Chapter Six concludes the dissertation by summarizing the key findings, offering recommendations for policy and practice, and identifying areas for further research. The document concludes with references and appendices containing supplementary material.

1.8 Theoretical and conceptual framework

1.8.1 Theoretical framework

This study adopts the Theory of Access as the primary analytical framework to explore the multifaceted mechanisms shaping water access in Kyangwali. To complement this, Social Capital Theory is employed to examine the influence of community networks, trust, and reciprocity on water treatment and sharing practices.

1.8.1.1 Theory of Access

The Theory of Access by Ribot & Peluso, (2003) incorporates key insights from Myers & Hansen (2020). Access to natural resources extends beyond mere ownership or legal rights. It is shaped by power dynamics, institutions, governance structures, and social arrangements that either enable or restrict individuals' access to resources such as water. My research focused on four primary concepts: Access, Institutions, Social Arrangements, and Resource Governance. Ribot & Peluso, (2003) conceptualize access as the ability to benefit from resources, rather than just legal ownership. In my study, access to water was examined through three

dimensions: material access, the physical presence and availability of water sources; control access: who has rights, authority, or control over specific water sources; and use access, how water sources are utilized. This concept helped me analyze whether water sources are equitably distributed among refugees and identify barriers to their availability, functionality, and affordability.

Social arrangements encompass power relations and collective agreements that shape who can access specific resources (Myers & Hansen, 2020). My study examined whether specific water sources are designated for, or primarily used by, different age or social status groups. Resource Governance refers to how resources are managed, regulated, and controlled (Myers & Hansen, 2020). Ribot & Peluso, (2003) emphasize that power relations within governance structures determine who benefits from resources. My Study examined broader governance mechanisms, such as the roles of humanitarian agencies, national policies, and infrastructure allocation, in determining who controls access to water.

1.8.1.2 Social Capital Theory

Social Capital Theory provides a valuable framework for understanding how social relationships influence access to resources and everyday practices within communities. Pierre Bourdieu offers a critical sociological perspective by conceptualizing social capital as the actual or potential resources embedded in durable networks of social relationships, emphasizing that access to such resources is unevenly distributed and closely linked to power and social position (Bourdieu, 1986). From this perspective, individuals and households differ in their capacity to mobilize social networks, which in turn shapes their ability to access and benefit from shared resources.

Complementing Bourdieu's structural perspective, Robert Putnam emphasizes the role of social networks, trust, and shared norms in facilitating cooperation and collective action at the community level (Putnam, 2000). The theory suggests that these social ties can improve access to resources and outcomes by fostering collaboration, information sharing, and mutual support. In essence, social capital represents the value derived from social relationships, which can enhance the efficiency of resource allocation and provide a buffer against various social challenges (Coleman, 1988).

Central to Social Capital Theory is the assumption that trust, reciprocity, and active social networks are foundational to community well-being and individual success. It assumes that social interactions are not only beneficial in creating bonds among individuals but also

instrumental in facilitating access to resources and opportunities. Furthermore, the theory presumes that communities with higher levels of social capital are better equipped to manage collective challenges, as members are more likely to cooperate and support one another in times of need (Coleman, 1988; Putnam, 2000).

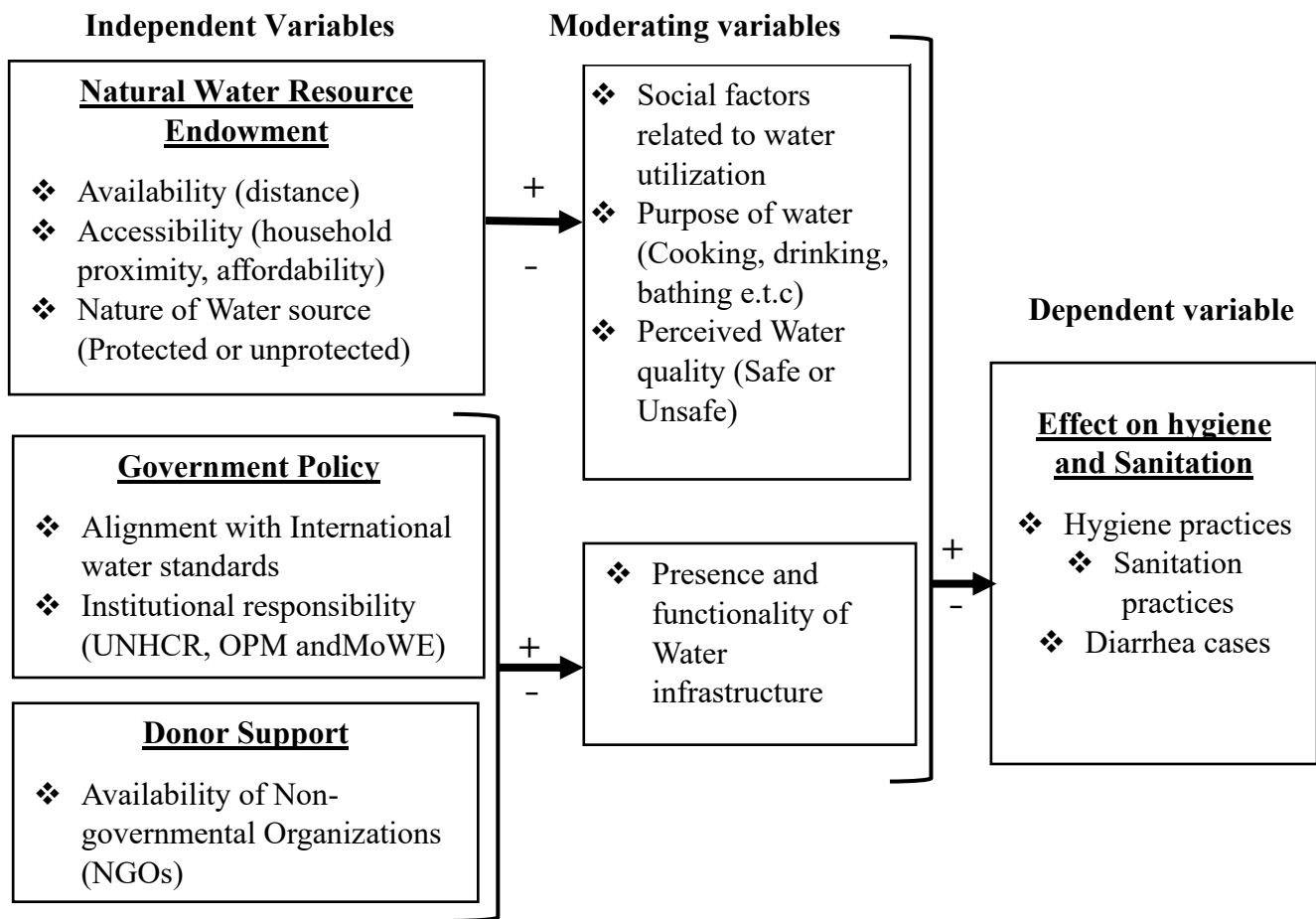
In the context of this study, Social Capital Theory provides a lens for examining how community-level networks, local leadership structures, and shared norms influence access to water and hygiene and sanitation practices among refugee households. Informal social ties and trust in water sources, water management structures, and fellow community members shaped water utilization patterns, including decisions related to water storage, treatment, and hygiene practices. By integrating Bourdieu's emphasis on power and unequal access with Putnam's focus on trust and collective action, the theory was used to explain variations in water use, hygiene, and sanitation practices among refugee households in Kyangwali Settlement.

1.8.2 Conceptual framework

The conceptual framework guided my study by illustrating the relationships among independent variables (IV), moderating variables (MV), and dependent variables (DV), with a focus on the dynamics of water access and its effects on hygiene and sanitation among Refugees in Kyangwali Settlement. The relationship between water access and its health effect on communities is deeply intertwined with Natural resource endowment, government policy, and donor support. The availability and nature of water resources in the settlement can influence social norms and water utilization. Enabling government policy and donor support can improve perceived water quality and the functionality of water points.

The effect of water access can be both positive and negative, depending on natural resource endowment, government policy, and donor support (Mwendwa, 2025; Schweitzer et al., 2020; Cronin et al., 2008). Positive effects include improved hygiene and sanitation. Conversely, adverse effects arise when limited or unreliable access to water increases poor hygiene and sanitation. Perceived water quality also plays a significant role, as communities may view water as safe or unsafe based on its appearance, taste, and smell. If water is perceived as unsafe, it can increase reliance on alternative, often more expensive sources, further straining household budgets. Understanding these interlinked factors is crucial for developing effective strategies to improve water access and mitigate its negative impacts, ultimately enhancing the well-being of refugees in Kyangwali Settlement.

Conceptual framework showing the relationship among study variables



1.9 Scope of the study

1.9.1 Geographical

The study was conducted in the Kyangwali Refugee Settlement, Kyangwali Subcounty, Kikuube District. Kyangwali was chosen as the study area for two primary reasons. First, it ranks third in terms of the highest number of households (UNHCR & OPM, 2024). Secondly, Kyangwali receives 13 liters per person per day (UNHCR, 2024) which is less than the standard of a minimum of 20 liters (Amnesty International, 2017).

1.9.2 Conceptual

The study focused on the complex relationship among access to water, hygiene, and sanitation among refugees in the Kyangwali Settlement. The study explored key social factors, water accessibility, perceived water quality, and their effects on hygiene and sanitation among refugee communities. In perceived water quality, the study was limited to indicators such as water color, odor, and taste.

1.10 Operational definitions

1.10.1 Drinking water

Similar to WHO guidelines, my definition of drinking water extends beyond water used solely for drinking to include water used for cooking, food preparation, and personal hygiene (WHO, 2017).

1.10.2 Safe water

In the study, I considered safe water to be water obtained from improved water sources such as boreholes and piped water, among others (UNICEF & WHO, 2023).

1.10.3 Perceived water quality

I focused on the perceived quality of water, using indicators such as color, smell, and taste, rather than its chemical, physical, and biological composition.

1.10.4 Access to water

Operational definitions of accessibility encompass three key criteria: the proximity of safe water within a 2-kilometer radius; affordability, defined as a cost not exceeding 500 Ugandan shillings for a 20-liter jerrican of water; and the reliability of water availability at the source (UNICEF & WHO, 2023).

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed existing literature on water access in refugee settlements, focusing on the social factors that influence access to water; the current state of water access in terms of availability, functionality, and accessibility for refugees; how refugees' perceptions of water quality affect their water utilization patterns during the study period; and the effect of water access on refugees' hygiene and sanitation.

2.2 Current state of water access

2.2.1 Water availability

Water access is a multidimensional concept, defined as the availability of sufficient, safe, and affordable water for drinking, cooking, and hygiene (WHO, 2016). The Sphere project (2011) recommends a minimum of 20 liters per person per day, with water sources located within a 30-minute round-trip and free of contamination. Similarly, the Joint Monitoring Program by UNICEF & WHO (2023) emphasizes that accessibility hinges not only on infrastructure but also on proximity to households, affordability, and reliability.

Access to water in refugee settlements is shaped not only by infrastructure but also by the ability of different groups to benefit from it. Ribot & Peluso (2003) argue that access is mediated by power, institutions, and social relations rather than mere ownership or proximity. In Kenya's informal urban settlements, water is accessed through a mix of sources. While a minority of households have consistent access to publicly regulated supplies such as piped water and public standpipes, the majority rely on private providers like water kiosks, boreholes, and water tankers (UNICEF, 2021). However, system functionality remains fragile.

The Rural Water Supply Network (RWSN, 2009) estimated that 30-40% of hand pumps in sub-Saharan Africa are nonfunctional at any given time, underscoring the fragility of groundwater-dependent systems. Building on this, Andreasi et al. (2018), in a multi-criteria assessment of water supply options in Ugandan refugee settlements, showed that while hand pumps are the cheapest and most sustainable technology, their low yield and the need for frequent drilling and monitoring limit their reliability in the long term. The same study highlighted that motorized pumps and water trucking, though more costly, are often necessary to meet demand during dry seasons or in larger settlements. Evidence from Kenya reinforces these concerns. Schweitzer et al. (2020), studying Dadaab camp during a period of drought and donor funding

cuts, found that aggressive rationing and unequal water distribution arose primarily from pump breakdowns and unregulated supply chains. They concluded that an uninterrupted water supply is critical, as even brief disruptions pose significant public health risks, although their study did not directly link these to specific health outcomes.

According to Giné-Garriga et al. (2021), water access is shaped by factors beyond infrastructure, namely affordability, governance, and socio-political inclusion. Their multi-country analysis of WASH systems during COVID-19 highlighted how weakened institutional capacity and donor fatigue affected service reliability. While their work provides broad insights, it lacks a targeted analysis of refugee-specific contexts.

2.2.2 Availability and functionality versus acceptability

The functionality of water infrastructure is a critical determinant of sustained access in humanitarian WASH systems. Danert et al. (2020), examining rural borehole performance in East and Southern Africa, and Carter (2019), writing from case studies in South Asia and Africa, both found that breakdowns are frequent due to weak maintenance systems, irregular funding, and limited community ownership. Andreasi et al. (2018) emphasized that the technology choice, whether hand pumps, diesel, hybrid, or solar-driven systems, directly influences long-term sustainability and costs.

Beyond functionality, acceptability plays a decisive role in whether refugees utilize available sources. Vivar et al. (2016), working in Sahrawi refugee camps in Algeria, found that households often rejected piped and chlorinated water when it tasted or smelled “chemical,” despite laboratory confirmation of its safety. Similar patterns emerged in Uganda, where Tumwebaze et al. (2019) reported that refugees prioritized visible clarity and taste over technical safety, with many preferring untreated surface water to chlorinated supplies. Schmidlin et al. (2019) added that past negative experiences with water shaped long-term distrust of institutional systems, reinforcing reliance on alternative sources.

These findings underscore that water access must be understood not only as a technical or supply issue but also as a behavioral one. In Kyangwali, my study extended this perspective by showing how refugees’ perceptions of water quality evaluated through color, taste, and smell directly influenced patterns of water use.

2.3 Perceptions of water quality and effect on water utilization patterns

Perceptions of water quality are central to understanding household water utilization in both rural and refugee settings. Research consistently shows that people judge water safety not only through institutional or laboratory assessments but also by relying on sensory indicators such as color, taste, and smell (Doria, 2010). Water that is discolored, turbid, or has an unusual odor or taste is often deemed unsafe, regardless of technical certification, and these perceptions directly shape whether households adopt or avoid particular water sources.

In Uganda, Waiswa (2005) conducted household surveys and interviews in Kampala to investigate community perceptions of drinking water. Respondents evaluated water safety primarily based on visible clarity, the absence of particles, and the odors and tastes. Tap water, while considered safer in principle, was frequently mistrusted because of its “chemical” taste and smell, while natural springs were regarded as “clear, good tasting, and healthy.” This reliance on sensory indicators over technical testing reveals how perceptions mediate trust in public water systems.

Building on this, Abaasa et al. (2023) conducted a mixed-methods study in Mbarara that combined household questionnaires, focus groups, and water quality testing. They found that water described as dirty, salty, or with a foul smell was widely rejected, even when laboratory results confirmed potability. Conversely, clear and tasteless water was equated with safety, highlighting how aesthetic acceptability was conflated with health protection. These findings demonstrate how perceptions drive households to switch between multiple water sources, often including unsafe ones.

Comparative insights come from other African contexts. In South Africa, Coetzee et al. (2016) used a cross-sectional household survey across six impoverished communities in the Northwest Province. More than 70% of respondents rated their water quality as only “average,” with assessments based on clarity, odor, and freshness rather than on verified quality. In Uganda’s Rhino Camp Refugee Settlement, Semyalo et al. (2024) used interviews and household water testing to show that tanker-supplied water was often avoided when it appeared discolored or had a foul odor. Refugees instead turned to alternative and sometimes more hazardous sources, demonstrating how perceptions of smell and appearance guided behavior under conditions of scarcity.

Studies also show that chlorine taste and odor are recurring sources of dissatisfaction. Branz et al. (2017), in a review of chlorination interventions in humanitarian emergencies, concluded that complaints about chlorine's sensory impacts consistently limited acceptability, despite its role in ensuring microbiological safety. Similarly, Webber et al. (2015) analyzed consumer complaints in high-income contexts and found that musty odors and chlorine taste triggered widespread rejection of otherwise safe piped water. These findings highlight that sensory perceptions of treated water are a global challenge, not confined to low-resource settings.

Collectively, these studies demonstrate that perceptions of water quality, anchored in sensory cues such as color, odor, and taste, play a decisive role in shaping water-use patterns across diverse settings, including refugee camps. However, much of the existing literature focuses on documenting sensory judgments without systematically connecting them to concrete hygiene and sanitation outcomes, and most of these analyses are framed from a natural science perspective. My study seeks to address this gap by examining how refugees in Kyangwali Settlement perceive water quality and how these perceptions influence water-use patterns, adopting a sociological perspective.

2.4 Social factors that influence access to water

Access to water in refugee settlements is not determined solely by technical or infrastructural parameters. Instead, it is mediated by a complex array of social and demographic factors, including age, gender, income level, education, and community norms. These variables interact in shaping who accesses water, how frequently, from which sources, and under what conditions.

2.4.1 Socio-demographic determinants

Socio-demographic factors such as age, income, education, and household structure strongly shape access to water. In Negele Town, Ethiopia, Dagaga & Geleta (2022) found that older residents were more likely to use improved water and sanitation services, whereas younger and unemployed residents were less likely to do so. The authors linked these patterns to unstable income, weaker tenure, and limited information. Education of the household head and household size also mattered: higher education was associated with the use of improved sources, whereas larger households experienced longer collection times and more frequent rationing.

Similarly, Dhital et al. (2022) showed that maternal education strongly correlates with better hygiene practices and lower incidence of waterborne diseases in Nepal. Their findings are echoed by Tefera et al. (2024).

Howard et al. (2020) In a multi-country study of low- and middle-income households across Sub-Saharan Africa, a health systems approach was used to demonstrate that access to improved water sources is strongly mediated by wealth, education, and social position. They found that poorer and marginalized households, particularly women and rural populations, faced disproportionate barriers. In comparison, wealthier and better-educated households were more likely to secure reliable access to water. Their analysis highlighted how inequalities in water access contribute to broader health inequities, although they did not directly assess hygiene and sanitation.

Cumming & Slaymaker (2018), drawing on global WASH data, with an emphasis on rural sub-Saharan Africa, argued that marginalized groups, such as the rural poor and informal urban dwellers, are often excluded from formal service coverage altogether. Taken together, these perspectives suggest that both social positioning within households and systemic patterns of exclusion produce inequities in access to water. Building on these insights, my study tests whether similar socio-demographic gradients exist in Kyangwali and examines how they further shape water utilization and health outcomes.

From a social capital perspective, socio-demographic characteristics shape households' ability to mobilize networks, access information, and negotiate access to shared water resources. Education enhances access to information and institutional trust, while income and household stability strengthen participation in community networks (Bourdieu, 1986; Coleman, 1988). Conversely, younger, poorer, or socially marginalized households often possess weaker social capital, limiting their ability to benefit from available water services even where infrastructure exists.

2.4.2 Gender roles and water collection responsibilities

Gender remains a central determinant of water access in refugee settings, where the burden of water collection disproportionately falls on women and girls. Sorenson et al. (2011) In a cross-country review of water collection practices, it was documented that women and girls often travel long distances daily to secure household water. This responsibility not only consumes substantial time but also exposes them to risks, including physical strain and harassment, during

collection. The authors emphasized that the unequal distribution of water responsibilities reinforces broader gendered inequalities in education and economic participation, as time spent collecting water reduces opportunities for schooling and income generation.

Building on this, Geere et al. (2018) Conducted a systematic review of health outcomes associated with domestic water carrying in low-income contexts. Their analysis highlighted that repetitive water fetching activities contribute to musculoskeletal pain, fatigue, and even reproductive health complications. By linking physical health outcomes to the gendered division of labor, their work underlines how water access challenges produce cumulative health costs for women, extending beyond immediate concerns of water scarcity.

In refugee contexts, these vulnerabilities are often amplified. Logie et al. (2022) Using a social contextual framework and qualitative methods, researchers revealed how adolescent girls and young women face heightened risks of harassment and sexual violence while collecting water, particularly during early morning or evening hours. Such findings demonstrate how water collection intersects with broader patterns of gender-based violence, turning water access into not only a logistical but also a psychological and safety concern. My study builds on this literature by analyzing how gendered responsibilities in Kyangwali Settlement affect both patterns of water utilization and the distribution of gender-based violence risks within the settlement.

2.5 Effect of access to water on hygiene and sanitation

Access to adequate water is a fundamental prerequisite for maintaining basic household hygiene and sanitation practices. Sufficient quantities of water are required for handwashing, bathing, cleaning cooking utensils, maintaining latrine cleanliness, and safe management of household water storage (Howard et al., 2020; WHO, 2017). Where access to water is limited, unreliable, or distant, households are often compelled to prioritize water use for drinking and cooking, resulting in compromised hygiene and sanitation practices (Cairncross & Feachem, 2018; White et al., 2002). Studies have consistently shown that inadequate water access constrains hygiene-related behaviors, undermines sanitation maintenance, and increases the risk of environmental contamination within the household, particularly in resource-constrained and humanitarian settings (The Sphere project, 2011; WHO, 2022).

Evidence from both refugee and low-income settings demonstrates that reduced water availability directly constrains hygiene behaviors. Cronin et al. (2008), examining water and sanitation conditions in African refugee camps, found that households collected significantly

less water during periods of scarcity, leading to reduced handwashing, infrequent bathing, and inadequate cleaning of sanitation facilities. These reductions in hygiene practices were closely associated with increased exposure to contamination risks within the household environment. Similarly, Howard et al. (2020) argue that water quantity, rather than water quality alone, is a critical determinant of adequate hygiene, particularly for handwashing and sanitation maintenance.

Studies from sub-Saharan Africa further illustrate how access to water shapes sanitation practices. In overcrowded settlements, limited water availability undermines latrine cleanliness and increases reliance on shared sanitation facilities, which are often poorly maintained due to insufficient water for cleaning (Cumming & Slaymaker 2018). Bwire et al. (2017), in their analysis of cholera outbreaks in Uganda, they identified inconsistent water supply and inadequate sanitation maintenance as key contributing factors in refugee-hosting districts, highlighting the practical challenges households face in sustaining hygienic sanitation conditions under constrained water access.

Household water access also influences water storage and treatment practices, which are integral to hygiene and sanitation. Where water supply is intermittent, households tend to store water for extended periods, increasing the risk of contamination through unsafe storage practices (Bartram et al., 2005). Catherine et al. (2023) found that households with limited or unreliable access to water were less likely to maintain clean storage containers and less consistent in treating water, thereby affecting overall household hygiene conditions. These findings suggest that access constraints shape not only immediate water use but also downstream sanitation-related behaviors within the household.

While much of the literature documents the association between water access and health outcomes, fewer studies explicitly focus on hygiene and sanitation practices as intermediary mechanisms linking water access to well-being, particularly at the household level in refugee settlements. Existing research tends to emphasize disease prevalence and outbreaks rather than examining how access conditions shape daily hygiene and sanitation practices. This gap is particularly evident in refugee contexts, such as Kyangwali Settlement, where persistent challenges in water access coexist with diverse household sanitation practices. By focusing on hygiene and sanitation outcomes, this study contributes to a more practice-oriented understanding of the implications of water access in refugee settings.

METHODOLOGY

3.1 Introduction

This chapter presents the methodology employed in conducting this study. It outlines the research design, study area, and population, sampling procedures, and sample size. Furthermore, it details the data collection methods, data management and analysis techniques, ethical considerations, and study limitations.

3.2 Research Design

The study employed an explanatory sequential design, a mixed-methods research approach, in which quantitative data were collected first between 10 and 24 May 2025 and subjected to preliminary analysis. This was followed by the collection of qualitative data between 3 and 14 June 2025¹, to provide deeper insight into the initial quantitative findings (Creswell & Poth, 2018). Sequencing enabled the quantitative phase to identify patterns in water access and health outcomes, while the qualitative phase explored the reasons behind those patterns (Creswell & Creswell, 2022). Challenges encountered during data collection sequencing in the refugee context are discussed in Section 3.8 of this report.

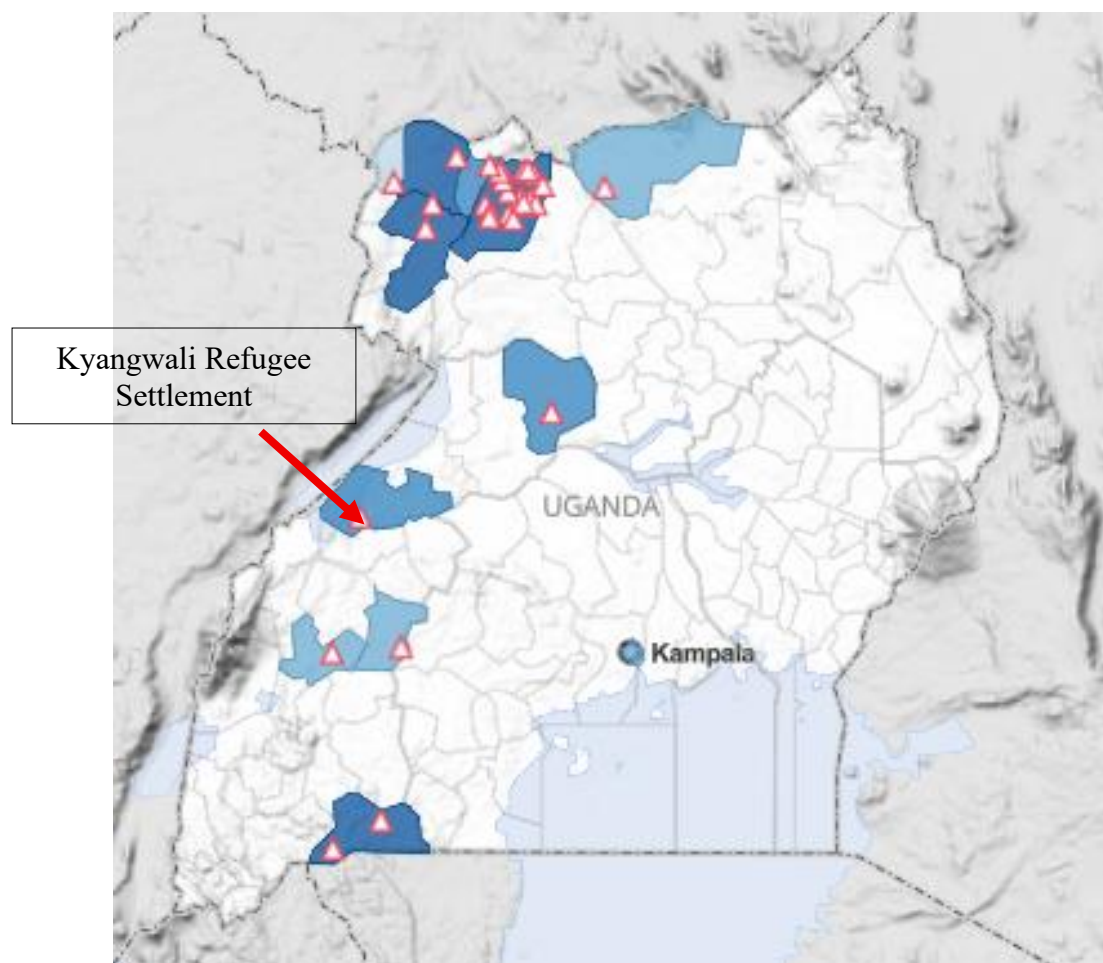
Additionally, I chose this design to help improve research accuracy since combining methods reduces the risk of misinterpretation that may arise from relying solely on one type of data (Tashakkori & Teddlie, 2010). For the quantitative component, I conducted household surveys to collect data on demographics, water access patterns, and outcomes related to refugees' hygiene and sanitation. For the qualitative component, I employed methods such as focus group discussions and key informant interviews. Focus groups enabled in-depth exploration of community perspectives on water access and related challenges. In contrast, key informant interviews with community leaders and other relevant stakeholders provided insights into the factors influencing water accessibility.

3.3 Study Area and Target Population

The study was conducted in Kyangwali Refugee Settlement located in Kyangwali Subcounty, Kikuube District (See Figure 1 for the settlement location). The settlement hosts 143,524 refugees and 42,678 households, making it the third-largest by household count (UNHCR & OPM, 2024). There are 17 main zones in Kyangwali: Maratatu D, Maratatu B, Mombasa, Kavule, Nyampindu, Kagoma, Kyebitaka, Maratatu A, Mukarange, Maratatu C, Kentomi,

¹ Three FGDs were conducted on 3 June 2025. Water Committee members and RWCs were engaged on 4 June 2025, followed by interviews with the Camp Commander and NGO representatives on 5 June 2025. District officials were engaged on 14 June 2025.

Kinakyeitaka, Kasonga, Rwenyawawa, Nyamiganda, Nyambogo, and Malembo A (OPM, 2022). However, for this study, I focused on the five zones (Kavule, Kyebitaka, Maratatu B, Mombasa, Nyamiganda) with a total household population of 15,834 (OPM, 2022). Using the Morgan and Krejcie Table, the final sample size is 377 respondents. Kyangwali was chosen as the study area for two primary reasons. First, it ranks third in the number of households (UNHCR & OPM, 2024). Secondly, Kyangwali receives 13 litres of water per person per day (UNHCR, 2024b), which is below the minimum standard of 20 litres (Amnesty International, 2017).



Source: Uganda Comprehensive Refugee Response Portal (UNHCR, 2025)

Figure 1: Map showing the location of the Kyangwali refugee settlement

3.4 Sample Size and Sampling Procedures

3.4.1 Quantitative Sample Size Determination

I used Krejcie and Morgan's (1970) table to determine the sample size. The population estimate indicates 15,834 households across the five zones of the Kyangwali settlement (OPM, 2022).

Therefore, based on the Krejcie and Morgan table, the final sample size for this study was 377 respondents.

3.4.2 Quantitative Sampling Procedure

With a total of 42,678 households in the Kyangwali refugee Settlement, cluster sampling, which is a probability sampling technique in which a population is divided into distinct groups or clusters, and a random selection of these clusters is studied, was employed (Creswell & Creswell, 2022). The rationale for using cluster sampling stems from its efficiency, cost-effectiveness, and feasibility when addressing large or widespread populations (Etikan, 2017). The 17 main zones were arranged in alphabetical order, and every third Zone was randomly selected; this sampling strategy is efficient for large, dispersed populations (Bhattacharjee, 2012). From this exercise, five (5) zones (strata) were selected as the study population. The five zones had a large population size. Therefore, a single-stage approach (in which the entire selected set of clusters is studied) was adopted, involving the random selection of clusters from the population and the study of all individuals within those selected clusters. The process began by dividing the target population into naturally occurring zones. Next, a random sample of these clusters was chosen, and every individual within the selected clusters was included in the study (Lohr, 2021). The choice of method is due to its straightforwardness and efficiency, especially when obtaining a complete list of individuals is challenging (Kumar, 2019). Simple random sampling was employed in each zone to determine the sample size. This technique ensured equal representation across all zones. The final sample size of 377 households from the five zones was randomly selected using simple random sampling.

3.4.3 Qualitative Sampling and Sample Size

Purposive sampling was used to select participants representing diverse perspectives and roles within Kyangwali Settlement, comprising nine key informants and three focus group discussions (FGDs). I purposively selected nine key informants, including the Kyangwali Settlement camp commandant, one local council chairperson, two community water user committee leaders, two district officials in charge of water and health in Kikuube district, one Community leader, and two Representatives from local non-governmental organizations (NGOs) actively engaged in activities in the settlement. On the other hand, I conducted three FGDs with refugees, with each group comprising six participants. Purposive sampling enabled me to target specific individuals who could provide valuable information or represent specific viewpoints, thereby enhancing the depth and richness of the qualitative data collection. However, the sample sizes for key informants and focus groups (FGDs) were determined by

data saturation, whereby collecting additional data no longer yields new insights, themes, or variations in the research findings (Guest et al., 2006). For instance, even when I had planned to conduct 11 KII, I ended up with 9.

3.5 Data Collection

I employed both qualitative and quantitative data collection methods, as elaborated in the subsequent subheadings.

3.5.1 Quantitative Data Collection

I employed the survey method, a quantitative data collection method used to gather information from a sample of individuals and make inferences about a larger population (Creswell & Creswell, 2022). I administered the questionnaire in Appendix 7. I used this method to collect data on participants' understanding of social arrangements, water access, perceived water quality, and the effect of water access on health. The primary purpose of this survey method was to gather standardized information that can be used to generalize findings to a broader population, making it a key tool in both descriptive and analytical research (Dillman et al., 2014).

To undertake the survey, I first defined the research objectives and identified the key variables I wanted to explore (Creswell & Creswell, 2022). After this step, I proceeded and designed the survey instrument (a questionnaire) containing questions that are clear, unbiased, and tailored to the research questions (Fink, 2013). The questions were closed-ended (with predefined response options) and open-ended (where participants provide their own answers). Once I had designed the survey instrument, I selected the sample, a representative subset of the larger population (Dillman et al., 2014) and then administered the survey instrument to that sample.

3.5.2 Qualitative Data Collection

3.5.2.1 Key Informant Interviews (KIIs)

I employed KIIs, a qualitative data collection method that involves conducting in-depth, semi-structured interviews with individuals with expert knowledge or experience about the effect of water access on hygiene and sanitation among refugees in Kyangwali Settlement (Merriam & Tisdell, 2016). KIIs enabled me to gain deep insights into social arrangements, the nature of water access, perceived water quality, and the effect of water access on health by exploring the perspectives, opinions, and experiences of selected participants with specialized knowledge or unique perspectives (Chase, 2011). To conduct the interviews, I identified and selected key informants based on their expertise, experience, and relevance to the research topic (Patton,

2015). These individuals included the Kyangwali Settlement camp commandant; one local council chairperson; two community water user committee leaders; two district officials responsible for water and health in Kikuube District; two Community leaders; and two Representatives from local non-governmental organizations (NGOs) actively engaged in activities in the settlement. Once I selected the key informants, I contacted them to schedule interviews and to explain the study's goals and confidentiality measures (Silverman, 2016).

During the interview, I used an interview guide, a set of open-ended questions that allowed informants to share their knowledge in their own words (Creswell & Poth, 2018; Patton, 2015). Interviews were semi-structured, meaning that while a guide with predetermined questions was used, I remained flexible to explore emerging themes based on the informants' responses (Kvale & Brinkmann, 2009). All the interviews were conducted face-to-face. I used an audio recorder to capture the conversation for transcription and analysis, ensuring accuracy and preserving the richness of the data (Creswell & Poth, 2018).

3.5.2.2 Focus Group Discussion (FGD)

I employed a Focus Group Discussion (FGD), a qualitative research method that involves gathering a small group of people (typically 6-12 individuals) to discuss the effect of access to water on hygiene and sanitation among refugees in Kyangwali Settlement (Morgan, 1997). I used the discussion guide, a structured outline of questions and topics to be covered during the discussion (Krueger & Casey, 2015). The guide included an introduction to the topic, followed by open-ended questions designed to elicit rich and thoughtful responses. The guide was flexible, allowing me to follow the flow of the conversation, and ensured that all important topics were covered. The FGDs aimed to explore participants' perceptions, experiences, and attitudes regarding the effect of access on hygiene and sanitation among refugees in Kyangwali Settlement, with the group dynamic helping to stimulate discussion and generate diverse viewpoints (Krueger & Casey, 2015). Additionally, I chose this method because it is useful when the researcher aims to understand how individuals think and feel about a topic, as well as how group interactions influence those thoughts and feelings (Greenbaum, 2014).

To conduct an FGD, I began by carefully selecting participants based on demographic characteristics, experiences, or expertise relevant to the research topic (Bryman, 2016). The selection of participants was crucial, as diverse group members offer a wide range of perspectives (Krueger & Casey, 2015). Once I had selected the participants, I facilitated the discussion, guiding it with a set of pre-designed questions while allowing for organic

conversation (Frey & Fontana, 1991). My role was to ensure that all participants had the opportunity to contribute while maintaining focus on the topic at hand. The discussion would be recorded with audio equipment to ensure accuracy during data analysis (Bryman, 2016).

3.6 Data Processing and Analysis

3.6.1 Qualitative Data

Qualitative data processing involved organizing, categorizing, and interpreting non-numerical information gathered through interviews, focus group discussions, and observations. Both interviews and focus group discussions were audio-recorded with participants' consent to ensure the accuracy and completeness of the data. Immediately after each session, I transcribed and analyzed the data using manual thematic analysis to identify patterns, themes, and insights from the informant's responses (Braun & Clarke, 2006). The goal was to generate a rich, contextualized understanding and to answer specific research questions.

3.6.2 Quantitative Data

After collecting the survey questionnaires, the data were processed systematically to ensure accuracy and to prepare them for analysis. First, all responses were entered into Microsoft Excel, where the data were cleaned. During this stage, the dataset was thoroughly reviewed to identify and correct any errors, inconsistencies, or missing values, ensuring it was clean and reliable. Once the data had been cleaned in Excel, it was imported into SPSS Statistics (version 20) for further processing and analysis. In SPSS, the responses were numerically coded to facilitate statistical analysis. Each variable was assigned a specific code to organize the data systematically for more straightforward interpretation. Descriptive statistical analyses were then conducted using SPSS to summarize the data. These analyses included calculating frequencies and percentages and generating graphs and pie charts to provide a comprehensive overview of the key variables.

3.7 Ethical Considerations

To ensure reliable outcomes, quality assurance measures were implemented at multiple levels. I sought assistance from a trusted source to translate the data collection tools into Swahili, as it was the participants' dominant language.

Ethical compliance was ensured by adhering to ethical guidelines, obtaining informed consent from participants (using the informed consent form in Appendix 4), and securing administrative clearance from my supervisor at the Department of Sociology and Anthropology, Makerere University (see Appendix 1: Administrative clearance from academic supervisor). Further

clearance was obtained from the Office of the Prime Minister to enable access to the Settlement (see Appendix 2: Administrative clearance from OPM). Reliability and validity checks were conducted for both quantitative and qualitative data. For quantitative data, consistency in responses was monitored during questionnaire administration. For qualitative data, reliability was enhanced through strategies such as member checking, which confirmed the accuracy of participants' responses.

Furthermore, in accordance with informed consent, I ensured that refugee participants received comprehensive information about the study's purpose, potential risks, and potential benefits before participating. To address potential language and literacy barriers, I obtained consent in a manner that was understandable in the local language and was voluntary (WHO, 2011). Additionally, I ensured the protection of the study participants by not coercing or exerting undue influence during the consent process (Mackenzie et al., 2007).

With respect to confidentiality and anonymity, I prioritized safeguarding participants' personal information, including their health status and living conditions. I took care to prevent any unauthorized disclosures that could expose refugees to stigma or discrimination, particularly in sensitive areas such as water accessibility and disease prevalence (Creswell & Creswell, 2022). I utilized coded identifiers instead of names and ensured that all collected data is stored and protected appropriately. As for non-maleficence (Do No Harm), I designed the study to minimize risks and avoid harm to participants, including emotional distress or re-traumatization when discussing their experiences with water scarcity and related health issues (Liamputtong, 2010). Regarding justice and fair representation, I ensured the equitable selection of participants, avoiding biases toward specific groups while providing a fair distribution of benefits (Emanuel, 2000). I included vulnerable subgroups, such as women and the elderly, to provide a comprehensive understanding of water access and health disparities in the settlement.

3.8 Limitations of the Study

Conducting fieldwork in a refugee settlement presents unique methodological, logistical, and contextual challenges. This section outlines the key challenges encountered during data collection in the Kyangwali Refugee Settlement and the measures adopted to address them.

3.8.1 Language and Communication Challenges

The study area is predominantly inhabited by refugees from the Democratic Republic of the Congo, which posed communication challenges and initially prompted hesitation among some

respondents. Language barriers, coupled with uncertainty about the study's purpose, reduced participants' willingness to engage openly during data collection. To address these challenges, the researcher used administrative clearances from the University and OPM. Data collection tools were translated into Swahili, the dominant language in the settlement, to enhance comprehension and participation. The translated tools are provided in Appendices 5-7.

3.8.2 Cost Constraints in Data Sequencing

The use of an explanatory sequential mixed-methods design posed logistical and financial challenges. The sequencing required an extended stay between the quantitative and qualitative phases, resulting in increased accommodation and subsistence costs. In addition, securing appointments with some key informants, particularly district officials, proved difficult due to competing administrative responsibilities and scheduling constraints.

To overcome these challenges, I temporarily conducted concurrent monitoring in a separate project at a nearby location during the interim period between the two data-collection phases. This arrangement enabled me to remain within the study region while minimizing accommodation expenses. During this period, preliminary analysis of the quantitative data was conducted in the evenings, alongside scheduling key informant interviews and focus group discussions.

To further manage research costs, research assistants were recruited from within Kyangwali Settlement and engaged only during the quantitative data collection phase. After completion of this phase, the assistants were released, and a local notetaker was engaged to support the key informant interviews and focus group discussions.

3.8.3 Challenges in meeting Key Informants

While some key informant interviews and focus group discussions were successfully conducted between 3 and 5 June 2025, it was not possible to secure a timely appointment with Kikuube District officials within the initially planned timeframe.

Following continued engagement and coordination, the district interview was eventually conducted on 14 June 2025 during the researcher's return to Kampala. Although this adjustment extended the data collection period slightly, it did not compromise the study's integrity or completeness.

PRESENTATION OF FINDINGS

4.1 Introduction

The findings are presented under five separate themes. The first theme presents the respondents' socio-demographic characteristics, both quantitative and qualitative. Secondly, I present findings under objective two that focus on the current state of water access, including availability, functionality, and accessibility, for refugees in Kyangwali. Thirdly, I present findings from objective three on how refugees' perceptions of water quality affect their water utilization patterns. Fourthly, I present findings from objective one on the social factors that influence access to water in Kyangwali Settlement. Lastly, present an analysis of the effect of water access on refugees' hygiene and sanitation.

4.2 Socio-Demographic Information of the Respondent

A total of 377 respondents participated in the study. The socio-demographic profile revealed a predominance of females (64.5%) compared with males (35.5%) (see Figure 2). Regarding age distribution, the majority of respondents were in the 34–41-year category (33.2%), followed by 26–33 years (27.6%), as shown in Figure 3. These socio-demographic characteristics were analytically significant within the Theory of Access and Social Capital Theory, as they influenced the mechanisms through which refugee households gain, maintain, and benefit from access to water, including social networks, trust, institutional positioning, and household-level decision-making.

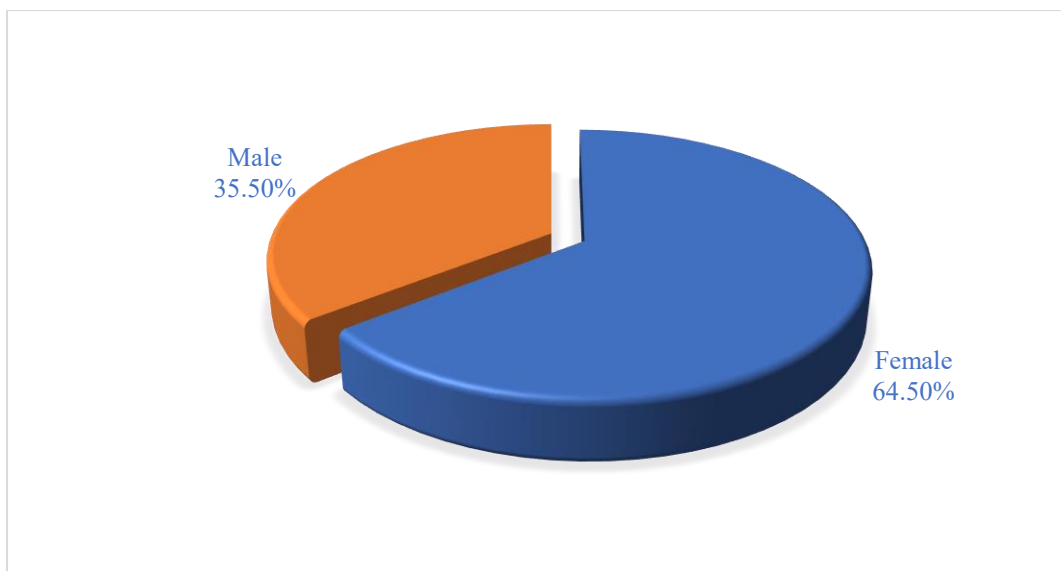


Figure 2 Gender of respondents

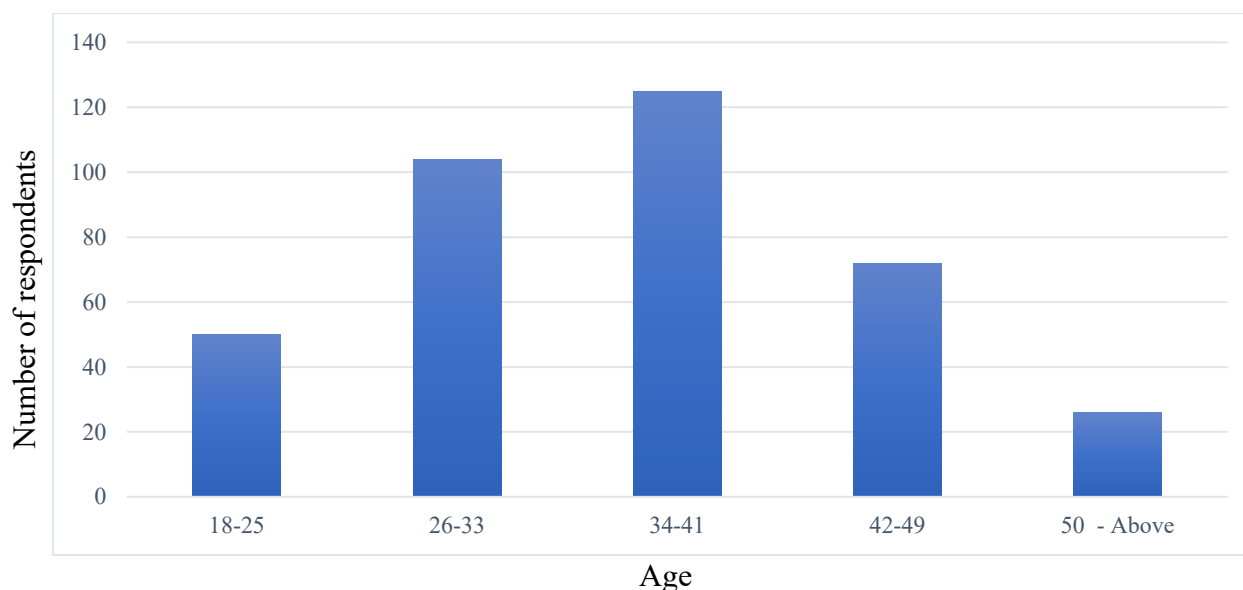


Figure 3 Age of respondents

In terms of nationality, the sample was overwhelmingly Congolese (93.6%), with small minorities of respondents in other categories (Table 1). Educational attainment was generally low: more than half (54.1%) reported no formal education, and 30.5% had completed primary education (Table 1). This reflects limited access to formal education among respondents, which could be attributed to insecurity in their home countries. With respect to religion, the respondents were predominantly Christian, as indicated by the denominations listed in Table 1.

Table 1: Age, Religion, and level of education of the respondents

No	Variable	Frequency	Percent (%)
1.	Nationality		
	Congolese	353	93
	Rwandese	14	4
	South Sudanese	8	2
	Burundian	2	1
	Total	377	100
2.	Level of education		
	No formal education	204	54.1
	Primary	115	30.5
	Secondary	47	12.4
	Tertiary	11	3
	Total	377	100
3.	Religion		
	Pentecostal	185	49
	Catholic	129	34
	Anglican	33	9
	Moslem	30	8
	Total	377	100

4.2.1 Household size within the sampled villages

A cross-tabulation was conducted to examine the distribution of household sizes by village (Table 2). Among 377 respondents, nearly half (48.5%) reported household sizes of 4–6 members, whereas smaller proportions reported 1–3 members (23.9%), 7–9 members (24.4%), and more than 10 members (3.2%). This suggests that medium-sized households (4–6 members) predominate among respondents.

At the village level, some variations emerge. In Kavule (104), respondents were concentrated in the 4–6 household-size category (43.3%), although 34.6% reported households of 1–3 members. In Kyebitaka (56), the majority (51.8%) had 4–6 members, followed by 25.0% with 7–9 members. In Maratatu B (101), household sizes were more evenly distributed, with half (51.5%) in the 4–6 category. Mombasa (101) had the highest proportion of large households, with 28.7% reporting 7–9 members and 5% reporting 10 or more, although nearly half (49.5%) still fell in the 4–6 category. In Nyamiganda (15), despite the small number of respondents, most were in the 4–6 group (46.7%).

Table 2: Crosstabulation of villages and household size

			Household Size				Total
			1-3	4-6	7-9	More than 10	
Village	Kavule	Number of respondents	36	45	23	-	104
		% within Village	34.6	43.3	22.1	-	100
		% within Household Size	40	24.6	25	-	27.6
	Kyebitaka	Number of respondents	11	29	14	2	56
		% within Village	19.6	51.8	25	3.6	100
		% within Household Size	12.2	15.8	15.2	16.7	14.9
	Maratatu B	Number of respondents	22	52	22	5	101
		% within Village	21.8	51.5	21.8	5	100
		% within Household Size	24.4	28.4	23.9	41.7	26.8
	Mombasa	Number of respondents	17	50	29	5	101
		% within Village	16.8	49.5	28.7	5	100
		% within Household Size	18.9	27.3	31.5	41.7	26.8
	Nyamiganda	Number of respondents	4	7	4	-	15
		% within Village	26.7	46.7	26.7	-	100
		% within Household Size	4.4	3.8	4.3	-	4
	Total	Number of respondents	90	183	92	12	377
		% within Village	23.9	48.5	24.4	3.2	100

Overall, the findings indicated that medium household sizes (4–6 members) were dominant across all villages, though Mombasa exhibited the highest proportion of large households (7+), while Kavule had more small households (1–3). These variations suggest differences in settlement patterns or family structures among villages.

4.2.2 Marriage versus years of stay in the settlement

A cross-tabulation was conducted to examine the relationship between respondents' marital status and the duration of their stay in the settlement (Table 3).

The results suggest a strong association between marital status and length of stay in the settlement. Married or cohabiting respondents were disproportionately represented in the longer-term categories, with 87.4% having stayed in the settlement for three years or more. In contrast, almost half (49.3%) of the never-married respondents had comparable durations of residence, and a substantial proportion (64.8%) were in the less than two years category.

These findings indicate that marriage is more prevalent among long-term residents, while single respondents are more frequently represented among recent arrivals. Although separated/divorced and widowed respondents were fewer, they too showed a tendency toward longer-term settlement, reinforcing the link between marital status and duration in the settlement.

Table 3 Crosstabulation of Marital Status and Years in the Settlement

			Years in the settlement				
			1-2	3-5	Less than 1	More than 5	Total
Marital status	Married/ Cohabiting	Number of respondents	27	118	3	89	237
		% within Marital status	11.4	49.8	1.2	37.6	100
		% within Years in the settlement	42.2	73.8	9.4	73.6	62.9
	Never married	Number of respondents	23	13	23	12	71
		% within Marital status	32.4	18.3	32.4	16.9	100
		% within Years in the settlement	35.9	8.1	71.9	9.9	18.8
	Separated/ Divorced	Number of respondents	7	16	-	9	32
		% within Marital status	21.9	50	-	28.1	100
		% within Years in the settlement	10.9	10	-	7.4	8.5
	Widowed/ Widower	Number of respondents	7	13	6	11	37
		% within Marital status	18.9	35.1	16.2	29.7	100
		% within Years in the settlement	10.9	8.1	18.8	9.1	9.8
	Total	Number of respondents - Years in	64	160	32	121	377
		% - Years in the settlement	17	42.4	8.5	32.1	100

4.3 Current State of Water Access in Kyangwali Settlement

This study assessed water access for refugees in Kyangwali, focusing on availability, functionality, and accessibility. Respondents reported water sources during both wet and dry seasons. The study examined whether household members walk to collect water and the round-trip distance to understand usage patterns. Households described the challenges they faced or the reasons for ease of access. Perceptions on how improved access could benefit health were

explored, along with coping strategies during shortages, offering a comprehensive view of water access barriers and availability during the study period, as presented below.

4.3.1 Types of Available Water Sources

Respondents were asked to mention the sources of water available to their household. The findings in Figure 4 present the distribution of respondents' primary water sources across all seasons. The majority of households relied on public boreholes (41.9%) and public yard taps (34.7%), together accounting for more than three-quarters of all responses. These sources constitute the backbone of the settlement's water supply.

A smaller proportion of respondents reported access to house connections (11.1%), while vendors (6.6%) also played a notable role in water supply.

In contrast, very few households relied on alternative sources, including ponds (2.1%), public hand-dug wells (1.1%), rainwater harvesting (0.8%), unprotected springs (0.8%), protected springs (0.5%), or private yard taps (0.3%). These low percentages suggest that while such sources exist, they serve only a marginal portion of the population.

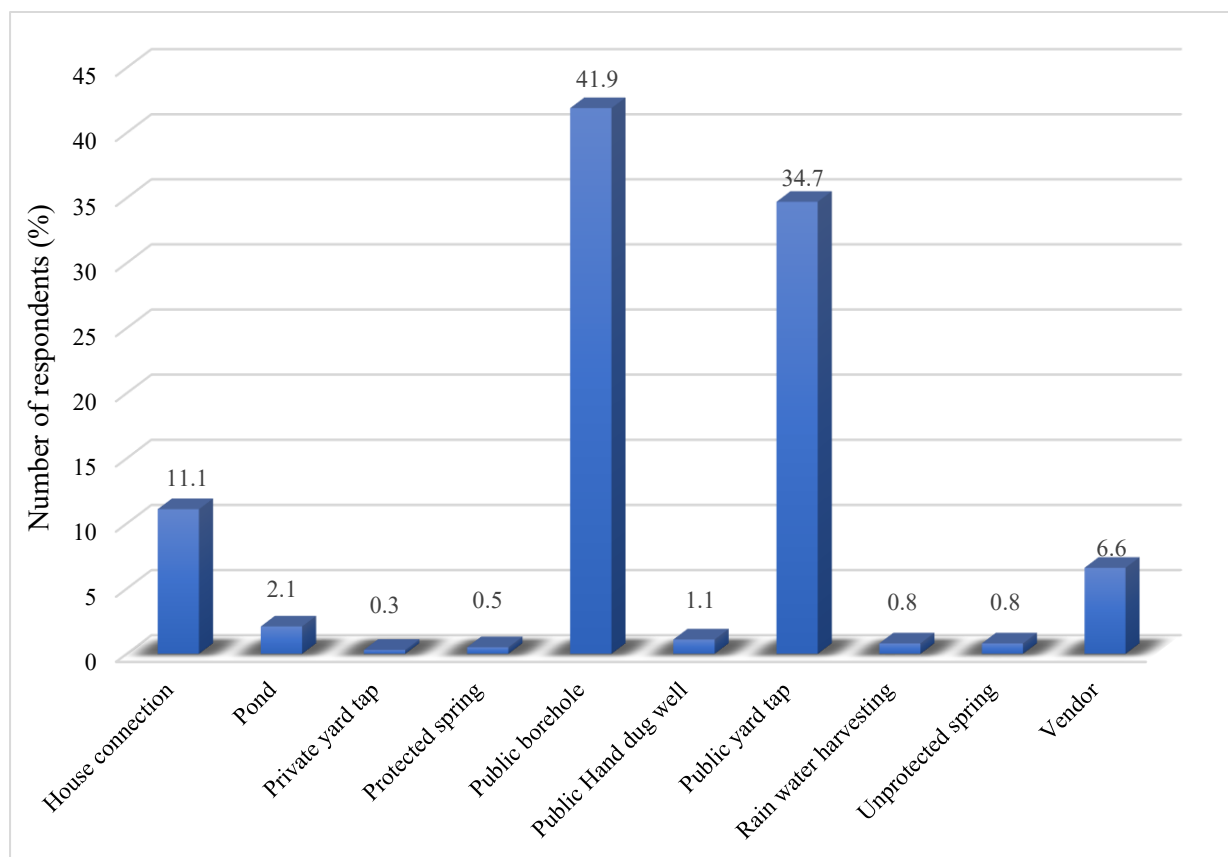


Figure 4 The main source of water was reported during all seasons

Qualitative findings revealed that although boreholes serve as the primary water source, their limited number poses a challenge, with three villages relying on a single borehole. This situation is illustrated by a participant in the focus group discussion, who described their water source as follows:

It is down there in the valley, but there is only one borehole. People from the center will go to fetch there, and those from Nyamiganda, neighboring Kagoma, will also go to fetch there; those from Mukunyu will all share one borehole” (FGD Women-Nyamiganda Village).

4.3.2 Education and the influence on the main water source

A cross-tabulation was conducted to assess the relationship between respondents’ education levels and their primary water source (Table 4). The findings show that respondents with no formal education (204) were heavily dependent on boreholes (90) and yard taps (84) but also reported wider use of unimproved sources such as ponds (7) and unprotected springs (3). By contrast, those with primary education (115) reported the highest use of house connections (29) among all groups. Respondents with secondary (47) and tertiary (11) education relied primarily on boreholes and yard taps, with minimal or no use of unimproved sources. These findings suggest that lower education levels are associated with greater reliance on unimproved sources, while higher education groups are concentrated around improved water infrastructure.

Table 4 Crosstabulation of Education and the Main source of water

		Main source of water, all seasons										Total
		House connec tion	Pon d	Privat e yard tap	Protec ted spring	Hand- dug well	Public boreh ole	Public yard tap	Rainwa ter	Unprot ected spring	Vend or	
Level of Educa tion	No education	4	7	1	1	3	90	84	2	3	9	204
	Primary	29	-	-	1	1	49	24	-	-	11	115
	Secondar y	9	1	-	-	-	14	19	-	-	4	47
	Tertiary	-	-	-	-	-	5	4	1	-	1	11
Total		42	8	1	2	4	158	131	3	3	25	377

4.3.3 Type of Water Sources During Wet and Dry Seasons

A cross-tabulation of the 377 respondents’ primary water sources by season revealed slight seasonal differences. Reliance on public boreholes increased slightly during the dry season, from 167 to 173 respondents, underscoring their importance as a dependable water source when other sources become scarce. Public yard taps exhibited relatively stable usage across seasons

(125 in the wet season and 122 in the dry season), suggesting consistent access. Rainwater harvesting was mainly practiced in the wet season (11 respondents).

Respondents with house connections (42) continued to use them in both seasons, indicating stability among households with piped water. Use of surface and unprotected sources, such as rivers, ponds, and springs, was more common in the wet season but declined sharply in the dry season, reflecting their reduced availability. Reliance on water vendors increased from 14 to 21 respondents during the dry season, indicating that some households purchased water when other sources became unreliable. Table 5 illustrates these findings.

Table 5 Crosstabulation of reported types of water sources during wet and dry seasons

		The main source of water in the dry season									Total
		House connec tion	Pond	Protect ed spring	Hand- dug well	Public boreho le	Public yard tap	Riv er	Unprote cted spring	Vendo r	
Main source of water In the Wet season	House connection	42	-	-	-	-	-	-	-	-	42
	Pond	-	2	-	1	7	-	-	-	1	11
	Private yard tap	-	-	-	-	-	1	-	-	-	1
	Protected spring	-	-	1	-	-	-	-	-	-	1
	Hand-dug well	-	-	-	2	-	-	-	-	-	2
	Public borehole	-	4	-	2	150	9	-	-	2	167
	Public yard tap	-	1	1	-	13	107	-	-	3	125
	Rainwater harvesting	-	-	-	1	3	5	-	1	1	11
	Unprotected spring	-	-	-	-	1	-	1	1	-	3
	Vendor	-	-	-	-	-	-	-	-	14	14
Total		42	7	2	6	174	122	1	2	21	377

Participants in the Key Informant Interviews reinforced these findings, emphasizing the reliability of yard taps and boreholes as primary water sources during both the wet and dry seasons, as reflected in the following quote.

The primary source, even during the dry season, is the yard taps; these are high-yielding systems. So, during the dry spell, they still provide water. And then also we have boreholes. Some villages lack these yard taps and instead rely on boreholes as their primary water source (KII - LM International).

Figure 5 illustrates some of the observed water sources in the Kyangwali settlement.



One of the taps observed in Rwenyewawa village



One of the protected springs in Kirokole village

Figure 5 Field photos of some of the available water sources

4.3.4 Estimated Distance to the Water Source

The respondents were asked about the mode of accessing water, that is, whether they walk or have on-site sources. As shown in Figure 6, the majority (80.6%) walk to fetch water. This indicates that walking is the primary mode of access for the vast majority of the population surveyed. Only 19.4% reported not walking to their water source.

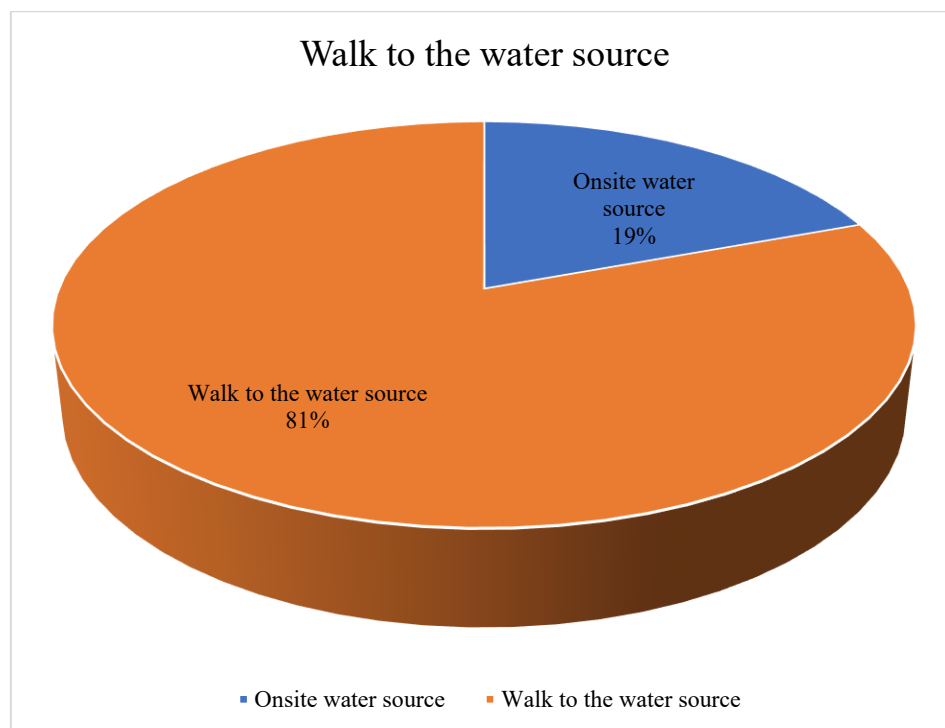


Figure 6 Respondents who walk to the water source

The 304 respondents who reported walking to access water were further asked about the distance walked during both the dry and wet seasons. The findings, as indicated in Table 5, revealed a slight seasonal difference in accessibility. In the wet season, 195 respondents accessed water within 1 km, 72 walked 2 km, and 29 reported traveling 3 km. Only 8 respondents reported distances between 4 and 5 km.

In the dry season, however, the number of respondents accessing water within 1 km decreased to 166, whereas those walking 2 km increased to 101. The number of individuals walking 3 km remained nearly constant at 30, and 7 respondents continued to travel 4–5 km, indicating that this small group consistently experiences long-distance access challenges regardless of season.

Table 6 Crosstabulation of distance walked in the wet and dry seasons

		Distance walked in the Dry season (Km)					Total
		1	2	3	4	5	
Distance walked in the Wet season (Km)	1	159	33	2	-	1	195
	2	6	63	2	1	-	72
	3	-	4	25	-	-	29
	4	-	1	1	1	-	3
	5	1	-	-	-	4	5
Total		166	101	30	2	5	304

While the quantitative data indicated that the majority of respondents walk between 1 and 2 kilometers to access water, the qualitative findings painted a different picture. Participants in the women's focus group discussion (FGD) reported walking distances of 3-5 km. This discrepancy may be attributed to the fact that the FGD was conducted in Nyamiganda Village, which had the fewest survey participants (15). One respondent explained:

You look at your child who went there yesterday, and then they are about to go there today; you feel empathy for them, and you go there yourself, as she has said; it is about three kilometers (FGD Women-Nyamiganda Village).

4.3.5 Key Problems the Household Experiences in Collecting Water

Key challenges households faced in accessing water were identified using qualitative data, as detailed in the following sections.

4.3.5.1 Time Spent and Long Lines

In high-population areas such as Kavule, Maratatu B, and Mombasa within the selected five villages (OPM, 2022), with limited water points, community members spend excessive time accessing water, often facing long queues that cause significant delays, mainly when a single borehole serves multiple blocks. This challenge is compounded by limited operating hours at

some taps, which restrict access outside designated times and further exacerbate difficulties in obtaining water. One of the respondents reported that:

*It depends. You may go there and find a few people; at other times, you may find many. According to me, I always spend two hours there (FGD with youth, **Kyebitaka Village**).*

4.3.5.2 Congestion and Overcrowding

Both FGD youth and FGD men, as well as two key informants, reported that overcrowding at water points frequently leads to congestion, causing conflicts and making it difficult for everyone to access water. As one KII reported:

*When they reach the water points, there are usually many people. This makes it difficult to obtain water, and once obtained, carrying it home is challenging and causes fatigue (KII-RWC III Chairperson of **Kyebitaka Village**).*

4.3.5.3 Long Distances

The findings from two key informants and two of the three FGDs with women and youth indicated that distance to water sources was a challenge. They stated that many residents must walk several kilometers to fetch water, particularly when local sources fail or run dry. A respondent reported:

It is very far, because most times when there is no water here, we go over there, about 5 kilometers or even 6 from here to down there, I do not know, they can be like 4 kilometers (FGD women-Nyamiganda Village).

4.3.5.4 Payment and Affordability

Regarding required payments, six of nine key informants reported that regular fees are charged for access to water, which many struggle to afford. Failure to pay results in denied access. A KII reported that:

*There are times when it reaches, and we are asked for money. You know we are refugees; if you have not paid that money, you will not be allowed to access the water, so that is why people end up going to access water from the swamps. However, the swamps are contaminated with waste, and the community is exposed to disease (KII-Leader **Child Protection Alight**).*

4.3.5.5 Violence, Insecurity, and Gender-Based Violence (GBV)

The results from three key informants and one FGD with men revealed that violence and fights were among the key challenges faced in accessing water. They stated that competition for water can lead to physical altercations, particularly when women and children are involved. This

leads to cases of Gender-based violence where women and girls face risks of sexual violence and harassment, especially at night or when water points lack security lighting. A respondent reported:

Another challenge is that our children, especially girls, experience rape caused by the delay at the water point, and because the water is less, you may not know what is going on at the water point, but if the water is enough, they would go and come back very fast (FGD men-Kavule Village).

4.3.5.6 Few and Unreliable Water Sources

Findings from two key informants and two FGDs with women and youth indicated that a limited number of sources was a key challenge. Many communities had only one borehole or tap, resulting in scarcity and dependence on unsafe alternatives when that source failed. However, it is unreliable where Water availability is inconsistent, with some sources only functioning for a few hours daily, as reported below:

.....you see, in Marembo, the whole village has only four taps, and it has about 5,000 people..... (KII, Kyangwali Settlement Commandant).

Regarding the reliability of the water sources, another reported that:

Water is available from around 10:00 a.m. to 11:00 a.m. At 2:00 to 3 p.m., it disappears, yet many jerry cans remain at the water source, awaiting collection. You receive one jerrycan to collect water for drinking and household chores; you then fetch it from the unprotected well (FGD women, Nyamiganda Village).

This was exacerbated by community vandalism and theft of water infrastructure, which further limited access, as reported by the Health Inspector of Kikuube District:

Of Course, there are challenges, the main being vandalism from the community. They spoil the taps; that is basically the problem. If it is now destroyed, you cannot access the water. The stolen parts are usually sold as scrap, and others handle the taps carelessly. There are also instances in which tanks are stolen (KII-Health Inspector, Kikuube District).

4.3.6 Coping Strategies with Water Shortages

The majority of respondents (97%) reported difficulties accessing water, whereas only 3% reported no such problems. Those who face challenges were further asked about their coping mechanisms. Respondents with limited access were asked how they cope with water shortages. Table 7 presents the coping strategies employed by households during periods of limited water

access. The findings show that many respondents 71.1% reported reducing their water consumption as the primary coping mechanism. A much smaller proportion of respondents reported using other coping mechanisms, such as borrowing from neighbors or storing water in advance.

Table 7 Reported coping mechanism to water shortages

Coping mechanism	Number of respondents	Percentage (%)
Reduce consumption	268	71.1
Store Water	29	7.7
Borrow from neighbors	30	8.0
Use an alternative source	31	8.2
Do nothing	19	5.0
Total	377	100

4.4 Social factors that influence access to water

To explore social factors influencing access to water in Kyangwali Settlement, the study analyzed who collects water. It investigated the presence of formal or informal rules about water distribution priority and whether community members believe access is equal for all. The research also examined experiences of conflicts or tensions over water, how such conflicts are resolved, and how the community supports vulnerable members' access to water. Additionally, respondents were asked about community initiatives to improve water access and about the perceived effectiveness of community leadership in ensuring fair distribution.

4.4.1 Gender roles in water collection

The results in Figure 7 reveal a clear gendered pattern in household water collection responsibilities. Women were identified as the primary water collectors, accounting for 49.9% of the respondents. This was followed closely by the girl child, who accounted for 41.1% of cases. Combined, women and girls account for over 90% of those responsible for water collection, underscoring the significant burden placed on women within households.

In contrast, men were reported as responsible in only 3.7% of households, whereas boys accounted for 4.8%. This suggests limited male involvement in domestic water collection tasks. A tiny proportion of respondents (0.5%) reported relying on vendors to supply water, suggesting that paid water delivery is uncommon. Women and children were captured fetching water in Figure 8.

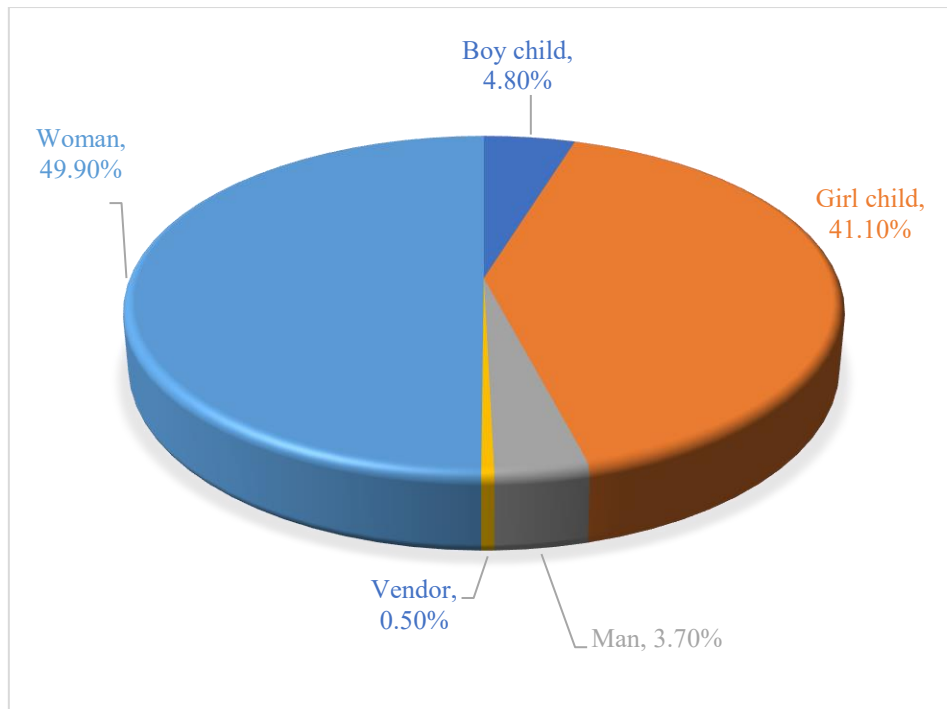


Figure 7 Gender roles in water collection



Figure 8 Children and women in a queue to get water

4.4.2 Rules Governing Priority in Water Collection

Respondents were asked whether any rules governed who collected water first at communal water sources. The findings revealed that 192 respondents reported no awareness of any rules. The remaining 185 respondents indicated that rules do exist and provided various examples. The most commonly cited rule (as indicated in Table 8) was the practice of forming lines or queues, reported by 140 respondents, indicating a widely accepted first-come, first-served system. Additionally, 30 respondents noted that vulnerable individuals, such as the elderly,

children, and people with disabilities, were prioritized in water collection. A small number reported that elders fetch water before children, reflecting social respect for age. Other, less frequently mentioned rules included first-come, first-served without formal lines, committee members fetching first, men being exempt from fetching water, and a hygiene-related rule prohibiting washing clothes near the water source.

Table 8 Rules Governing Priority in Water Collection

Rules	Number of respondents
Committee members fetch first	1
Elders fetch before children	8
First-come, first-served basis	4
Making lines	140
Men do not have to fetch water	1
No washing of clothes near water sources	1
Vulnerable fetch first	30
Not aware of the rules	192
Total	377

Findings on the prioritizing of vulnerable groups were also reported among the key informants and women FGD participants, as captured below:

Yes, that habit is there: when you see that it is an old woman who does not have the energy to stand longer, we say, "Let her fetch and go." For those who are energetic, remain here fetching (FGD Women-Nyamiganda Village).

4.4.3 Equity in water access

When asked whether everyone in their community had equal access to water resources, respondents indicated that almost all (94%; n=377) believed so. Those who declined were asked to explain their reasons. The following were mentioned: children and individuals with disabilities are often underserved in accessing water; disabled individuals are always prioritized; distant water supply points; limited water supply; children are often treated poorly at the water source; and those who are strong fetch water first.

4.4.4 Tensions Related to Water Access

Tensions about water access in Kyangwali Refugee Settlement took various forms. Respondents reported disputes at communal water points arising from long queues, limited supply, and perceived inequitable access. Conflicts occurred among refugee groups, especially along ethnic lines. Gender tensions arose as women and girls faced harassment and safety risks during water collection. The respondents were asked whether they had experienced or witnessed conflicts or tensions related to water access in their community. The results show

that 65% (n=377) of participants experienced such issues, whereas 35% did not. Those who had experienced them were asked to specify how these conflicts are typically resolved. The results indicate several avenues for resolving conflicts, including community discussions, leader-mediated mediation, and combinations of these methods, as illustrated in Table 9.

Table 9 Ways of resolving conflict associated with water access

Ways of resolving conflict	Frequency	Percent (%)
Community discussions	88	36
Mediation by leaders	68	27
No resolution	46	19
Community discussions/Mediation by leaders	39	16
Harmonize amongst themselves	5	2
Total	246	100

Similar approaches were also reported by both the key informants and focus group participants. For example, the following key informants shared their perspectives on conflict resolution.

We have a committee that sits, for example, when people fight at the water source; it resolves the issue and identifies the cause. If something is stolen from the water source and you are identified, you are required to pay a fine (KII-Health Inspector, Kikuube District).

4.4.5 Effectiveness of community leadership in ensuring access to water

Respondents were asked whether community leadership has been effective in managing access to water and related issues. The results from 377 respondents indicate that 52% consider community leadership somewhat effective in managing water access and related issues. A significant portion (27%) views leadership as effective, while a smaller percentage (8%) rates it as very effective. Conversely, 8% of participants report that community leadership is ineffective, and 5% are unsure of its effectiveness.

Table 10 Effectiveness of community leadership

Effectiveness of community leadership	Frequency	Percent (%)
Somewhat effective	197	52
Effective	100	27
Very effective	31	8
Not effective	30	8
Not sure	19	5
Total	377	100

Regarding the effectiveness of the community initiatives, two of the youth FGD participants stated:

Every Thursday, they mobilize a group of people to sweep and dig around the borehole (FGD youth, Kyebitaka).

4.4.6 Community Initiatives Aimed at Improving Water Access

The study's qualitative data shows community efforts to improve water access involve various strategies and stakeholders. Youth manage borehole access through scheduling, while water committees coordinate repairs and notify organizations like Nsamizi² about breakdowns. Sensitization on water, sanitation, and hygiene (WASH) uses public address systems and radios. Health Inspectors noted contributions to new water sources. Rules that limit the number of jerry cans per person and require payment before water is fetched. Sanitation committees enforce rules to prevent conflicts during water collection. These efforts demonstrate a coordinated community approach to ensuring equitable and sustainable access to water, as further elaborated by the following participants.

4.5 Refugees' Perceptions of Water Quality

4.5.1 Rating of perceived water quality

To understand how refugees' perceptions of water quality affect their water use, the study assessed perceived water quality. Participants assessed water quality based on perceived taste, color, and smell. The results indicate generally positive perceptions, with some variations across the three parameters as illustrated in Figure 9.

Overall, taste was rated most favorably. A combined 69.5% of respondents rated the taste of water as either very good (28.9%) or good (40.6%). Similarly, 63.1% rated the color as very good (23.6%) or good (39.5%), while 60.7% rated the smell positively (very good, 18.3%; good, 42.4%). Neutral perceptions were also notable: 23.3% of respondents reported a neutral view of taste, 23.9% of color, and 25.7% of smell. This suggests some uncertainty or inconsistency in respondents' perceptions of the water's sensory quality.

Negative perceptions were more pronounced for color and smell than for taste. A total of 13.0% of respondents rated the color of water as either poor (11.9%) or very poor (1.1%), while 13.5% held the same view for smell (poor, 12.7%, very poor, 0.8%). In contrast, only 7.1% of respondents rated the taste negatively (poor, 6.6%; very poor, 0.5%).

² Nsamizi is one of the organizations in partnership with UNHCR that plays a significant role in addressing the water and sanitation needs of refugees in Kyangwali, including those related to hygiene promotion, access to clean water, and sanitation facilities

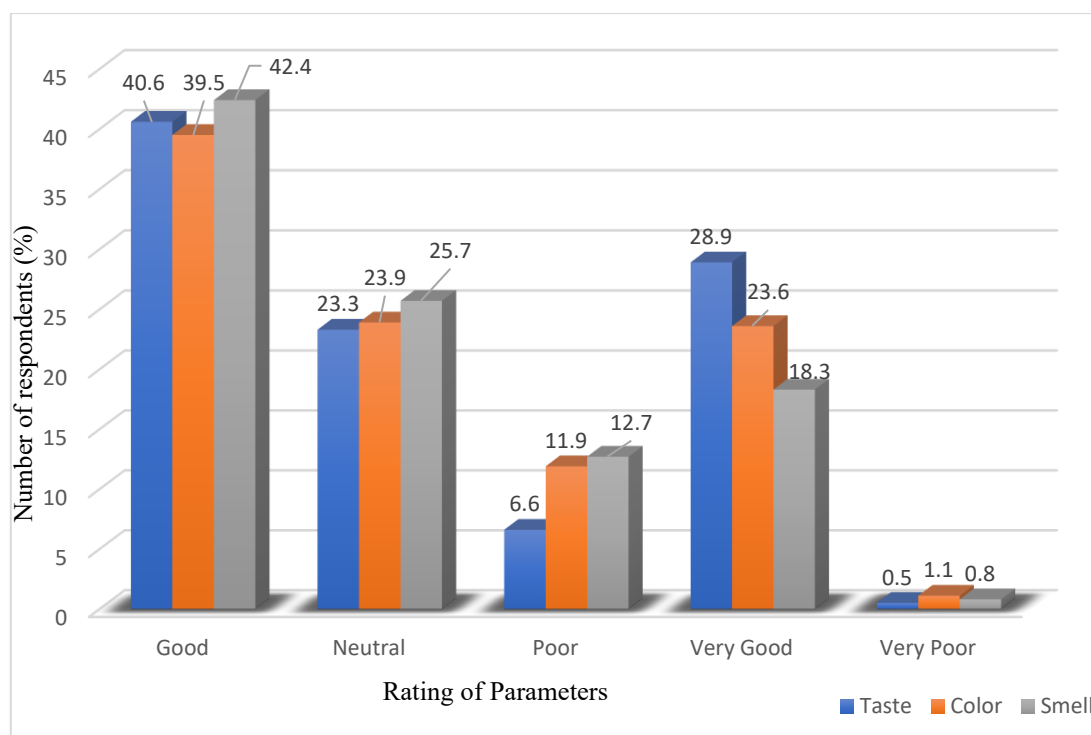


Figure 9 Rating of perceived water quality

However, the FGD participants noted that the color of water, particularly borehole water, tends to change after rainfall. A case in point, one FGD woman said:

The borehole yields good water, but when you fetch immediately after rainfall, it is always dirty; you may think you have fetched water from the unprotected well (FGD women, Nyamiganda Village).

Regarding the smell, this is what some key informants had to say:

Water from wells is bad, as it produces a bad smell, but we just drink it as it is (FGD women-Nyamiganda Village).

Another one stated:

The water from the swamp smells like the swamp, but the borehole water does not have any problem. Now, since it rained last night, the water in the swamp is like mud, but after three days, the water will be clean. However, when you put water in the cup, you detect a swampy odor that persists in the nose (KII-Leader Child Protection Alight).

4.5.2 Water Treatment

The respondents were asked whether they treat the water used for home consumption. The results from 377 respondents indicate that 62% treat the water, whereas only 38% do not. Those who treat the water were further asked to specify the methods used. The findings reveal that a

significant portion (66%) boil the water, whereas a smaller percentage (16%) filter it with a cloth. Only 5% of respondents leave the water to settle, as shown in Figure 10.

Similarly, the qualitative results indicated that most households primarily use boiling to treat water, as noted by several key informants: the District Water Officer of Kikuube District emphasized boiling despite challenges such as scarce fuel, and the Health Inspector encouraged boiling to prevent contamination. A Water Committee Member from Kavule Village also reported that boiling is required during the dry seasons, when borehole water is scarce. Filtering water through clean white cloths or sieves is common, with the RWC III Chairperson of Kyebitaka Village highlighting that most people use cloth filters due to affordability issues. Solar disinfection methods were mentioned by LM International and the District Water Officer, who described putting water under the sun or using solar sacks to kill bacteria, although these methods lack filtration. Chemical treatments such as chlorine or Aqua Tabs were used less frequently; women in focus groups reported adding chlorine, while the District Water Officer noted misuse of Aqua Tabs, resulting in ineffective treatment. Aqua tabs are mostly reserved for cholera outbreaks, as explained by the Health Inspector. The RWC III Chairperson also cited water guard as one of the few chemical options used in addition to boiling.

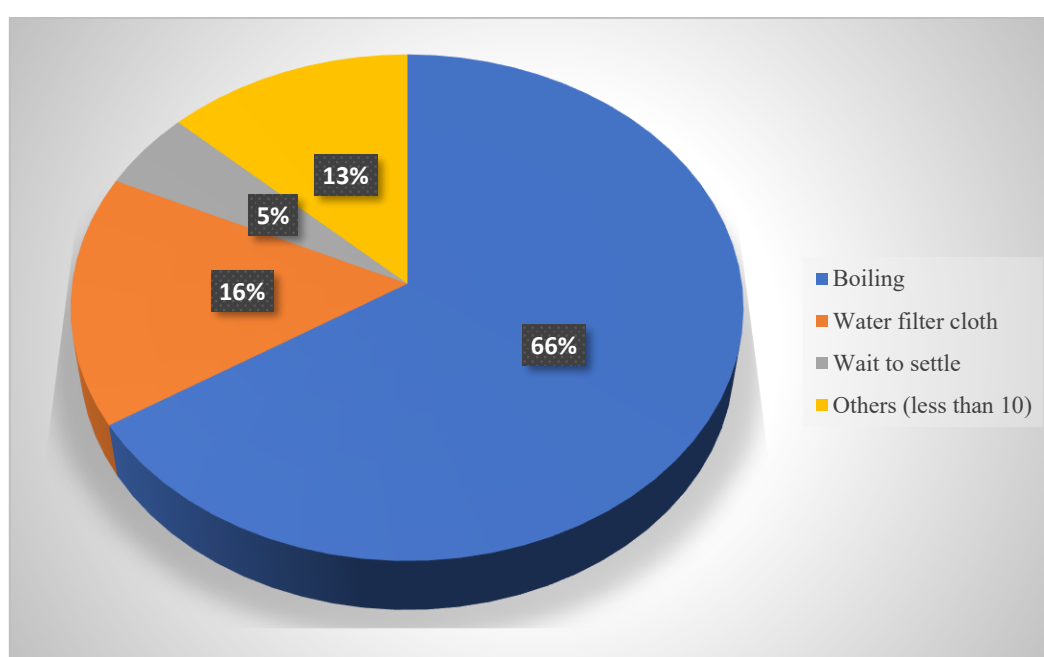


Figure 10 Reported water treatment methods

4.5.2.1 Reasons for non-treatment

Furthermore, in the qualitative data, participants who did not treat water for consumption were asked to explain the reasons for their behavior. The results reveal that most participants cited laziness as a reason for not treating water, with women in focus groups explaining,

If you have fetched that water, and you feel lazy to boil, then you do not boil (FDG women- Nyamiganda Village).

A strong perception among women was that borehole water is clean and safe, as one woman stated,

It is just putting some water in a separate jerrycan and setting it aside. We do not boil it; we drink it as is because we believe that, since it is from the borehole, it is clean (FDG women, Nyamiganda Village).

Men in focus groups emphasized the lack of fuel as a significant barrier, with one explaining,

These issues of treatment are not there because of the way of treating water, especially for some of us who use charcoal, others firewood, so you calculate charcoal has its own program of cooking, so you look at water and food, and you cannot add more money to buy charcoal for water, so the way we treat water is by only God (FGD men Kavule Village).

Beliefs and perceptions also influenced behavior; one man confidently said,

I do not treat water because here in Africa, there are no germs. We just take it, only God (FGD men-Kavule Village).

Others mentioned taste as a deterrent:

They say boiled water has no good taste (FGD men, Kavule Village).

4.5.2.2 Water Storage

Those who treated water before use were further asked where they store the treated water. The findings, presented in Figure 6, show that the majority (58.7%) stored water in a special jerry can, which is designed for safer handling and storage. This was followed by 30% who used a covered water pot, while 13.6% continued to use the same jerry cans used for fetching water, a practice that increases the risk of recontamination. Only 0.4% of respondents reported using a refrigerator to store water.

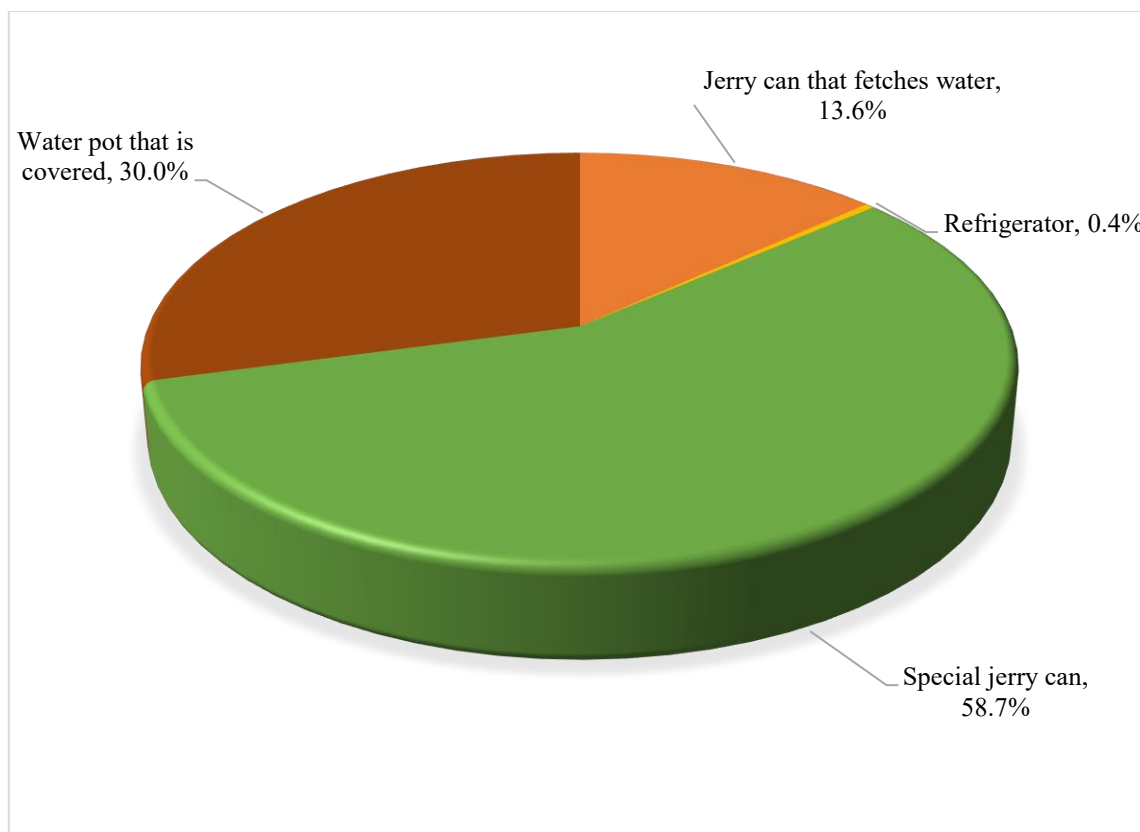


Figure 11 drinking Water storage methods

4.6 The Effect of Water Access on Refugees' Hygiene and Sanitation

This section examines how limited and unreliable access to water continues to shape household hygiene and sanitation practices among refugee households in Kyangwali Settlement. Health-related experiences are discussed only as contextual outcomes of poor hygiene and sanitation.

4.6.1 Effect of Limited water access on household hygiene

Findings from the study indicate that limited access to water substantially affects household hygiene practices. When respondents were asked whether inadequate access to water affected their hygiene, 72% reported that it did. The most commonly reported consequences included bathing less frequently, inability to wash hands consistently before meals or after latrine use, reduced washing of clothes, and difficulties in cleaning household surroundings, as shown in Figure 12.

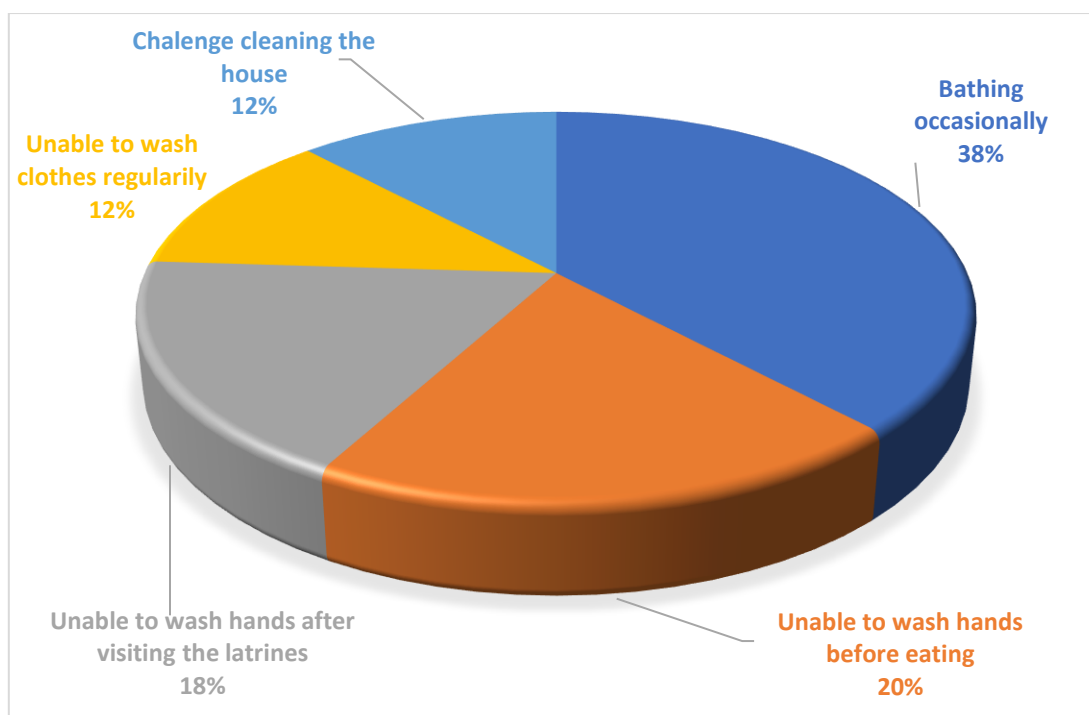


Figure 12 How limited access to water affects hygiene practices

Qualitative data illustrate how water scarcity compels households to prioritize certain water uses over others, often at the expense of hygiene. A female participant explained how illness becomes normalized under such conditions:

Sometimes diarrhea is there, and a child may develop skin rashes, but you cannot tell whether it is due to water. For us, we think that it is just normal sickness (FGD women, Nyamiganda Village).

Another respondent highlighted how limited water availability undermines intended hygiene practices within the household:

Sometimes you might fetch the water from unsafe sources, with the intention of bathing only, but unfortunately, children also take the water unknowingly, and it ends up causing problems (FGD men, Kavule Village).

These accounts demonstrate that constrained access to water disrupts planned hygiene behaviors and increases vulnerability to sanitation-related risks.

4.6.2 Effect of Limited water access on household Sanitation

Sanitation challenges in Kyangwali were consistently linked to inadequate access to water and limited capacity to maintain sanitation facilities. Key informants emphasized that sanitation

interventions cannot be effective without a sufficient and reliable water supply. As one district official noted:

Homes are usually challenged to maintain what has been given out. Sanitation is poor, and water does not move alone without sanitation being set in (KII, District Water Officer, Kikuube District).

Although some sanitation infrastructure has been introduced, respondents indicated that water shortages limit their ability to clean latrines, manage waste, and maintain hygienic household environments. Environmental sanitation challenges were also highlighted, particularly during the rainy season when runoff contaminates nearby water sources. One participant explained:

When it is the rainy season, all the dirt and rubbish collect and go into the swamp, and people still take the water. It results in typhoid and other illnesses, and for us it is hard to avoid the water since we do not have money, so we take it (FGD men, Kavule Village).

4.6.3 Hygiene, Sanitation, and Illness as Ongoing Household Challenges

Although the primary focus of this study is hygiene and sanitation, respondents frequently linked inadequate access to water to recurrent illness within households, underscoring the consequences of poor hygiene and sanitation practices. Quantitative findings showed that 51.7% (n=377) of respondents reported that they or their household members had experienced a water-related illness in the past 12 months, with diarrhoea 77.4% (n=196) the most commonly reported condition, as detailed in Table 11.

Table 11 Reported diseases associated with water access

Disease	Number of respondents	Percentage (%)
Diarrhea	151	77.4
Typhoid	18	9.2
Cholera	4	2.1
Skin diseases	22	11.3
Total	195	100

Qualitative narratives reinforced these findings, particularly in situations where water infrastructure had broken down. One key informant explained:

People get sick of stomach pain and diarrhoea. For example, like me and about five households were sick of diarrhoea because the borehole had broken down, and some are still sick because the borehole has not yet been repaired (KII, Leader, Child Protection, Alight).

Another key informant emphasized that health facility records often reflect these sanitation-related challenges:

When you go to the health facilities, sometimes you notice an increase in diarrhoeal diseases. This is related to the water people consume and the sanitation practices they follow. Since the source is not safe and the water is not treated (KII, LM International).

These accounts highlight how unreliable water access and limited sanitation options create persistent hygiene challenges that expose households to illness, particularly when alternative water sources or treatment options are unavailable.

4.6.4 Economic and Social Implications of Inadequate Hygiene and Sanitation

Inadequate access to water for hygiene and sanitation also places economic strain on refugee households. Quantitative findings indicate that 71% of respondents reported spending money on medical treatment, whereas others reported lost workdays due to illness or caregiving responsibilities, as presented in Table 12. These costs were described as particularly burdensome in a context where livelihoods are already constrained.

Table 12 Economic effects of waterborne diseases on the household

Effect on the household	Frequency	Percent (%)
Expensive treatment	269	71
Loss of a workday	60	16
None	48	13
Total	377	100

Qualitative participants linked these economic pressures to persistent sanitation challenges:

When the water is dirty, and you cannot avoid it, you still use it, and later you must spend money on treatment. Yet the money is not there (FGD men, Kavule Village).

4.6.5 Measures to Improve Water Access

Among 377 respondents, 28% indicated that constructing additional water sources is a key measure to improve health outcomes. This was followed by water treatment (23%), as shown in Figure 13.

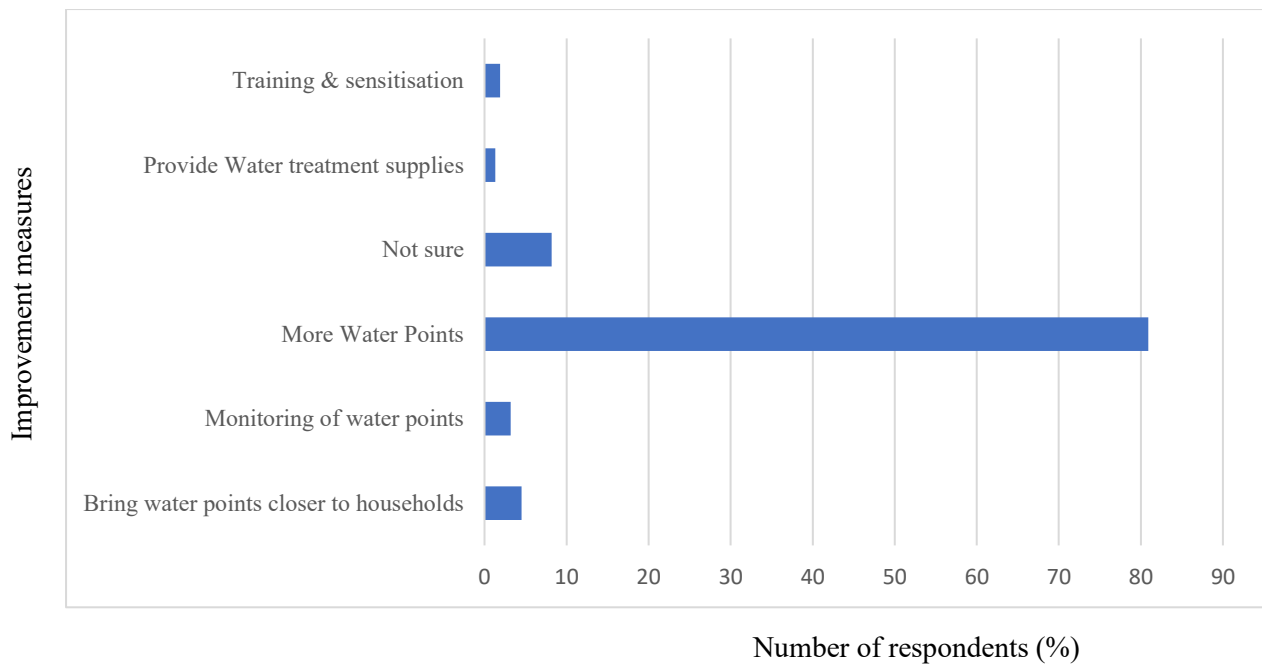


Figure 13 Reported improvement measures

Constructing more water sources and continuous training and sensitization were also mentioned by the qualitative participants. Regarding continuous training and sensitization, one of the key informants emphasized the need for ongoing education for beneficiaries on proper water storage, transport, and cleaning of water sources. Similarly, another key informant emphasized ongoing efforts to keep water sources clean, while a WUC participant emphasized raising awareness of boiling water and maintaining water quality.

We should be provided with water guard tablets to treat our water and tools for cleaning around the water points, such as gloves, a shovel, and a spade (KII-Water Committee Member, Kavule Village).

Increasing and Improving Water Sources: Many participants called for the construction of additional, higher-quality water points to address long queues and water shortages and to improve health outcomes. For instance, one key informant advocated for expanding piped water systems and drilling additional boreholes, noting that treated piped water is safer and that boreholes are more reliable than shallow or poorly constructed sources, as captured verbatim below.

We advocate for increased piped water systems because they are treated. We treat all water before it reaches the final consumer. So, there we are, sure. However, people in areas without access to piped water face challenges (KII-District Water Officer, Kikuube District).

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter presents the findings of a study on the relationship between access to water, hygiene, and sanitation among refugees in Kyangwali Settlement, Kikuube District. The discussions are presented under five distinct themes. The first theme discusses the socio-demographic characteristics of the respondents. The second theme discusses findings under Objective Two, which focused on the current state of water access in terms of availability, functionality, and accessibility for refugees in Kyangwali during the study period. The third discusses findings from objective three on how refugees' perceptions of water quality affect their water utilization patterns during the study period. The fourth section presents findings from Objective One on the social factors influencing access to water in Kyangwali Settlement. The final theme examines the effects of access to water on refugees' hygiene and sanitation.

5.2 Sociodemographic characteristics of the respondents

The socio-demographic profile of respondents provides an essential foundation for interpreting patterns of water access, use, and health outcomes in Kyangwali Refugee Settlement. Understanding these characteristics is necessary, as they influence not only household decision-making but also the broader community dynamics that shape water governance. The findings in this study highlight how age, gender, education, household size, and nationality intersect with water access challenges and inform how refugees cope with scarcity. Of the 377 respondents, 64.5% were female. Most respondents were aged 26-41.

5.2.1 Level of education

Most respondents reported no formal education, with a few reporting only primary-level education, which has significant implications for water use and treatment behaviors. Education is a critical determinant of risk perception and adoption of safe practices. A systematic review by Atalay et al., (2024) Across Sub-Saharan Africa, households with limited formal education were significantly less likely to treat water at home, relying instead on visual indicators such as color, taste, and odor. In terms of theoretical framing, this indicates that new knowledge or external innovations are constrained when educational attainment is low, thereby reinforcing dependence on community norms.

Existing literature suggests that water treatment practices are not determined by educational attainment alone but are also strongly shaped by social and community norms. Several studies have shown that, even in contexts with low formal education levels, households may adopt or

reject water treatment practices based on shared norms, collective beliefs, and social influence within the community. For example, Dreibelbis et al. (2013) found that water treatment and hygiene behaviors were often driven by socially reinforced routines rather than individual knowledge, with households conforming to practices perceived as normal or acceptable within their social environment. Similarly, Mosler (2012) argues that behavior change related to water treatment is more effectively explained by social norms, habits, and peer influence than by information or education alone.

5.2.2 Household size

The study also found that a significant proportion of households had more than four. Larger household sizes increase daily water demand, often intensifying strain on limited infrastructure. This finding is supported by Nalugya et al. (2024), who found that large households in Uganda's Imvepi Refugee Settlement were more than twice as likely to report *E. coli*³ exposure due to the overuse of containers and shared storage. Within the Theory of Access, this speaks to the notion of use access: although water sources are present, the ability of each household member to benefit is diluted when family size exceeds the available supply. Focus group discussions revealed that in some cases, as many as three villages relied on a single borehole. Larger households may also be compelled to ration water, prioritizing drinking over hygiene, which has health implications.

5.3 Current state of water in Kyangwali Settlement

5.3.1 Types of Available Water Sources

Water access in Kyangwali was characterized by a diverse yet stratified set of source types. Survey data revealed that 41.9% of households relied primarily on boreholes, 34.7% on public yard taps, and 11.1% had access to private house connections. Less than 3% utilized open sources such as ponds and shallow wells. This distribution reflects the presence of material access, as defined by Ribot and Peluso (2003) in their Theory of Access, which encompasses physical infrastructure. Still, access is mediated by other dimensions, including functionality (e.g., breakdowns) and control mechanisms (e.g., informal regulation or social norms). Despite infrastructure investment, these findings suggest that the practical utility of water points is constrained by inconsistent service delivery and competing claims during peak usage periods.

³ E-coli is usually an indicator of fecal contamination

Comparative studies reinforce these patterns. For instance, Monje et al. (2020) identified tanks, springs, and streams as the dominant sources, highlighting refugees' reliance on mixed systems due to fluctuating reliability of water.

5.3.2 Seasonal Use of Water Sources

Seasonal variation in water source usage among respondents was minimal. Reliance on public boreholes slightly increased in the dry season (from 167 to 173 users), while usage of public yard taps remained largely stable (125 in the wet season; 122 in the dry). Households with piped connections reported consistent use across both seasons, indicating infrastructure resilience. Rainwater harvesting was limited to the wet season (11 respondents), and use of surface sources declined in the dry season.

5.3.3 Educational Attainment and Source Selection

The data further indicated that respondents with primary education were more likely to have access to household connections than those with no formal education. This finding supports the Theory of Access assumption that knowledge is capitalized in this case, shaped by education, which enhances an individual's capacity to navigate access options and make informed decisions regarding water safety. A comparative study by Atalay et al. (2024) In Ethiopia, this dynamic is corroborated. Their survey of 500 households found that education level was a statistically significant predictor of both source selection and the adoption of water treatment practices.

5.3.4 Challenges in accessing water

A range of interrelated constraints shape access to safe and reliable water in Kyangwali Refugee Settlement. These barriers align closely with dimensions outlined in the Theory of Access (Ribot & Peluso, 2003), which emphasizes that access is determined not only by the presence of infrastructure but also by the ability to benefit from it. The key challenges identified in this study are detailed below.

5.3.4.1 Distance to Water Sources

A significant proportion of respondents (87.8%; n=304) reported walking 1-2 kilometers to access water, whereas the remainder reported distances greater than 3 kilometers. The qualitative data recorded distances of 3-5km during searches for water. These findings mirror regional studies by Geere et al. (2018) who found that women in rural Sub-Saharan Africa walk an average of 3.5 km per day to collect water, thereby reducing opportunities for education and economic participation.

5.3.4.2 Congestion and Queuing Delays

Approximately 34.7% of respondents identified congestion and long queues, particularly at boreholes, as their most pressing challenge. Qualitative data reported that three villages relied on a single borehole and described waiting times exceeding two hours, often extending into the night, with disputes and queue-related tensions frequently occurring. These dynamics highlight control-access barriers, in which access is regulated through queuing systems, informal norms, and local leadership structures. Comparable patterns were observed by Abua et al. (2025), whose systematic review across 32 African camps identified congestion as the most cited barrier to equitable water access.

5.3.4.3 Reliability and Maintenance of Water Sources

Frequent breakdowns, especially at boreholes, were cited by 21% of respondents as a persistent obstacle. The data suggest that institutional access, the ability to benefit from infrastructure, depends heavily on consistent maintenance and effective local governance. Giné-Garriga et al. (2021) In a mixed-methods study in Ethiopia and Uganda, up to 40% of boreholes were non-functional at any given time due to poor maintenance practices and governance lapses, underscoring the need for sustained investment in operational systems.

5.3.5 Coping strategies to the reported water access challenges

Coping with water shortages in Kyangwali Refugee Settlement is widespread, with 97% of households reporting difficulties. The strategies employed reflect constrained material, use, and control access (Ribot & Peluso, 2003), while also drawing on social reciprocity as explained by Social Capital Theory (Putnam, 2000; Coleman, 1988).

The most common strategy, reported by 71.1% of households, was to reduce water consumption. This illustrates how scarcity undermines the ability to benefit from existing sources (use access). Similar practices have been documented elsewhere: Sorenson et al. (2011) found rationing prevalent in low-income households, particularly affecting women and girls, while Wutich et al. (2020), linked rationing in urban slums to psychosocial stress among caregivers. A smaller proportion turned to alternative sources such as ponds, streams, or rainwater, a fallback form of material access. While adaptive, this strategy exposes households to unsafe water. Bwire et al. (2017) attributed cholera outbreaks in Ugandan camps to rainy-season reliance on surface water, and Mwendwa. (2025) In Kakuma, 64% of diarrheal cases were attributed to unsafe alternative sources.

Households also reported borrowing water from neighbors, a strategy enabled by bonding social capital. This practice provides short-term relief but may spread contamination. Wutich et al. (2018) noted similar risks in peri-urban contexts, while Logie et al. (2022) observed that borrowing in Ugandan refugee camps reinforced community trust but masked structural service gaps. Lastly, some households stored water in advance to secure future access. However, without clean containers, stored water often becomes unsafe to drink. Tumwebaze et al. (2019) found stored water in Kampala slums to be frequently contaminated with *E. coli*, and Nalugya et al. (2024) in Imvepi documented similar risks from the reuse of jerrycans.

5.4 Perceptions of water quality and utilization

5.4.1 Rating of perceived water quality

Perceptions of water quality in the Kyangwali Refugee Settlement were based on attributes such as taste, color, and odor rather than on technical or scientific indicators of quality. Overall, respondents reported generally positive views, but with significant variations and uncertainty across parameters. Taste was the most positively evaluated characteristic, with 69.5% describing it as good or very good. Color (63.1% positive) and smell (60.7% positive) also received favorable ratings; however, approximately 13% of respondents expressed dissatisfaction, and roughly a quarter gave neutral responses, indicating uncertainty or inconsistency in their assessments.

Qualitative insights underscored the situational and dynamic nature of these perceptions. Focus group participants reported that borehole water turned brown after rainfall, well water had an unpleasant odor, and swamp water emitted a persistent, swamp-like odor. These accounts highlight how sensory judgments fluctuate with seasonal and environmental conditions, shaping household decisions on whether particular sources are acceptable.

These findings reflect use access as described by Ribot & Peluso (2003): even when water is materially available, its actual use is mediated by perceived safety. In this context, sensory judgments serve as the primary filter for determining which sources are “safe.” Social Capital Theory (Putnam, 2000; Coleman, 1988) further explains how such perceptions are collectively reinforced, as households rely on community trust and shared experiential knowledge rather than on institutional testing. Community consensus that “this borehole water is safe” often outweighs formal quality assessments.

Comparative evidence supports these dynamics. França Doria (2010) ‘s global review concluded that consumers overwhelmingly judge water safety by aesthetics rather than

microbial quality. Similarly, Tumwebaze et al. (2019) found that residents of Kampala's informal settlements preferred the taste of well water over chlorinated piped water, despite its unsafe laboratory results. Catherine et al. (2023) documented rejection of chlorinated water in Mbarara, Uganda, due to its “unnatural” taste, while Coetzee et al. (2016) in South Africa reported that over 70% of households rated piped water as “average” or “good” based solely on taste and smell.

5.4.2 Water treatment and storage

Household-level water safety practices in Kyangwali Refugee Settlement revealed both adaptation and vulnerability. Overall, 62% of households reported treating water, with boiling being the dominant method. Other treatment methods included using a water filter cloth, allowing the water to settle, and adding chlorine. The reliance on boiling reflects its accessibility, but the limited use of alternatives points to the absence of affordable, convenient treatment methods. Qualitative insights indicated that non-treatment was less shaped by behavioral and economic factors. Respondents described fatigue after fetching as a barrier to boiling, while many expressed confidence in the safety of borehole water. Others cited fuel costs, religious beliefs (“only God protects us”), or taste preferences as reasons for avoiding treatment. These narratives show how decisions around treatment are mediated by perceptions and social norms as much as by material constraints, highlighting the role of community beliefs in shaping health behaviors.

Storage practices further complicate water safety outcomes. While 58.7% of households used dedicated jerrycans and 30% relied on covered pots, 13.6% reused jerrycans for fetching, which risked recontamination, and only 0.4% stored water in refrigerators. Such findings mirror those of Nalugya et al. (2024) In Imvepi Refugee Settlement, where reused containers were strongly associated with *E. coli* contamination, and Tumwebaze et al. (2019), who found similar patterns in Kampala slums. These comparisons emphasize that treatment alone does not guarantee safety if storage practices undermine its benefits.

Theoretically, these findings reflect the limits of Social Capital Theory (Putnam, 2000; Coleman, 1988). The theory explains how shared community perceptions, such as the belief that borehole water is inherently safe, shape collective behavior, sometimes at the expense of public health.

5.5 Social Factors that Influence Access to Water

5.5.1 Gender roles in water collection

The study revealed that over 90% of water collection is performed by women and girls, consistent with well-documented gendered divisions of labor in refugee and rural African communities. Mugumya et al. (2017) found that children, both girls and boys, but especially girls, along with their mothers or female caregivers, shoulder the main burden of water collection. Few men participate, primarily because traditional norms assign this task to women and children. This pattern reflects persistent gender and age roles in water-related domestic labor, with the burden falling primarily on the younger and female members of the household.

This not only increases women's physical burden, often involving walking long distances and carrying heavy containers, but also exposes them to risks of harassment and gender-based violence. Logie et al. (2022) In their qualitative study of refugee youth in Uganda, they found that adolescent girls collecting water were disproportionately exposed to both domestic conflict and sexual violence. From a Social Capital Theory perspective (Putnam, 2000), women's central role in water collection positions them as important transmitters of water-use practices and hygiene norms. However, it also highlights a gendered inequity, where social expectations compel women to carry the burden while men are less engaged in water-related tasks.

5.5.2 Rules Governing Priority in Water Collection

Water collection in Kyangwali Refugee Settlement was regulated through a combination of formal and informal rules, reflecting both principles of fairness and underlying social hierarchies. The most common system, cited by 140 respondents, was queuing on a first-come, first-served basis, which reflects procedural justice and community expectations of fairness. In addition, some communities prioritized vulnerable groups, including the elderly, children, and people with disabilities. As one respondent explained: "When you see that it is an old woman who does not have the energy to stand longer, we say let her fetch and go" (FGD Women, Nyamiganda Village). Such practices demonstrate how norms of reciprocity and respect shape access. Consistent with Social Capital Theory (Putnam, 2000), where solidarity and trust mediate distribution. However, less common practices, such as committee members fetching first or men exempting themselves from water collection, illustrate power imbalances in rule enforcement. Comparative evidence from refugee settlements in Kenya shows similar dynamics, where queuing systems structured access but also reinforced gender hierarchies (Geere et al., 2018).

5.5.3 Equity in Water Access

Perceptions of equity were generally high, with 94% of respondents reporting that access to water was equal. However, qualitative accounts indicated systematic disadvantages for children and people with disabilities, who often struggled with physical limitations or mistreatment at water points. Long distances to sources also disproportionately affected these groups. This reflects the use-access dimension of Ribot & Peluso's (2003) Theory of Access, in which equal availability does not necessarily translate into equitable benefit. Abua et al. (2025) similarly found that refugees with disabilities were twice as likely to experience limited access due to distance and exclusion.

5.5.4 Tensions and Conflicts in Water Access

Despite rules, conflicts at water points were widespread, with 65% of respondents reporting disputes linked to long queues, congestion, and perceived unfairness. Ethnic divisions exacerbated tensions, while gender-based harassment exposed women and girls to risks during collection. These findings highlight the reliance on local committees for dispute mediation, reflecting the mobilization of social capital in conflict resolution.

5.5.5 Effectiveness of Community Leadership

Leadership structures in Kyangwali were perceived as moderately effective: 52% rated leadership as somewhat effective, 27% as effective, 8% as very effective, and 8% as ineffective. Local leaders and committees mediated disputes, enforced payment systems, and organized repairs, but their legitimacy depended on perceived fairness and transparency. Evidence from South Sudanese settlements in Uganda shows that trust in local committees is a critical predictor of compliance with water management rules (Kemigisa et al., 2024).

5.5.6 Community Initiatives to Improve Access

Beyond formal leadership, communities mobilized their own initiatives to improve access. Youth were reported to manage borehole schedules, committees coordinated repairs, and collective labor was organized to maintain sources. Sensitization campaigns on WASH were conducted through radio and public address systems. One respondent noted: "Every Thursday, they mobilize some group of people to sweep and dig around the borehole" (FGD Youth, Kyebitaka). These efforts illustrate the community's adaptive capacity, drawing on bonding and bridging social capital to sustain shared resources. Comparative findings from Imvepi Refugee Settlement confirm the value of such initiatives: (Nalugya et al., 2024) reported that

community-led scheduling improved fairness but depended on NGO support for long-term sustainability.

5.6 The Effect of Water Access on Refugees' Hygiene and Sanitation

This subsection discusses how access to water shapes household hygiene and sanitation practices among refugee households in Kyangwali Settlement, drawing on both the Theory of Access and Social Capital Theory.

5.6.1 Water Access and Household Hygiene Practices

The study revealed that 72% of respondents reported that limited access to water negatively affected their ability to maintain basic hygiene practices, including bathing, handwashing, washing clothes, and cleaning household environments. This finding underscores the importance of water quantity and reliability in sustaining daily hygiene routines. Comparable evidence from refugee and low-income settings indicates that when water is scarce, households prioritize drinking and cooking over hygiene, leading to reduced personal and domestic cleanliness (Geere et al., 2018; Hunter et al., 2010).

From the perspective of the Theory of Access (Ribot & Peluso, 2003), these findings demonstrate that physical infrastructure alone does not guarantee effective use of water for hygiene. Although some households have nominal access to water sources, their ability to benefit from water is constrained by factors such as distance, breakdowns, queuing time, and affordability. As a result, access remains incomplete, limiting households' capacity to translate water availability into adequate hygiene practices.

5.6.2 Water Access and Sanitation Conditions

The findings also indicate that sanitation outcomes in Kyangwali are closely linked to access to water. Respondents and key informants consistently emphasized that sanitation facilities cannot be effectively maintained without a sufficient and reliable water supply. Even where latrine infrastructure is available, water shortages limit households' ability to maintain hygienic conditions.

This finding aligns with existing literature, which argues that sanitation outcomes depend not only on infrastructure provision but also on sustained access to water for cleaning and environmental management (Cumming & Slaymaker, 2018). Under the Theory of Access, sanitation challenges reflect constrained "use access," whereby households lack the practical means to benefit from sanitation facilities due to limited water availability.

Environmental sanitation challenges, particularly during the rainy season, further illustrate how water access intersects with broader structural and environmental conditions. Runoff, stagnant water, and contamination of nearby sources undermine sanitation efforts, especially for households with limited financial resources. These dynamics reinforce inequalities in sanitation outcomes, as poorer households are less able to adopt coping strategies such as purchasing alternative water sources or treatment supplies.

5.6.3 Hygiene, Sanitation, and Illness as Contextual Outcomes

Although the primary focus of this study is hygiene and sanitation, over half of the respondents (51.7%) reported that they or their household members had experienced a water-related illness in the past year, with diarrhea the most common. Rather than interpreting these findings as direct effects of specific water sources, the lack of a statistically significant association between water source type and reported illness suggests that household-level hygiene and sanitation practices play a more influential role.

This interpretation is consistent with studies showing that contamination often occurs at the point of storage or use, even when water sources are technically safe. (Nalugya et al., 2024; Tumwebaze et al., 2019). The findings therefore support the argument that health risks in refugee settings are mediated through everyday hygiene and sanitation practices shaped by access constraints, rather than water source characteristics alone.

From a theoretical standpoint, these results reinforce the Theory of Access and social capital theory by demonstrating that access to water must be understood as a process involving social, economic, and institutional dimensions. The inability to safely store, treat, or consistently use water for hygiene reflects limitations in households' capacity to benefit from available resources.

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

6.1.1 Current state of water access in Kyangwali refugee settlement

The study established that water access in Kyangwali Refugee Settlement is characterized by reliance on boreholes (41.9%) and public yard taps (34.7%), with most households traveling between one and three kilometers to reach the nearest water source. While seasonal stability of supply suggests a degree of system resilience, households continue to rely on unsafe fallback sources during shortages, indicating persistent gaps in effective access. Formal and informal Education was found to influence water source choice, demonstrating that knowledge and informational resources shape “use access,” as articulated in the Theory of Access (Ribot & Peluso, 2003). These findings reinforce comparative evidence from other refugee and low-income contexts showing that infrastructure alone does not guarantee meaningful benefits in the absence of user capacity, governance, and institutional reliability (Atalay et al., 2024; Monje et al., 2020).

Despite the presence of water infrastructure, challenges such as distance, congestion, and frequent breakdowns significantly constrained households’ ability to benefit from available water sources. Coping strategies, including rationing and borrowing, reflect constrained use and control over water, while also drawing on social reciprocity as a short-term buffer (Putnam, 2000). Similar patterns have been documented in Kakuma Refugee Camp and informal settlements in Kampala, where coping practices such as rationing and unsafe storage were associated with heightened hygiene and sanitation risks (Mwendwa G., 2025; Tumwebaze et al., 2019). These findings demonstrate that water access must be understood as a dynamic process rather than a static condition.

6.1.2 Social factors that influence access to water in Kyangwali Settlement

The study further revealed that access to water in Kyangwali is profoundly shaped by social organization and power relations. Water collection responsibilities were highly gendered, with women and girls bearing the primary burden, exposing them to physical strain and risks of harassment. Informal queue systems, prioritization of vulnerable groups, and locally enforced rules reflected community-level attempts to manage scarcity, yet these arrangements also reproduced inequalities in access. These dynamics highlight how social capital mediates access to water, with trust and reciprocity partially offsetting exclusion while simultaneously reinforcing existing power structures (Putnam, 2000).

Comparative evidence from refugee settlements across East Africa supports these findings, demonstrating that gendered labor divisions and informal governance structures are central to how water access is negotiated in conditions of scarcity (Geere et al., 2018). The study, therefore, contributes to sociological debates by demonstrating that access to water in refugee settings is socially structured.

6.1.3 Refugees' perceptions of water quality and water utilization

The study found that refugees' perceptions of water quality were primarily shaped by sensory attributes such as taste, color, and smell rather than scientific testing. Although most households initially rated their water positively, seasonal changes, particularly the color of borehole water following rainfall, undermined trust and altered utilization patterns. Additionally, unpleasant odors, particularly those associated with swamp water, further reduced confidence in specific water sources. Social Capital Theory helps explain how shared community judgments reinforced collective perceptions of water quality, shaping household decisions regarding water use and treatment.

Water treatment and storage practices reflected both adaptation and vulnerability. While 62% of households reported treating water, fatigue, costs, and entrenched beliefs led others to forego treatment, and unsafe storage practices posed a risk of recontamination. These findings illustrate how perceptions, norms, and material constraints jointly shape water-related behaviors. Comparable studies in Kampala and Imvepi Refugee Settlement similarly show that unsafe storage practices can undermine water treatment efforts, even where treatment uptake is relatively high (Muleme et al., 2024; Tumwebaze et al., 2019).

6.1.4 Effect of access to water on hygiene and sanitation

This study concludes that access to water plays a central role in shaping household hygiene and sanitation practices among refugee households in Kyangwali Settlement. Consistent with existing literature, the findings show that limited water quantity and reliability constrain households' ability to sustain essential hygiene activities such as bathing, handwashing, washing clothes, and cleaning household environments (Hunter et al., 2010; Geere et al., 2018). These findings are supported by the Theory of Access (Ribot & Peluso, 2003), which emphasizes that access is not defined solely by the presence of infrastructure but by households' practical ability to use water to meet daily needs.

The study further demonstrates that sanitation outcomes are closely linked to water access, reinforcing evidence that sanitation infrastructure alone is insufficient without adequate water for cleaning and maintenance (Cumming & Slaymaker, 2018). Although the primary focus of this study was hygiene and sanitation, diarrhea emerged as a prominent contextual outcome of inadequate access to water.

From a theoretical perspective, these findings support both the Theory of Access and Social Capital Theory by demonstrating that the benefits of water depend on its use within households and communities, rather than on technical provision alone. Overall, the study contributes to existing scholarship by demonstrating that improving hygiene and sanitation outcomes in refugee settings requires attention to the conditions that enable households to benefit from available water resources effectively.

6.2 Recommendations

The recommendations presented in this section are grounded in the study's findings and informed by the Theory of Access and Social Capital Theory. The study demonstrated that access to water in Kyangwali Refugee Settlement is shaped not only by the physical availability of water sources but also by households' ability to use water safely for hygiene and sanitation. Addressing water-related challenges, therefore, requires interventions that simultaneously improve access to materials and strengthen the social conditions that enable effective use.

First, the study found that although a majority of households reported treating water, treatment practices were inconsistent and strongly influenced by cost, fatigue, and perceptions of water quality. It is therefore recommended that the Ministry of Health and the Office of the Prime Minister (OPM) intensify community sensitization on household water treatment as part of WASH programming. Sensitization efforts should emphasize affordable and context-appropriate treatment options, including boiling and filtration, particularly for households that cannot consistently afford chemical treatments such as chlorine or water guard tablets.

Second, the study revealed that unsafe water storage practices pose a significant risk of recontamination, even where water is initially treated or perceived as safe. In line with this finding, it is recommended that community health workers provide continuous training on safe water handling and storage practices, from collection through to consumption. Such training should be integrated into routine community outreach activities to strengthen household-level hygiene and sanitation practices. From a Theory of Access perspective, this approach enhances “use access” by ensuring that households can translate water collection into safe use.

Third, the findings highlighted the importance of community-level organization, trust, and collective action in regulating access to water and managing scarcity. Drawing on Social Capital Theory, it is recommended that Water Management Committees formally include refugees as active members and decision-makers. Refugee participation can strengthen trust, accountability, and shared responsibility in water governance, contributing to more equitable access and improved maintenance of water points. In addition, allocating a dedicated budget for routine operation and maintenance of water infrastructure would enhance the functionality and reliability of water sources, thereby reducing breakdowns that undermine hygiene and sanitation practices.

6.3 Areas for Further Studies

This study did not investigate the distances travelled to access water from specific sources, for example, walking one km to a borehole or two km to a public tap. Future research could examine this aspect in greater detail.

It is also recommended that future studies assess both the quantity and quality of existing water sources in refugee settings compared to those in host communities. Such an analysis would help determine whether the identified challenges are unique to refugees or shared by the broader community.

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APPENDICES

Appendix 1: Field clearance from the University



Appendix 2 Clearance from the OPM's office


THE REPUBLIC OF UGANDA


Uganda
Vision 2040

OFFICE OF THE PRIME MINISTER
PLOT 9-11 APOLLO KAGGWA ROAD. P.O. BOX 341, KAMPALA, UGANDA
TELEPHONES: General Line 0417 770500, Web: www.opm.go.ug, E-mail: ps@opm.go.ug

In any correspondence on this subject, please quote No: OPM/R/7

May 5th, 2025.

Nakimuli Shadiha shantra
Makerere University
Kampala

RE: **REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN KYANGWALI
REFUGEE SETTLEMENT KIKUUBE DISTRICT.**

Reference is made to your letter dated 5th May, 2025, requesting for permission to conduct research in Kyangwali refugee settlement.

This is to inform you that permission has been granted to you to conduct research in Kyangwali refugee settlement, with the title **Access to water and its impact on health of Refugees in Kyangwali refugee settlement, document the status of water availability, functionality, and accessibility, and examine how refugees perceive water quality and how these perceptions shape the water usage behaviours.** Additionally, the research will analyse how access to water impacts the health of refugees living in the refugee settlement.

The is scheduled from May 8th, 2025 to June 6th 2025.

The settlement authorities are requested to accord you the necessary assistance.


Douglas Astimwe
FOR: PERMANENT SECRETARY
DEPARTMENT OF REFUGEES
DWA

CC: Refugee Desk Officer Hoima
✓ CC: Settlement Commandant Kyangwali Refugee Settlement
CC: File: Ref:R/160/230/01

OPM Vision: A Public Sector that is responsive and accountable in steering Uganda towards rapid economic growth and development.

Appendix 3 Photos from the field study

A) Field photos of some of the available water sources in Kyebitaka Village



A man fetching water to sell to others



One of the broken taps in the settlement



Trucks used to move water to the tanks in the Settlement

B) Field photos on who collects water



Children on the way to fetch water in Rwenyewawa

Appendix 4 Consent Form

The consent form for the study was meant to examine the impact of access to water on the health of refugees in Kyangwali Settlement.

Researcher: My name is Nakimuli Shadiha Shatrah, a student of Makerere University-Kampala pursuing a Master of Arts degree in Sociology. Email: nakimulishadiha25@gmail.com Telephone: 0703783693.

Karatasi ya makubaliano ya iyi utafiti kuhusu matokeo ya kuchunguza ya upatikanaji wa maji kwa afya ya wakimbizi katika campu ya kyangwali.

Mtafiti: Jina yangu ni Nakimuli Shadiha Shatrah, mwanafunzi wa Makerere University-Kampala anayefuata masomo ya hali yajuu Master of Arts degree in Sociology. Email: nakimulishadiha25@gmail.com, Namba ya simu: 0703783693.

Purpose: This study is conducted in partial fulfilment of the requirement for the award of a Master of Arts Degree in Sociology of Makerere University.

Sababu/ Kusudi: *Iyi Utafiti inafanywa kwakumaliza sehemu enye ina itajika kumaliza Masters ya Arts Degree ya Sosholojia ya Makerere University*

Invitation: You are being asked to participate in this study (30 to 45-minute questionnaire) because you were identified as someone who has firsthand knowledge about the study topic and who has experience with the study topic in the past year. To participate in this study, you must have one of the following attributes: be 18 years old or older and live in Kikuube district, be a community leader, or work with a refugee-related organization/institution.

Mwaliko: *Unaombwa kushiriki katika utafiti iyi (dakika 30 hadi 45) kwa sababu ulitambuliwa kama mtu ambaye ana ujuzi/informatio wa kibinafsi kuhusu mada ya utafiti na ambaye ana zoeya na mada ya utafiti katika mwaka enyeilipita. Ili kushiriki katika utafiti iyii, lazima ukuwe na ibibitu: uwe na miaka 18 au zaidi na uishi katika eneo ya Kikuube, uwe kiongozi wa communite au unafanye kazi na shirika/onje ya wakimbizi.*

Potential risks: While participating in this study, you may feel uncomfortable or upset answering some questions about the impact of access to water on the health of refugees in Kyangwali Settlement. You don't have to answer any questions that make you feel uncomfortable. You can choose to leave early, and there will be no negative consequences. After our discussion, I will also give you and others who participate in this study a list of community agencies where you can find emotional and social support if you need any support.

Hatari zinazoweza kutokea: *Unaposhiriki katika utafiti iyi, unaweza kujisikia kukosa raha au kusirika wakati ya kujibu baadhi ya maswali kuhusu matokeo ya kuchunguza ya upatikanaji wa maji kwa afya ya wakimbizi katika campu ya kyangwali. Haipashe kujibu maswali yoyote ambayo yanakufanya unasijisikie vibaya. Unaweza kuchagua kuenda mapema, na hakutakuwa na matokeo mabaya. Baada ya maongezi yetu, nitakupa wewe na wengine wenye wali shiriki katika utafiti iyi liste ya mashirika/onje ya communite kwenye unaweza kupata usaidizi wa kihisia/kimafikiri na musada ya communite ikiwa kama unata usaidizi yoyote.*

Potential benefits: Taking part in this study may not result in any immediate benefits. Findings from this research study will be used only for study purposes.

Faida/uzuri: *enyeinawezekana: Kushiriki katika utafiti iyii haiwezi kuletea faida haraka. Matokeo ya utafiti iyi itatumukishwa kwa ajili ya masomo.*

Confidentiality: Your name and that of your institution will not be used in any output of this research process. To ensure confidentiality, identifiers of professional positions will be removed. All your responses will remain anonymous. Only the researcher and the supervisors will have access to the

information recorded and transcribed. All research materials will be kept in a secure place under a key and lock, and the electronic copies will be secured under a password-protected computer. The data collected will be kept for a period of five years and then destroyed. The information will be recorded on a digital recorder for accurate transcription later. If you do not agree to be recorded, then written notes will be taken.

This discussion will be audio recorded to enable us to discuss. Do you agree?

- ☐ I agree
☐ I disagree

Usiri: Jina lako na la shirika/ongea yako halitatumika katika matokeo yoyote ya utafiti utafiti. Ili kuhakikisha usiri, vitambulisho ya wakubwa itatolewa. Majibu yako yote yatabakia bila majina. Mtafiti na wasimamizi pekee ndio wataweza kufikia taarifa/habari iliyorekodiwa na kuandikiwa. Bitu yote ya utafiti zitawekwa mahali muzuri chini ya ufunguo na kufuli, na habari enye itakuwa kwa kompyuta zitalindwa na neno siri ama pasiwadi. Data iliyokusanywa itawekwa kwa muda wa miaka mitano na kisha iharibiwa. Taarifa/habari iyo itarekodiwa kwenye kinasa sauti cha dijitali kwa kupata taarifa muzuri baadaye. Kama haukubali kurekodiwa, basi maelezo yaliyoandikwa yatachukuliwa. Maongezi iyi yatarekodiwa kwa sauti ili kutuwezesha kuongea zaidi. unakubali?

- ☐ Nakubali
☐ Sikubali

Participation: Your participation in this study is voluntary. You can choose not to participate, or you may withdraw at any time.

I have had the opportunity to discuss this study, and the researcher has answered my questions to my satisfaction. I consent to take part in the study with the understanding that I may withdraw at any time. I voluntarily consent to participate in this study.

Yes.....No.....

Ushiriki: Kushiriki kwako katika utafiti iyi ni kwa bilamakazo. Unaweza kuchagua kutoshiriki, au unaweza kutoka wakati wowote.

Nimepata fursa ya kuongea kuhusu utafiti iyi, na mtafiti amejibu maswali yangu kwa boga yangu. Ninakubali kushiriki katika utafiti kwa maelewano kwamba ninaweza kutoka wakati wowote. Ninakubali bilamakazo kushiriki katika utafiti huu.

Ndiyo.....Apana.....

Appendix 5: Focus Group Discussion (FGD) Guide

Introduction/ Utangulizi (5 minutes/ Dakika 5)

Facilitator/Mwongozi: Welcome participants. Thank you for agreeing to participate in this important discussion. / Karibu washirika. Asante kwa kukubali kushiriki katika maongezi ya muuimu.

Explanation: Briefly explain the purpose of the focus group: "We are here today to discuss your experiences with accessing water in Kyangwali Settlement. We are interested in understanding the challenges you face, the quality of water you use, and how water access impacts your health and daily life."

Maelezo: Eleza kwa ufupi sababu ya maongezi ya kikundi: "Tuko hapa leo kwongea kuhusu uzoefu/experience wako wa kupata maji katika kampu ya Kyangwali. Tunataka kuelewa/kujuwa changamoto/shida unazopata, ubora/ uzuri wa maji unatumikisha, na jinsi upatikanaji wa maji unaleta matokeo yoyote kwa afya yako na maisha ya kila siku."

Confidentiality: Emphasize that all responses will be kept confidential and used only for research purposes. No names will be associated with the comments.

Usiri: Waakikishiye kama majibu yote yata kwekwa kwa siri na yatatumikishwa kwa sababu ya utafiti pekee. Hakuna majina yata onekana kwa maoni/maandiko

Ground Rules/ Byakufatilia:

Everyone's opinion is valuable/ Majibu/maoni ya kila mtu ni ya muimu.

One person speaks at a time. /Mtu mmoja anaongea kwa wakati mmoja.

Respect different viewpoints. / Ishima kila maoni/ mawazo tafauti

There is no right or wrong answers / Kakuna majibu ya muzuri au ya mubaya. We want your honest opinions/ Tunataka majibu/maoni yako ya haki au enye unaaminia.

A Form for socio-demographic characteristics of FGD participants/ Fomu ya sifa za kijamii-demografia za washiriki wa FGD

FGD_NO/ FGD_Namba	Social category/ Kategori ya ki eneo: (e.g/ kwa mfano. An FGD Refugee leaders/ Maongezi ya kikundi ya vyongozi ya wakimbizi)
Name of group/Jina la kikundi (e.g./kwamufano Female FGD/FGD ya wanamuke)	

Date/ Tarehe		District/ Disitriciti	
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Place of discussion / Fasi ya maongezi	(e.g/ kwamufano. community hall/ Nyumba ya Communitie)
--	--

Moderator/Muongozi	Name/Jina or Code/Kode
Recorder/note-taker/ Mtu mwenye ata rukodi/ mwenye ataandika	

Recording system/sistime ya luriko (to be linked to audio file/ itawekwa kwa fayilo za kisauti)	(e.g./kwamufano digital recording/ kurikodi wa kidigitali + notes taking/ kuandiika)
---	--

Time/Wakati	Start/ Kuanza:	Finish/ Maliza:	Duration/Muda:
--------------------	-----------------------	------------------------	-----------------------

Participant identifier/ Kitambulisho cha mshirika

No/ Na mb a	Participants number/ Namber ya mushirika (e.g/kwamufano. 01/01)	Sex/Ji nsia M/F	Age/ Miak a/Um ri	Education/ Masomo	Religion/ Dini	Ethnic group/ Kikundi cha kikabila
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						

Icebreaker Question (5 minutes)/ Maswali yak u toshamuchoko

What is the first thing that comes to mind when you hear the word 'water'? /Ni kitu gani cha nkwanza kyenye china kuja mumawazo yako wakati una sikia neno 'maji' (*Encourage quick/Majibu ya haraka, one-word answers/ neno moja ya majibu*)

Discussion Topics/ Makubwa ya maongezi

1. Nature of Water Access/ Hali ya Upatikana wa maji/mayi, Availability/ Upatikanaji, Functionality/Utendaji, and Accessibility/Ufikivu (30 minutes/ Dakika 30)

Main Question/ Swali kuu: What are the main sources of water in this settlement, and how reliable are they? / Fasi gani kwenye wana toshaka mayi/maji san asana katika iyi kampu, na munategemeya ili fasi kiasi gani?

Probing Questions/ Maswali ya Kuchunguza:

- ✓ Where do you get your water from, and how far do you have to travel? / Unatoshaka wapi maji/mayi yako, Na una takiwa ku tembeya umbali wa lengo gani?
- ✓ How often is water available at your primary source? /Maji/mayi yana patikana mara ngapi kwenye unatosha maji/mayi sana sana (e.g/kwamufano., daily/kila siku, weekly/ kila wiiki, seasonally/kwa sizoni)/
- ✓ How long do you typically wait in line to collect water? / Kwakawayida, kama uko nangoya kushota mayi una ngoyaka kwa muda gani?
- ✓ Are the water sources/ Kweli fasi yakutosha mayi/maji (boreholes/ robine, taps/tapu, etc/nabyengine.) functioning properly/Vina fanyakazi genzi binapasha fanya? How often do they break down? / Bina aribikaka mara ngapi?
- ✓ Who is responsible for maintaining the water sources, and how effective are they? / Ninani ana pasha tunza/ onelea fasi ya maji/mayi, na bitatumikaka kwa kiasi gani?
- ✓ Are there enough water points for everyone? / Kuko fasi yakutosha mayi/maji yakutosha If not/Kama hapana, what is the impact of that/ Ina leta matokeo gani?

2. Perceived Water Quality and Utilization (25 minutes)/ Ubora/Uzuri wa maji/mayi na matumizi yenye ina tulukiwa

Main Question/ Swali kubwa: How would you describe the quality of the water you typically use? / Unaweza kweleza uzuri/ubora wa maji/mayi enye unatumikisha kwa kawaida

Probing Questions/Maswali ya kuchunguza:

- ✓ What are your concerns (if any) about the water quality/ Uko na wasiwasi (kama iko) kuhusu uzuri wa maji/mayi (e.g/ kwamufano., taste/onja, smell/harufu, appearance/mwonekano)?
- ✓ Do you treat your water before drinking it? If so, how? /Una tunzaka maji/mayi nahawuya kunywa? Kama nivile, namna gani?
- ✓ Why do some people treat water and others do not? / Juyanini wengine wana tunzaka maji/magi na wengine hawatunzake?
- ✓ Have you ever stopped using a water source due to concerns about its quality? Please explain. / Ushakawauyi ku acha kutumikisha au kushota maji fasi Fulani kwaju maji haitakate/haiku mzuri
- ✓ What would make you feel more confident about the water quality? / Kitugani kyenye kinaweza acha unagisikia hauogope/muzuri sana kuhusu uzuri wa maji/mayi?

3. Social Arrangements and Water Access (25 minutes)/ Main Question/ Maswali kubwa: Can you describe the social dynamics around water access in your community? / Unaweza kweleza bitu by communite by nye bina geukaka kuhusu upatikanaji wa maji/mayi

Probing Questions/ Maswali ya kuchunguza:

- ✓ Are there specific groups / Kweli kuko makundi speciale (e.g/kwamufano., women/ wanamuke, elderly/wazee, disabled/walemavu) who face greater challenges accessing water? Why? / benye banapitia mashida wakati ya kupata maji/mayi? Kwanini?
- ✓ Are there informal or formal rules/norms about who gets water first or how much they can take? / Kweli kuko masheria/ makubaliano kuhusu mwenye anapasha pata maji/maji wakwanza na anapasha bepa maji/mayi ya kiasi gani?
- ✓ Are there conflicts or tensions related to water access? / Kweli kuko ma conflee au mivutano/kugimbana enye inahusiana kupata maji/maji? How are these resolved? / Bina tatuliwaka/ malizaka namna gani?
- ✓ How do you ensure that the most vulnerable people in your community access water? / Kweli muna akikishaka namna gani wasiogiweza/ venerable wana pata maji/mayi katika communite yako?
- ✓ Are there any community initiatives to improve water access? / Kweli kuko mipango / bitendo katika communite yaku akikisha kupata maji/mayi inakuwa mzuri?

4. Impact of Water Access on Health (25 minutes)/ Matokeyo ya upataji wa maji/mayi kwa Afya (dakika 25)

Main Question/ Maswali kubwa: Have you or members of your household experienced any health problems that you believe are related to water quality or access? / Kweli wewe au familia yako ishakawayi pata shida kuhusu afia/ magonjwa enye muliwaza inatokea kwa uzuri/ubora wa maji/mayi au upatakanaji

Probing Questions/Maswali ya kuchunguza:

- ✓ What types of health problems have you experienced / Ni aina gani matatizo/shida ya kiafya patana nayo (e.g/kwamufano., diarrhea /kuhara, skin infections/ magonjwa ya ngozi)? Can you estimate the frequency? / Unaweza waza mara kwa mara
- ✓ Do you think water scarcity affects hygiene practices? If so, how? Unafikiria maji/mayi kukuwa kidogo inaweza ku sumbuwa usafi/ngia za usafi?
- ✓ Have you noticed any changes in health regarding water access since arriving at the settlement? Umeona mabadiliko yoyote yambo ya afia kuhusu upatikanaji wa maji/maji tangia ufika kwa iyi kampu?
- ✓ What improvements in water access would have the biggest impact on your health? / Ni mabadiliko gani kuhusu upatakanaji wa maji/mayi enye inaweza ku leta matokeo katika afya yako?

5. Wrap-up/ Kumalizia (5 minutes/Dakika 5)

Final Question/ Swali ya mwisho: Do you have any other comments or suggestions regarding water access in Kyangwali Settlement? Uko na mashauri au maoni angine kuhusu upatikanaji wa maji katika campu ya kyangwali?

Thank You/ Asante: Thank participants for their time and valuable contributions. / Shukuru washirika kwa muda wao na majibu muhimu.

Appendix 6: Key Informant Interview (KII) Guide

Key informants/ Wapana majibu wa muhimu - Local government officials/ Wakubwa wakutoka kwa government (e.g/kwamufano., Office of the Prime Minister representative/ Mtu kutoka kwa ofisi/biro ya OPM); UNHCR/WASH sector coordinators/ Muongozi wa maji na usafi katika shirika ya UNHCR; Health professionals in the refugee settlement/ Waganga katika kampu ya wa kimbizi; Community leaders/ Waongozi wa komunitte (e.g/kwamufano., water committee representatives/ commiti ya wenye wana shimamia mayi/maji)

Introduction/ Kugitambulisha/mwanzo:

Interviewer/Mwoliza maswali: Thank you for agreeing to this interview. Your insights are valuable for understanding water access issues in Kyangwali Settlement.

Mwoliza maswali: Asante kwa kukubali mwali hii. Maarifa/majibu yako ni muhimu kwa kuelewa maswala ya upatikanaji wa maji katika kampu ya Kyangwali.

Purpose: We aim to explore how social arrangements influence water access, the nature of water availability and quality, and the impact of water access on health among refugees in Kyangwali.

Kusudi/Sababu: Tunataka kuchunguza jinsi mipangilio ya kijamii/communitte inaweza leta matokeo katika upatikanaji wa maji/mayi, hali ya upatikanaji na ubora/uzuri wa maji/mayi, na matokeo za upatikanaji wa maji/mayi kwa afya ya wakimbizi huko Kyangwali.

Confidentiality: Assure the informant that their responses will be kept confidential and used solely for research purposes.

Usiri: Muhakikishie mupana majibu ya muhimu aseme majibu yao yatakuwa siri na yatatumika kwa sababu ya utafiti pekee.

Duration: The interview will take approximately 30-45 minutes.

Muda: Maswali yatachukua ma dakika 30-45.

Section 1/Sehemu ya 1: Background Information/ Habari ya kuhusu matokeo

No/Namba	Background information/ Habari ya kuhusu matokeo	Response /Majibu
i.	Date of interview/ Tarehe ya maswali	
ii.	Sex of informant / Jinsia ya wapana majibu ya muhimu	
iii.	Informant's position/ Positio/kazi ya mupana majibu yamuhimu	
iv.	Interviewer's code/ kodi/namba ya mupana majibu ya muhimu	

Section 2/ Sehemu ya 2: Nature of Water Access/ Hali ya upatikanaji wa maji/mayi, Availability/ Upatikanaji, Functionality/ Utendaji au kutumikisha maji/mayi, and Accessibility/ Kufikia maji/mayi

2.1 What are the primary sources of water available to residents of Kyangwali Settlement?

Nifasigani kwenye wakaagi wa Kyangwali wanatoshaka mayi/maji sana sana?

Probing Questions/ Maswali ya kuchunguza:

How reliable are these sources in terms of availability?

Ezima fasi kwenye mayi/maji inatoshewaka inategemewa kwa kiasi gani?

What challenges do residents face when accessing these sources?

Ni mashida/changamoto gani enye wakimbizi au wa kaagi wana kutanana nayo wakati ya you shota mayi/maji?

2.2 Can you comment on the functionality of existing water infrastructure?

Unaweza kutuambia maoni yako kuhusu utendakazi/genzi bitu bya mayi bina tumikaka bye nye biko umu?

Probing Questions/ Maswali ya kuchunguza:

How often do water points break down, and who is responsible for repairs?

Ni mara ngapi fasi ya mayi/maji inaaribikaka na nani mwenye ano usika na kuyitengeleza?

Are there enough water points to meet the needs of the population?

Kweli Kuko fasi yakutosha mayi/maji enye inatosha/eneia kwa watu /wakaagi wote?

Section 3/Sehemu ya 3: Perceived Water Quality and Utilization/ Uzuri/ubora na matumizi ya maji/mayi

3.1 How would you assess the quality of drinking water available in Kyangwali?

Unawezaje kujuwa uzuri wa mayi/maji ya kukunywa na uwepo/kama mayi iko kwa kyangwali?

Probing Questions/ Maswali ya kuchunguza:

What specific concerns do residents have about water quality?

Waakagi biko na wasiwasi/malalamiko gani kuhusu uzuri/ibora wa maji/mayi?

Do you believe that perceived quality affects how people use or treat their water?

Unaamini kuwa uzuri/ubora wa maji/maji una oneshiaka genzi batu bana tumikisha au tunza mayi/maji yao?

3.2 What practices do residents adopt to ensure safe drinking water?

Ni njia gani waakaji wanatumikisha kuakikisha bana pata mayi/maji nzuri yakukunywa?

Probing Questions/ Maswali ya kuchunguza:

Are there common methods of treating or filtering water before consumption?

Kweli kuko njia za kawaida zaku tunza wala chuya mayi/maji kabila kuyitumikisha?

What barriers exist that prevent people from treating their drinking water?

Nibitu gani byenye bina zuyia watu kutunza mayi/maji yakukunywa/ bibyenye binaacha batu baha tunza mayi/maji?

Section 4/ Sehemu ya 4: Social Arrangements and Water Access/ Mipango ya ki communitte/eneo na Upatikanaji wa Maji

4.1 Can you describe the social dynamics that influence water access in Kyangwali?

Unaweza kueleza bitu bya ki communitte byenye bina ongoza/leta matokeo kwa Kyangwali?

Probing Questions/ Maswali ya kuchunguza:

Which groups within the community face the most challenges accessing water?

Ni vikundi gani katika communitte/eneo byenye bina kutanana na shida san asana kuhusu ku pata mayi?

Are there specific roles or responsibilities assigned to individuals or groups regarding water collection and management?

Kuko majukumu au responsibilite speciale zenye zilipatiliwa na mtu binafsi au vikundi kuhusu kukusanya au kushota maji/maji na kuongoza?

4.2 How do community norms or practices affect equitable access to water resources?

Maoni au makazi ya ki communitte/eneo inaleta matokeo namna gani kuhusu upatikanaji wa maji/maji

Probing Questions / Maswali ya kuchunguza:

How are conflicts over water access typically resolved?

Ma confllee/matatizo/kugombana kuhusu upatikanaji wa maji/maji unatatuliwaka/unamaliziwaka namna gani?

What community initiatives exist to improve water access, and how effective are they?

Ni mipango gani ya ki communitte/eneo enye iniwekwa ku akikisha upatikanaji wa maji/maji unakuwa muzuri, bina fanya kwa kiasi gani?

Section 5/Sehemu 5: Impact of Water Access on Health/ Matokeo ya upatikanaji wa maji/maji kwa Afya

In your experience, how does access to clean and safe water impact public health in Kyangwali?

Kwa uzeofu/ experience yako, upatikanaji wa maji/mayi safi/takata na salama unaweza ku leta matokeo gani kwa afya ya watu kwa Kyangwali

Probing Questions/ Maswali ya kuchunguza:

What measures could be taken to improve health outcomes related to water access?

Ni hatua gani zinaweza kuchukuliwa ili kubadilisha/kufanya muzuri matokeo ya afya kuhusu upatikanaji wa maji/mayi?

How has the community responded to health challenges associated with inadequate water supply?

Ni namna gani communitte/eneo ime wezana na mashida/machangamoto za kiafya zenye zinahusu maji/mayi kukuwa kidogo?

Section 6/ Sehemu ya 6: Conclusion/Kumalizia

Is there anything else you would like to add regarding water access in Kyangwali Settlement that we haven't discussed?

kuko kitu kyengine ungependa kuongeza kuhusu upatikanaji wa maji/mayi katika kampu ya Kyangwali ambalo hatuja ongeoko?

Do you have any recommendations for improving water access and quality for refugees in this settlement?

Uko na mapendekezo/ mashauri yoyote ya kuboresha/kufanyamuzuri upatikanaji wa maji na ubora/uzuri kwa wakimbizi katika kampu iyi?

Thank the informant for their time and valuable insights/. Shukuru mupana majibu ya muhimu kwa muda yao na majibu/mashauri/maoni muhimu.

Appendix 7: Household Questionnaire

Researcher: Nakimuli Shadia Shatrah

Institution: Makerere University

Date:

Mtafiti: Nakimuli Shadia Shatrah

Masomo/shirika: Makerere University

Tarehe:

Purpose: This questionnaire aims to gather information on water access, quality, and its impact on the health of refugees in Kyangwali Settlement. Responses will remain confidential and will be used strictly for academic research.

Kusudi/Sababu: Maswali ya mungini hii niya kukusanya taarifa/habari kuhusu upatikanaji wa maji, ubora/uzuri, na matoleo kwa afya ya wakimbizi katika campu ya Kyangwali. Majibu yata kuwa siri na yatatunika kikamilifu kwa utafiti wa kimasomo

Instructions:

- 1) Circle or tick the appropriate number
- 2) Circle the code and fill the answer into the next row (including code Other)
- 3) Fill in the answer in the blank space. Answer should be complete and understandable by another person
- 4) For numbers, write the actual figure
- 5) Multiple response questions: Probe or not probe
- 6) Skip the question and go to the next relevant question

The primary respondent should be the Head of the Household. If is not at home, then interview the spouse, but first ask whether s/he has information concerning water access, quality, and its impact on the health of refugees in Kyangwali Settlement.

Maagizo:

- 1) *Weka kiviringo au uweke alama kwenye namba inayofaa*
- 2) *Zungushia code/namba na ujaze jibu kwenye safu/fasi inayofuata (pamoja na namba nyingine)*
- 3) *Jaza jibu katika nafasi kwenye hakunakitu. Jibu linapaswa kuwa kamili/muzuri na kueleweka na mtu mwingine*
- 4) *Kwa namba, andika enyewe*
- 5) *Maswali mengi ya majibu mengi: Chunguza au usichunguze*
- 6) *Ruka swali na uende kwa swali linalofata*

Mujibu maswali mukubwa anapasha kuwa Mkubwa wa kunyumba. Kama haiku nyumbani, basi oliza bibiyake, lakini kwanza muulize kama ana habari kuhusu upatikanaji wa maji, ubora na matoleo kwa afya ya wakimbizi katika campu ya Kyangwali.

Researcher's Identifiers/ *Vitambulisho vya Mtafiti*

a.	Name of the Researcher/ <i>Jina La Mtafiti</i>	
b.	Telephone number/ <i>Namba ya simu</i>	
c.	Date of interview/ <i>Tarehe ya ma swali</i>	
d.	Name of the Local Council Guide <i>Jina la Mwongozi wa coucil</i>	
e.	Telephone Number of the Guide <i>Nambaya simu ya mwongozi</i>	

Location Identifiers/ *Vitambulisho vya Sehemu/fasi*

f.	District/ <i>Disitrikiti</i>	
g.	Sub-County/ <i>Kaunti Ndogo</i>	
h.	Parish/ <i>Parakia</i>	
i.	Village/Cell/ <i>Kijiji</i>	
j.	Household ID/ <i>Kitambulisho kya mungini</i>	

SECTION A: Socio-demographic Information of the respondent / *Taarifa za kijamii na kidemografia za mupana ma jibu*

1. Age/ *Miaka/Umri*:
1) 18-25 years/ *miaka* 2) 26-33 years/*miaka* 3) 34-41 years /*miaka* 4) 42-49 years/*miaka* 5) 50 years/ and above/ *miaka na zaidi*
2. Gender/*Jinsia*:
1) Male/ *Mwanaume* 2) Female/*Mwanamuke* 3) Other/*Nyingine* (Specify/*Taja*) _____
3. Nationality/*Utaifa*:
1) Congolese/*Wakongo* 2) Rwandese/ *Wanyarwanda* 3) Burundian /*Warundi* 4) South Sudanese /*Wasudane*
5) Other/*Nyingine* (Specify/*Taja*) _____
4. Level of Education/ *Nivo ya Masoomo*:
1) No formal education/ *hakuna elimu ya kisasa* 2) Primary/ *primere* 3) Secondary/*Sekondere* 4) Tertiary/ *Masoomo ya juu*
5. Household Size/ *Ukubwa wa mungini*:
1) 1-3 member/ *wanafamilia* 2) 4-6 member/*wanafamilia* 3) 7-9 members/*wanafamilia* 4) More than 10 members/*wanafamilia*
6. How long have you lived in Kyangwali Refugee Settlement?
Umeishi kwa kampu ya wakimbizi kyangwali kumaliza muda gani?
1) Less than 1 year 2)/*chini yam waka 1 na 2* 1-2 years 3)/ *miaka 1,2 hadi 3* 3-5 years / *miaka 3 hadi 5*
4) More than 5 years/ *Zaidi ya miaka 5*
7. Religion of the respondent/ *Dini ya mupana ma jibu*
1. Catholic/ *Wakatoliki* 2. Anglican/ *Waanglikana* 3. Orthodox/ *Waorthodoksi* 4. Pentecostal/ *Wapentekoste* 5. Moslem/ *Waislam* 6. Adventist / *Waadventista*
7. Other /*Engine*(Specify/*Taja*) _____
8. Marital status of the respondent/ *Hali ya ndoa ya mupana ma jibu*
1. Never married/ *Sija olewa*
2. Married/Cohabiting (Monogamous)/ *Kuo/Kuishi pamoja (Make/bibi mmoja)*
3. Married/Cohabiting (Polygamous) /*Kuo/Kuishi pamoja (Wake/wabibi Zaidi ya moja)*
4. Separated/Divorced/ *Kuachana/kutaliwa*
5. Widowed/Widower/ *Mjane/ Bwana mwenye alikufisha bibi*
6. Other / *Engine* (Specify/ *Taja*) _____

SECTION B: Water Access/*Upatikanaji wa Maji*

9. What is the main sources of water available to your household?/ *Ni vyanzo gani vya maji/ Munatoshaka wapi maji/maji kwa kimungini yako?*

a) Type of water/ <i>Aina ya maji / (Majibu ya mingi, tia kiviringo kwa code/numba)</i>	Wet Season/ <i>Sizoni ya mvua</i>	Dry Season/ <i>Sizoni ya juwa</i>
Vendor/ <i>Mchuruzi</i>		
House connection/ <i>Mayi enye inaunganishwa kwanyumba</i>		
Personal/Private yard tap/ <i>Tapu ya kibinafusi</i>		
Public yard tap/ <i>Tapu ya communite/ki eneo</i>		
Public stand post/ <i>Nafasi ya kusimama ya ki eneo</i>		
Public borehole/ <i>Robine</i>		
Privately owned borehole/ <i>Robine ya kibinafusi</i>		
Protected spring/well/ <i>Kitoro enye ina lindwa au ya muzuri</i>		
Unprotected spring/well/ <i>Kitoro enye hailindwa au haiku ya muzuri</i>		
Public Hand dug well/shadouf/ <i>Kitoro enye ili kimbwa ya eneo</i>		
Rain water harvesting/ <i>Ku lembeka maji ya mvua</i>		

7. River/Mto, lake/bahari, stream/ mkonde, swamp/kitooro enye ikoamo bimeya/		
8. Valley Dam/ Kitooro enye iko kubonde		
9. Gravity Feed/Chakula cha Mvuto		
10. Pond/ Kitoro ya kidogo		
11. Do not know/Sijui		
12. Others/Byengine		

10. Do members of the household have to walk to the water source? / Wanafamilia yako bana pasha tembea kwenye chyanzo kiyamagi iko?

1. Yes/Ndiyo 2. No/Apana (Skip to Q11/ Ruka hadi Q11)

10.1. If yes, for a round trip, how many km to the nearest water source that the household usually use for domestic consumption?

Kama ndiyo, kwa safari ya kwenda ku mayi na kurudi, ina bebeba kilomita ngapi wakati yakushotamayi yakutumikisha kunyumba?

a) Wet Season/Sizoni ya mvua	b) Dry Season/ Sizoni ya juwa

10.3. How many times is water collected per day? Maji/mayi inashotewaka marangapi kwa siku?

11. Does the household experience any problems in accessing the water source? / Familia ina pataka matatizo/shida wakati yaku kwenda kupata chanzo cha maji/kushota mayi?

1. Yes/Ndiyo 2. No/Apana (Skip to Q11.2 /Ruka hadi Q11.2)

11.1. If yes, what are the key problems the household experiences in collecting the water?

Kama ndiyo, ni matatizo/shida gani muhimu/yanguvu enye mugini yak o inapata wataki yaku shota mayi/maji?

- Low yield (flow)/delay at the water source/ Mayikidodo (mavuno kidogo)/ Kuchelewa kwenye banashotiaka maji/mayi
- Water dries up during the dry season/ Maji/mayi kukauka wakati ya sizoni ya juwa
- Long distance to the water source/ Mwendo/distanci ya mbali
- Loss of time in search of water/ Kupoteza muda wakati yakutafuta maji/mayi
- Loss of time for school-going children/ Kupoteza wakati wawato wenyewana endaka kwa masomo
- High cost of water (from vendor or at the source)/ Gharama/beyi kubwa ya maji/mayi(kwa muuzaji au kwa maji)
- Children exposed to risks while searching for water/ Watoto wanakabiliwa/ jongelewa na hatari wakati wa kutafuta maji/mayi
- Women and girls are exposed to sexual harassment while fetching or searching for water/ Wanawake au wasichana wanakabiliwa/jongelewa na unyanyasaji/violance wa kijinsia wakati wa kuchota au kutafuta maji/mayi
- Gender-based violence due to delayed return from water sources/Ukatili wa kijinsia kutokana na kuchelewa kurudi kutoka kwenye vyanzo vya maji/mayi
- Poor hygiene practices (infrequent washing of hands and body, bathing, washing of clothes) / Uchafu (kutoku nawa mwili na mikono mara kwa mara, kuoga, kuosha nguo/kufula)

11.1. Other/Byengine (specify/Taja) _____

11.2. If not/ Kama haiku ivyo, why/ kwa nini? _____

12. For those who experience, limited access, how do you cope with water shortages Kwa wale wanaopata shida ya kukuwa na maji/maji kidogo, muna kabilianaka au kuwezanana ile shida ya maji kukuwa kidogo namna gani

- Reduce consumption/ Punguza matumizi
- Use alternative sources / Tumikisha namna engine ya kupata maji
- Store water / Chunga maji/mayi
- Borrow from neighbours / kukopesha kwa wagirani
- Other /byengine (specify/ taja)

SECTION C: Perceived Water Quality/ Uzuri wa, maji/mayi unaoonekana

13. If water is collected, who collects water on a regular basis in this household? *Kama maji/mayi ina kusanywa, ninani mwenye ana kusanyaka mayi/maji*

1. Woman/ *Mwanamuke* 2. Man/ *Mwanaume* 3. Girl child / *mtoto musichana* 4. Boy child/ *mtoto kijana* 5. Vendor/ *Muuzaji/muchuruzi* 6. Other / *byengine*

14. Do you use any method to treat the water for human consumption? *Una tumikisa njia yoyote kutunza maji/mayi ili batu batumikishe ile mayi*

1. Yes/ *Ndiyo* 2. No/ *Hapana* (*Skip to Q16/ Ruka hadi Q16*)

15.1. If yes/ *Kama ndiyo*, which method/ *ni njia gani*?

1. Boiling/ *Kuchemsha/kupiga* 2. Chlorine / *Klorini* 3. Wait to settle / *Subiri maji/mayi itulie* 4. Water filter cloth/ *Kutumikisha nguo kutosha uchafu mumayi* 5. Other/Byengine (specify/Taja) _____

15.2 If you use any water treatment method, where do you store the water for drinking?

Kama unatumikisha njia ya kutunza maji/mayi, Unachunguka mayi yakukunwa wapi? (tazama/ona)

1. Water pot that is covered/ *Chungu cha maji/maji kyenye kimefumikiwa* 2. Water uncovered/ *Maji bila kufunikwa* 3. Special jerry can / *Bido ya kutakata ya kuwekamayi* 4. Jerry can that fetches water/ *Bido ya kawayida enye inatumikishwa kushota mayi* 5. Refrigerator / *Firigi*

16 16 Kulingana na uzoefu wako/ *experience wako*, unajuwaka ubora/uzuri wa maji yako kwa kutumikisha ibi byenye binafata? (*Weka chaguo linalofaa zaidi kwa kila moja.*)

Indicator/ Kyakutumikisha	Very Good/ Mzuri sana	Good/Mzuri	Neutral/	Poor/ Mubaya	Very Poor/ Mubaya sana
Taste/ <i>Kuonja</i>	☐	☐	☐	☐	☐
Color/ <i>Rangi</i>	☐	☐	☐	☐	☐
Smell/ <i>Kunusa</i>	☐	☐	☐	☐	☐

16.1 If the quality of water is considered to be poor or very poor (*Q16*), what is the cause of contamination?

Kama uzuri wamaji wako uko mubaya au mubaya sana (kwaswali ya 16), ni nini ina leta uchafu?

1. Algae/ *Mwani*
2. Rainwater seepage/ *Maji/mayi ya mvua yanayotiririka*
3. Underground contamination/ *Uchafu wa chini ya dongo*
4. Foliage (falling leaves)/ *Majani/mayani (majani/mayani enye ime anguka)*
5. Livestock droplets/ *matone/uchafu ya mifugo*
6. Human defecation/ *Kujisadia haja kubwa/ kunamba*
7. Other/ *Byengine* (Specify/ *Taja*) _____

17. If you perceive the water as unsafe, do you still use it?/ *Atakama unaona maji haiko muzuri/haitakate, bado itayitumikisha ?*

1. Yes/ *Ndiyo* 2. No/ *Hapana* (*Skip to Q18/ Ruka hadi Q18*)

17.1 If yes/ *kama ndiyo*, why/ *kwanini*?

1. No alternative/ *Hakuna kyakufana* 2. Too expensive to treat / *Beyi mingi yakutunza* 3. Other / *byengine* (Specify/ *taja*) _____

SECTION D: Social Arrangements on Water Access/ *Mipango ya kijami kuhusu Upatikanaji wa maji/mayi*

18. Are there specific groups in your community that face greater challenges accessing water? *kuna makundi katika jamii/ communitate yako ambayo yanapitia na changamoto /shida kubwa za kupata maji?*

1. Women/ *Wanawake*
2. Elderly/ *Wazee*
3. Disabled/ *Walemavu*
4. Children/ *Watoto*
5. Other/ *Wengine* (Specify/ *Taja*) _____
6. None/ *Hakuna* (*Skip to Q19/ Kuka hadi Q19*)

18.1. What are the main reasons these groups face challenges accessing water?

Ni sababu zani kubwa zinazo acha makundi haya kupatana na changamoto za upatikanaji wa maji?

1. Distance to water source/ Umabali wa chanzo cha maji
2. Lack of physical ability / Kukosa uwezo wa kimwili
3. Social norms or discrimination/ Kanuni za kijamii au ubaguzi
4. Limited availability of water/ Maji kidogo
5. Other/ Engine (specify/ Taga) _____

19. Are there any informal or formal rules/norms in your community about who gets water first?

Kuko sharia au makubaliano katika community yako kuhusu nani wakupata maji wakwanza?

- 1) Yes/ Ndiyo
- 2) No/ Hapana (Skip to Q20/ Ruka hadi Q20)

19.1 If yes, please describe _____

20. Do you believe that everyone in your community has equal access to water resources?

- 1) Yes (Skip to Q21)
- 2) No

20.1. If no/ Kama hapana, please explain why not / Tafadhali eleza _____

21. How effective do you believe community leadership has been in ensuring fair access to water?

Unaamini kuwa uongozi wa community/eneo walikuwa wa na akikisha kwa kiasi kidogo upataji wa maji/mayi inakuwa sawa sawa?

1. Very effective/ Sana Sana
2. Effective/ Sana
3. Somewhat effective/ Katikati/omwe kidogo
4. Not effective/ Hakuna/sio muzuri
5. Not sure/ Sijuwe

SECTION E: Impact of Water Access/ Matokeo wa upatikanaji wa maji kiafya

25 Have you or your family members suffered from waterborne diseases in the past 12 months?

Kweli wewe au wanafamilia wako muli gonjwaka magonjwa yakutokana na maji/mayi kwa miezi 12 ilipita?

- 1) Yes / Ndiyo
- 2) No/Hapana (Skip to Q26/ Ruka hadi Q26)

25.1.1 If yes /Kama ndiyo, what disease(s) did they suffer from? / Ni magonjwa gani bani jonjwa?

25.1.2 a) Diarrhea/ Kuhara b) Typhoid/ Tifoyidi c) Cholera/ colera d) Dysentery/ Kuhara damu e) Skin diseases / magonjwa ya ngozi

a) Other/ Byengine (Specify/ Taja) _____

26. How do waterborne diseases affect your household economically (e.g., medical expenses, lost workdays)?

Kweli magonjwa yakutokana na maji/mayi, ina tatizaka familia yako kwa njia ya ki pesa/kazi (kwa mfano, gharama/pesa za matunzo, kupoteza siku za kazi juyamagonjwa)?

End of Questionnaire/ Mwisho wa maswali

Thank you for your participation! Your responses will help improve access to water on hygiene and sanitation in Kyangwali Refugee Settlement.

Asante kwa ushiriki wako! Majibu yako yatasaidia ku badilisha upatikanaji wa maji/mayi na hali ya afya katika campu ya wakimbizi ya Kyangwali.